



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

Towards

Towards better health

better

The Dutch 2010 Public Health Status and Forecasts Report

health



Towards better health

The Dutch 2010 Public Health Status and Forecasts Report

F. van der Lucht and J.J. Polder

Towards better health

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Executive summary: Towards better health

Investing in health: possible, desirable, indispensable

According to this edition of the Public Health Status and Forecast Reports (PHSF), the health of the Dutch population is developing rather well. Dutch life expectancy has increased in recent years, but this is not a reason to put on the brakes. On the contrary! This forecast shows that investing in health is not only possible but even essential to the Dutch economy.

This report provides a lot of information on the health of the Dutch and the steps that need to be taken to improve it. It describes the results that have already been achieved and those that are expected to be achieved thanks to ongoing policy measures.

But above all, this forecast shows that the Netherlands can and must continue to invest in the health of its citizens. Because health is priceless, and because an ageing economy needs healthy citizens.

Dutch life expectancy is still lower than that of its neighbouring countries. The gap with countries such as Iceland, Switzerland, Spain, Sweden, France and Italy has not narrowed in recent years, while the Netherlands used to be a frontrunner. The life expectancy of Dutch women in particular is still far behind. There is also an alarming gap between people with a low education and people with a high education that is not narrowing despite the numerous measures that were implemented in the past.

The occurrence of unhealthy lifestyle habits is not or is only barely decreasing. Over the last decade, a small gain was only achieved in the area of smoking, but that doesn't change the fact that the Dutch still smoke more than people in their neighbouring countries. In addition, almost half

the Dutch are overweight, and some 10% are obese.

The standards for healthy nutrition and physical exercise are far from being met.

The already alarming gap between the life expectancy of people with a high education and people with a low education is twice as wide when the number of years a person can expect to live without physical limitations is examined. People with a low education live on average 14 years less without limitations than people with a high education. This gap has also not narrowed in recent years.

Investing in public health is investing in society and in the economy as a whole, and should therefore be high on the government's list of priorities.

The Dutch live long in good health

Dutch life expectancy still on the rise

Between 2003 and 2008, Dutch life expectancy increased by more than two years to 78.3 years for men and 82.3 years for women. This is the fastest increase since World War II and is higher than predicted in the last PHSF. But this recent increase is not unique to the Netherlands: other European countries are also experiencing a rapid increase in life expectancy. There are a number of reasons for this trend, not all of which are clear, but what we do know is that the falling mortality rate for cardiovascular diseases is a major contributor. Life expectancy is expected to further increase by six years by 2050.

Two more years in good health

The two years of life that were recently gained are largely spent in good health and without physical limitations. Nevertheless more and more people have one or more diseases at the same time and the number of people with a chronic disease will continue to increase. This has, however, not resulted in more physical limitations or a lower level of perceived health. The increase in the number of diseases is partly due to their early detection and partly due to improved survival. This produces a paradoxical trend: more disease and better health at the same time.

Lifestyle trends no longer bad

Dutch lifestyle trends are improving. After a period of stability, the percentage of smokers has again fallen. The number of drug abusers and problem drinkers is not increasing, and the trends in overweight are stabilizing. More people are exercising, and more people with high blood pressure or high cholesterol are receiving treatment.

Environment is increasingly safe

More and more environmental risks are being identified and dealt with. The number of road traffic casualties is still falling, and environmental health risks have not increased despite the growing environmental burden. More is also being discovered about the positive effects the environment has on health, not only in terms of the way the living environment is organized, but also in terms of the social environment.

Dutch society is healthy

The Netherlands is a prosperous country. The distribution of wealth has remained more or less equal and Dutch health care is one of the most accessible health care systems in the world. These are favourable social conditions for public health. And good public health has a positive effect on participation in social and economic in life.

... but it still needs to improve ...

Health gap is big and intractable

An ongoing cause for concern is that people with a low education die six to seven years younger than people with a high education. The gap is alarmingly wide and disappointingly intractable. At 14 years, the difference in life expectancy without physical limitations between people with a high education and people with a low education is even bigger. Despite all of the measures taken, the health gaps have not narrowed in recent years, and for some lifestyle factors, such as smoking, they have even widened. To narrow the gap, health policy must focus more on achieving results among people with a low education.

Life expectancy for women is still behind and the number of people with a chronic disease is increasing

Despite an increasing life expectancy, the Netherlands has still not regained its position among the top European countries mainly because of the lagging life expectancy for women. At 82.3 years, life expectancy for Dutch women is just above the average in the European Union. Life expectancy is increasing but so too is the number of Dutch people with a chronic disease. Thirteen percent of all Dutch people have a physical limitation, with functional limitations occurring most frequently. Today, one in three people with a chronic disease has two or more disorders and further increases are foreseeable.

Risk factors stabilize at an unfavourably high level

The trends in unhealthy lifestyles have stabilized, but they are still far too high, especially among people with a low education. Despite ongoing mass media campaigns, the number of problem drinkers and drug abusers is not falling, nor is the number of Dutch people who are overweight or obese: 40 to 50% of the Dutch suffer from overweight. One in nine people is obese, and among the 2 to 9-year-olds, one in seven children suffers from overweight. Things could be worse though, like in almost all of the neighbouring countries where these figures are even higher.

More than half the Dutch do not meet the Dutch standard for healthy nutrition, especially when it comes to the intake of fruit and vegetables. Almost half the Dutch do not meet the standard for healthy exercise, which recommends 30 minutes of moderately intensive physical activity every day.

After years of stagnation, the only number to fall in recent years is that of smokers. But with 27% of its population smoking, the Netherlands still performs badly. The target set by the minister to reduce the number of smokers to 20% by 2010 has not been achieved by far.

It is important to point out that unhealthy lifestyles often occur in combinations. Some of the Dutch, especially groups with little education, usually exhibit several forms

of unhealthy behaviour at the same time, regardless of their age.

New environmental risks require vigilance

The Dutch environment is safe and still improving, but new health risks are emerging, and infectious diseases have gained new importance in recent years. Diseases such as Q fever not only present a threat to public health, they also cause social upheaval because of the uncertainty they create and the far-reaching consequences they have on people's health and the farming industry. The same applies to impending pandemics. A safe and healthy environment requires vigilance and continual adaptation to new threats.

Participation of people with a disease or limitation is still lagging

A chronic disease is a major barrier to social participation, especially if the disease is paired with limitations. To increase participation, the environment must be more accessible and the personal capabilities of people with a chronic disease or limitation improved. Both the national and local governments can invest in and work together on ways to prevent limitations and reduce their impact. The economy also benefits from a society that is open to citizens with limitations and in which better medical aids are developed and made available for more people. In short, a society in which people can fully participate, irrespective of their disease or limitations. This should not only be seen as a luxury. Since the Netherlands is steering towards a period of ageing and a shrinking working-age population. All hands must be on deck in order to keep the economy going. For the Dutch government, investing in the health of the population means investing in society and the economy as a whole and is therefore a very high priority.

... and things can be improved

1. Health protection produces a lot of health

Health protection measures in the areas of hygiene, clean drinking water and better housing have played, and continue to play, an important role in the reduction of infectious diseases. The reduction of infectious diseases resulted in a sharp fall in mortality rates, which led to a considerable rise in life expectancy. Policy on working conditions has also contributed a lot, with exposure to health risks on the shop floor declining sharply in recent years. Another success in health protection is the reduction of road traffic casualties since the 1970s. In addition to legislation and its enforcement, and infrastructural measures, the increasing safety of cars and improved driving behaviour also helped. This underlines the importance of policy coherence. Health protection will

continue to be important, especially in a country as densely populated as the Netherlands, which has a lot of people, very high mobility and a lot of activity in a relatively small area. Innovation is a must.

2. Exploit unused potential of disease prevention

In the second half of the last century, disease prevention paid the biggest contribution to the increase in life expectancy with the introduction of vaccines, cholesterol and blood-pressure lowering drugs, and screening for certain types of cancer. Screening and early detection in youth health care can also be considered as successes, especially because of the high reach among the target group. Additional health gains can be achieved by exploiting unused potential in screening and vaccination.

3. Exploit the potential of health promotion

A lot of focus has been put on lifestyle changes since the last prevention policy paper was published. Key objectives have been defined with ambitious targets to reduce smoking, the harmful use of alcohol, overweight, diabetes and depression. There is, of course, a reason for this: there is a close relationship between today's major chronic diseases and people's behaviour. The focus on lifestyle and health promotion is therefore an obvious consequence of disease prevention. But lifestyle changes are not easy to make. A number of dilemmas come into play: citizens retain their freedom of choice, only a few intervention methods have been proven to be effective, and the institutional environment of health promotion is often counterproductive. This is why the effects of health promotion are marginal and a number of prevention targets have not been met. It also explains why there is a lot of room for improvement. Combinations of statutory measures, excise taxes, environmental interventions, and lifestyle interventions are all good candidates to achieve health gain. This implies a careful mix of national and local measures. More emphasis needs to be put on achieving results among people with a low education. Taking the lagging social determinants and the organization of the physical and social environment into account will certainly help the interventions succeed.

Public health policy in the long term

The Netherlands cannot move towards better health without making an effort. The will to do better is there, but there's also a lot to do. The policy outlook on health and prevention that the Ministry of Public Health issued in 2007 provides a good basis for further development: 'Be healthy, stay healthy'. This PHSF describes a number of long-term measures that can be taken to move towards better health.

Social action programme: strengthen the network approach

A network approach is a way of making progress in the complex environment of public health. In order for such an approach to be successful, field expertise and leadership are key in all areas. This is why this approach is also referred to as ‘concerted action’, namely a joint and coherent action programme that is based on the best available knowledge, in which all of the involved parties are represented and which has an unambiguous leadership. Decisive action and support must be in balance. ‘Concerted action’ is also a matter of perseverance and requires a sense of urgency, political will, involvement, a shared vision and the willingness to set one’s own interests aside. The Minister of Health, Welfare and Sport is the right person to initiate such an action programme.

Clear targets on all levels

A coherent national vision of public health should result in clear and achievable health targets with clear responsibilities on all administrative levels. The funding and implementation of each of the targets must be put in place. Some targets and responsibilities should fall under the public sector, others should fall under the private sector. Some responsibilities have to be taken at the national level, others can be left to local governments.

Levels of governance

Health promotion, aimed at changing the environment and lifestyle of citizens, needs national targets and frameworks just like health protection and disease prevention. A standard package for the health promotion activities should be developed and implemented by the Regional Public Health Services, as was the case for youth health care and environmental medicine. Local governments should only be assigned the responsibilities they can deal with. Regional reports will have to show which local prevention measures have been implemented, which citizens have been reached and how the measures affected health.

Consistent assessment

In order to achieve as much health gain as possible with scarce public funds, there is an increasing need to develop ways of assessing the interrelated costs, benefits and social advantages and disadvantages of prevention and health care. What justifies an investment in health care, and when would prevention be better? On balance, does an investment produce more health gain outside the health care sector or inside? The most effective solution is often found in the most unexpected area.

Knowledge agenda for better public health

A societal perspective on public health can only take shape if it is supported by strategic research. The importance of health for society and vice versa is evident, but how things

work is less obvious. The increasing complexity of public health issues increases the complexity of the solution strategies. In order to explore and develop fine-tuned solutions, strategic, multidisciplinary research involving professionals from inside and outside the field will be more than ever necessary. The Minister of Health, Welfare and Sport will also have to ensure that up-to-date information is available for the whole area of public health.

Public health policy in the short term

In the short term, additional health gain can be achieved by stepping up efforts in the areas that are doing well and making new choices in those that are not.

1. Cultivate and innovate universal prevention

Universal prevention consists of measures aimed at people that do not have a high risk of disease. Health protection, which falls under this category, is an essential part of prevention that is undervalued and deserves more praise. Universal prevention is not always recognized as such, but it is very important for public health. Innovation is also very important in particular in terms of public information and communication. New digital media will have to be used more than ever in order to reach target groups effectively.

More emphasis should be put on environmental change, for example, through the implementation of legal measures, as they appear to be more effective than health promotion activities. In terms of behavioural change, it is advisable to take into consideration major events in a person’s life course, for example, a transition from school to work, pregnancy, or retirement. In the area of disease prevention, vaccinations and screening have a lot of unused potential, especially in the area of colorectal cancer screening. This potential needs to be carefully examined in terms of its advantages and disadvantages. Attention for social determinants, such as socioeconomic differences, is also part of universal prevention. These determinants require a comprehensive and coherent policy. An assessment framework that takes a variety of issues into account can help achieve progress in this tough area.

2. Selective prevention: remove institutional barriers

Selective prevention consists of detecting high-risk groups and leading them to personalized prevention and care. Selective prevention is a grey area that overlaps with public health and primary care, which is why it is currently not clear how this type of prevention should be funded. A lot of health gain can be achieved in this area, for example, with programmes aimed at neighbourhoods with a high incidence of low education or special target groups, such

as school dropouts. A gain could also be achieved if public health services, occupational health and school doctors worked more closely with general practitioners and primary care. This would create new opportunities for local policies, for example, to bridge the gap between prevention and health care. But it also requires novel forms of organization and funding.

wealthy society go hand in hand. Health care expenditure doesn't hurt society as much as a weakening of the public health system does. Prevention and health care contribute to the economy, and more importantly, they express fundamental social values. Investing in health is possible, desirable and indispensable. A move towards better health will improve everyone's health!

3. Increase the scope of indicated prevention

Getting people to prevention brings us straight to personalized prevention: indicated prevention and prevention in health care. The difference between indicated prevention and preventive health care is that the target group for indicated prevention does not have any health problems yet but has a high risk of developing them. The effectiveness of this approach is proven for combined lifestyle interventions in the areas of smoking, overweight and alcohol consumption. Indicated prevention, however, is not widely applied. Substantial health gains can be realized by extending the supply and increasing the demand by including these type of prevention in the health insurance package.

4. Prevention in guidelines

Prevention in health care is part of good medical practice and consists of preventing complications in people with existing health problems. The prevention of limitations takes on a new dimension. Different types of preventive health care are already included in standards and practice guidelines. More health can be gained by adding more types of prevention to practice guidelines and making them accessible to citizens with a high risk who are not yet being treated. In order to achieve this, doctors and other professionals must recognize and endorse the importance of prevention.

Health is wealth

The step towards better health requires investing in prevention and health care. The costs are high, but so are the benefits for society. Most citizens think their health is the most important thing they have, and therefore priceless. For society, healthy citizens are very important human capital. Physical and mental limitations can lead to the exclusion of groups of citizens whose participation in our society and economy is vital. Health impacts students' school performance, people's careers, labour participation, absenteeism and labour productivity. Better population health contributes to economic growth and plays an essential role in reducing the costs of absenteeism and incapacity for work.

Health also plays a major role in other forms of social participation, including voluntary work and informal care. Good health of the population and a highly developed,



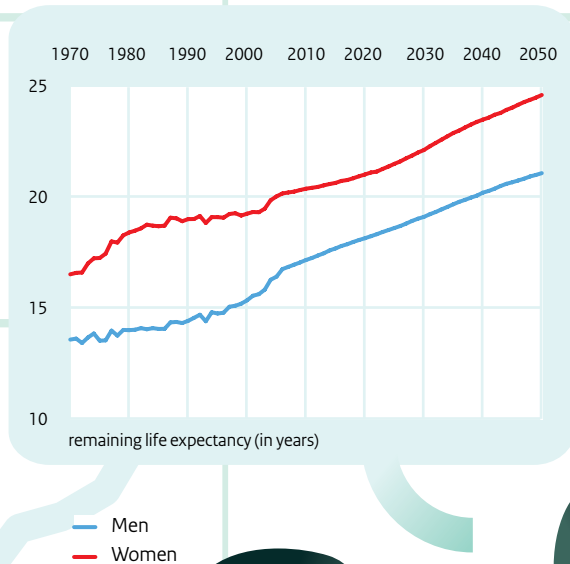
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Dutch life expectancy still on the rise

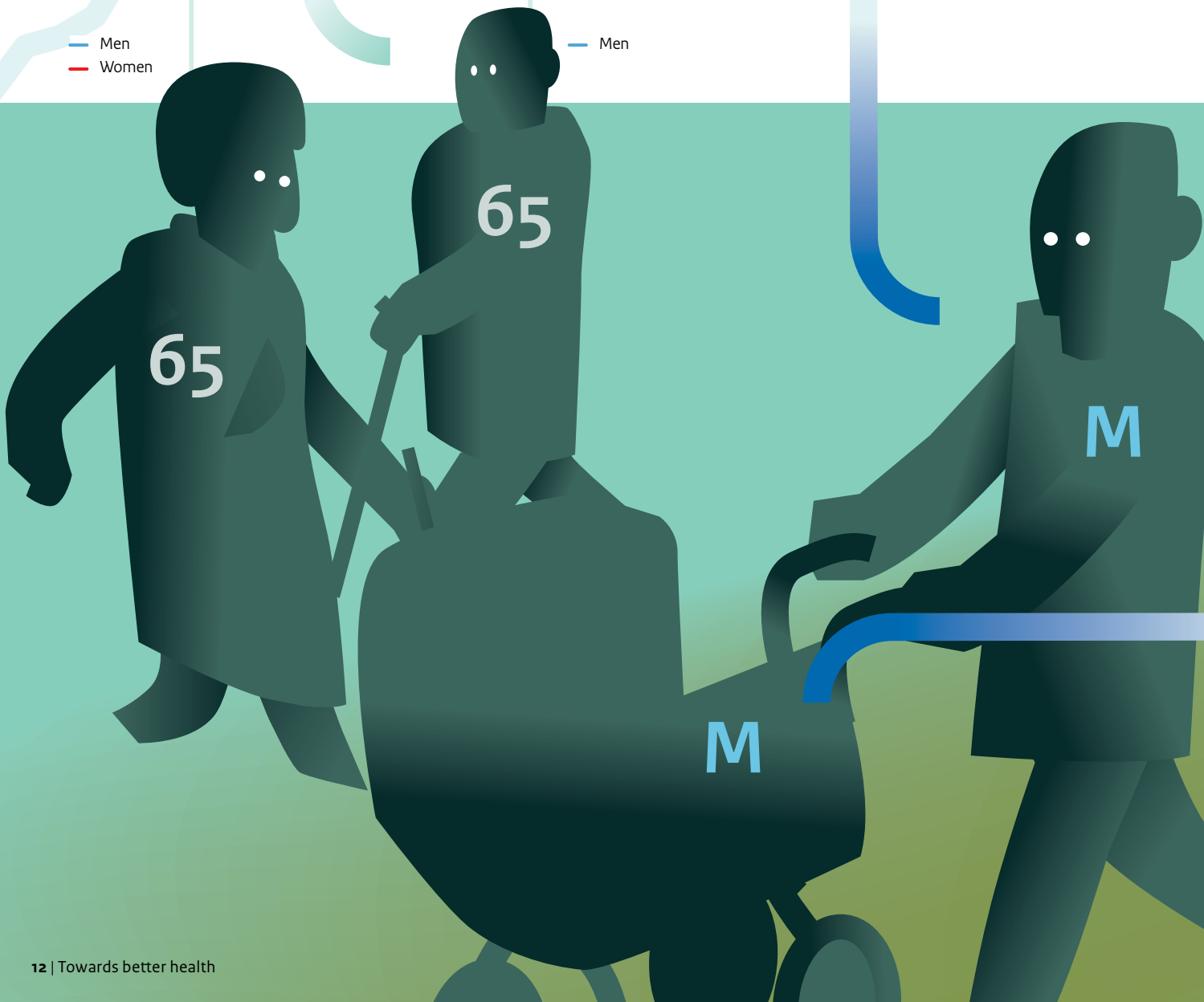
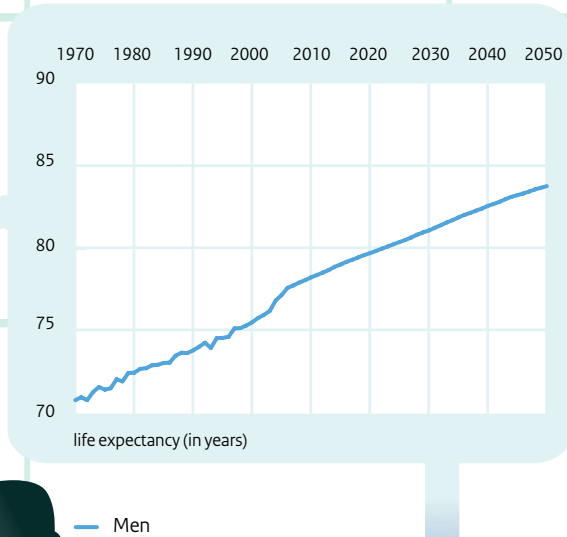
On 13 October 2009, the last Dutch person to live through the twentieth century from start to end, died: Grietje Jansen-Anker was 112 years old (1). She spent the last year of her life in a care home in Rotterdam, together with her daughter! She shunned publicity because she didn't believe there was any merit in reaching such a high age. Merit it may not have, but that doesn't make it any less special: it is still a rare phenomenon when people reach an age of 110 or over. But life expectancy in the Netherlands is steadily increasing, in recent years even at an accelerated pace.

1.1 History and future of life expectancy , 1970-2050 (Source: CBS)

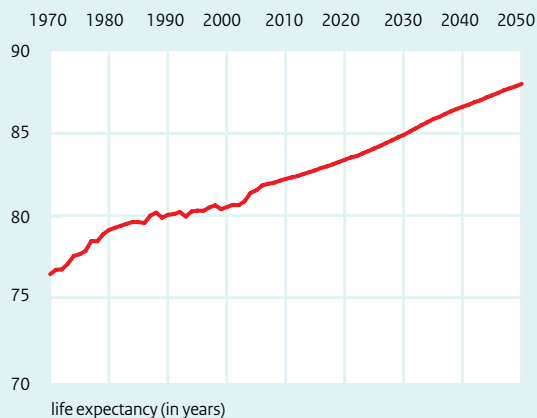
Life expectancy at age 65,
1970-2050 (Source: CBS)



Life expectancy men, at birth,
1970-2050 (Source: CBS)

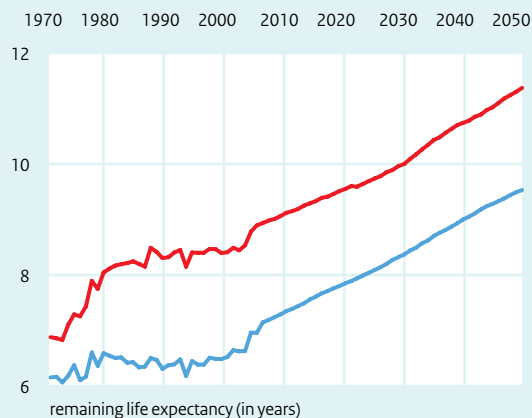


Life expectancy women, at birth,
1970-2050 (Source: CBS)



— Women

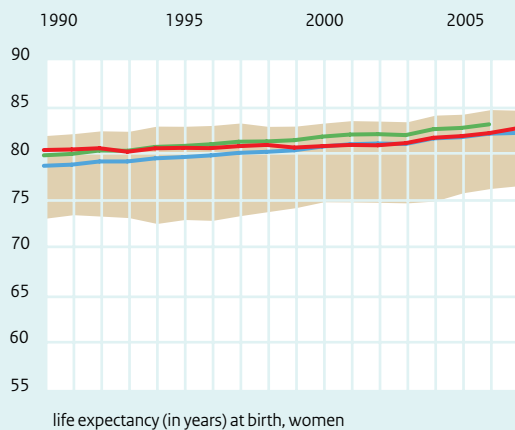
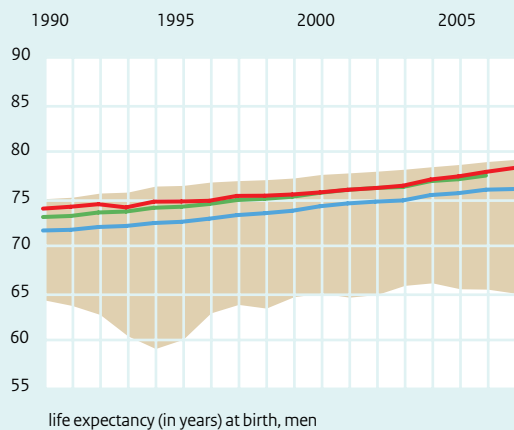
Life expectancy at age 80,
1970-2050 (Source: CBS)



— Men
— Women

Life expectancy in the
Netherlands and Europe,
1990-2007 (Source: CBS)

1.3



— Netherlands
— EU 15
— EU 27
— Min/Max

Current life expectancy

Unexpected sharp rise in life expectancy...

Since 2002, life expectancy at birth and life expectancy at 65 and 80 have been increasing at a remarkably fast pace (*Figure 1.1*). Such an increase had not been anticipated. In 2008, a higher life expectancy had already been reached than that predicted for 2025 in the PHSF 2006 (*Figure 1.2*). The PHSF 2006 did suggest trends could change, but at that time no one would have thought they would change so quickly. It is difficult to specifically identify causes of this rapid increase in life expectancy. There are however indications that the mild summers and the mild winters could play a role, especially where mortality among older people is concerned. The fact that ever fewer men are smoking could also offer an explanation, and increased wealth and cohort effects are also likely contributors. With cohort effects, we people who were born in a particular year who have a lower mortality rate because they grew up in better living conditions. But according to Johan Mackenbach, professor in public health at Erasmus MC in Rotterdam, this does not sufficiently explain the current acceleration (2). His hypothesis is that the recent increase in life expectancy is the result of more and better health care since the beginning of the twenty-first century. His hypothesis is not based on thin air: it has been demonstrated that at least half the increase in life expectancy between World War II and the turn of the century, namely some four years, can be ascribed to medical care and prevention (3).

... but still not back among the top European countries

With a life expectancy of 78.3 years for men and 82.3 years for women, the Netherlands is certainly not among the laggards in Europe. The life expectancy of Dutch men is even among the highest in the EU-27 (*Figure 1.3*). The gap is wide between the Netherlands and the new European member states, such as Latvia and Lithuania, where men live an average of 13 years less. For Dutch women, the picture is far less rosy. Life expectancy for women may be considerably higher than for men, but compared with other European countries, Dutch women score neither high nor low: their life expectancy fluctuates between the average in the EU-15 and the EU-27. *Figure 1.3* shows that Dutch women have seriously fallen behind since 1980 when they were in the lead. This can be attributed to a relatively higher mortality rate among middle-aged and elderly Dutch women and the slower decrease in mortality compared with other countries.

European countries have some of the highest life expectancies in the world after Japan. The Netherlands and other Western countries combine a high wealth with high life expectancy. Most of the countries in Africa, Asia and South

America present a completely different picture, as is shown in *Figure 1.4*.

Substantial differences in the Netherlands

The average life expectancy is a good indicator of public health, but the differences within the population also need to be considered. And the differences in the Netherlands are certainly not insignificant. *Figure 1.5* shows that life expectancy is the highest in the provinces of Zeeland, South Holland and Utrecht, with the exception of the big cities. Life expectancy in the provinces of South Limburg and Twente is remarkably low, which may be related to a history of hazardous and arduous labour in mining and industry. In Groningen and the Betuwe, too, life expectancy is relatively low and deeply rooted in the socioeconomic position of both regions, which is still low today. Such geographic differences are not an isolated phenomenon, but reflect differences in well-being, education and ethnicity. In the big cities, life expectancy even varies per neighbourhood. Here, socioeconomic influences are a determining factor. People with a high education live an average of six years longer than people with a low education. The situation is similar for groups with higher incomes.

The history of Dutch life expectancy

Grietje Jansen's century was a century full of change, progress and development in every respect: economic, technological, social and in terms of public health. Wealth and health went hand in hand, and, in conjunction with all kinds of developments, a wide-ranging epidemiological transition took place in the twentieth century that raised life expectancy and both increased and decreased various causes of death.

Life expectancy on a continuous rise since 1850

Around 1900, life expectancy at birth in the Netherlands was about fifty years for women and somewhat lower for men. Compared to the situation only a few decades earlier this was already high. Especially after 1875 a lot of gain had been achieved, but the big rise was yet to come (*Figure 1.6*). In the twentieth century, life expectancy increased like never before. Initially this was due to better housing, food and hygiene, and then, after World War II, vaccines, prevention and medical care played an increasing role. *Figure 1.6* shows a more or less continuously increasing curve that is only interrupted by the Spanish flu (1918) and the World War related Dutch Famine of 1944-45, known as the Hunger Winter. Life expectancy trends for men also seems to have stagnated for a while between 1950 and 1970, which increased the already existing gap between men and women.

1.2

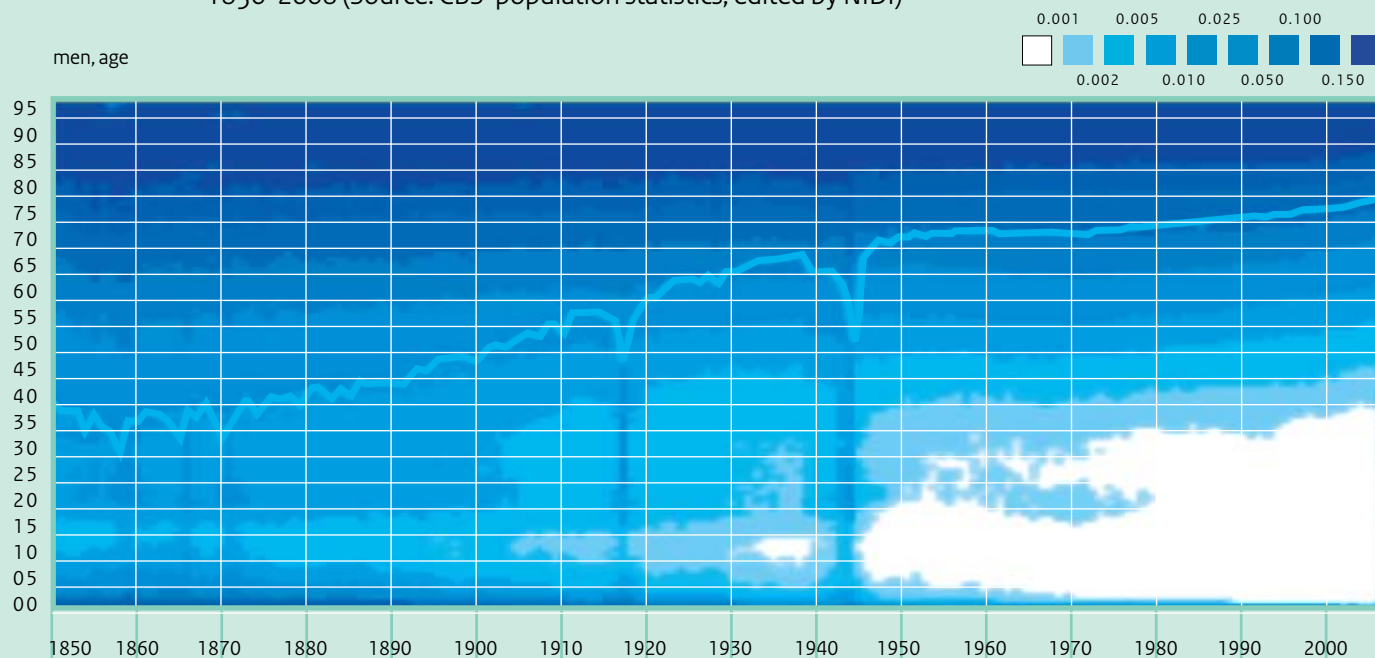
Key messages about life expectancy in 5 PHSF's



PHSF	Base year	Life expectancy		Year of prediction	Life expectancy		Key message
		men	women		men	women	
1993	1990	73.8	80.1	2010	75.0	81.5	Life expectancy of the Dutch in 2010 will be increased with 1-1.5 year compared to 1990. This gain in lifespan is only partly accompanied by healthy years.
1997	1994	74.6	80.3	2015	77.1	81.3	Life expectancy is still increasing. Causes of death are changing. Men make up the arrears.
				2050	80	83	
2002	2000	75.5	80.6	2020	78.0	81.7	Dutch live ever longer and longer in good health.
2006	2003	76.2	80.9	2025	78.0-79.5	81.1-82.5	The Dutch live longer and longer in good health
				2050	79.6	82.6	
2010	2008	78.3	82.3	2025	80.4	84.1	Unexpected sharp increase of life expectancy, however the Netherlands is not back yet in the top of Europe.
				2050	83.8	88.1	

1.6

Probability of dying and life expectancy of Dutch men and women, 1850-2008 (Source: CBS-population statistics, edited by NIDI)



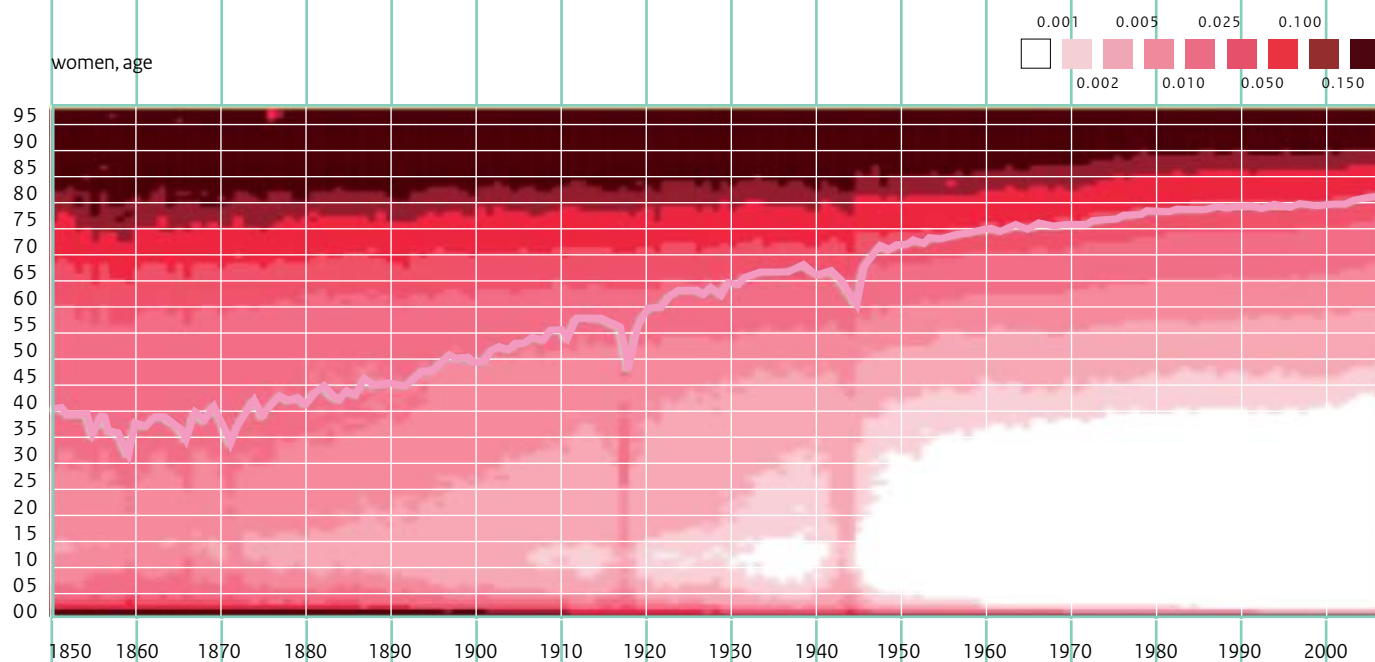
Spanish flu



Hunger winter



Traffic safety

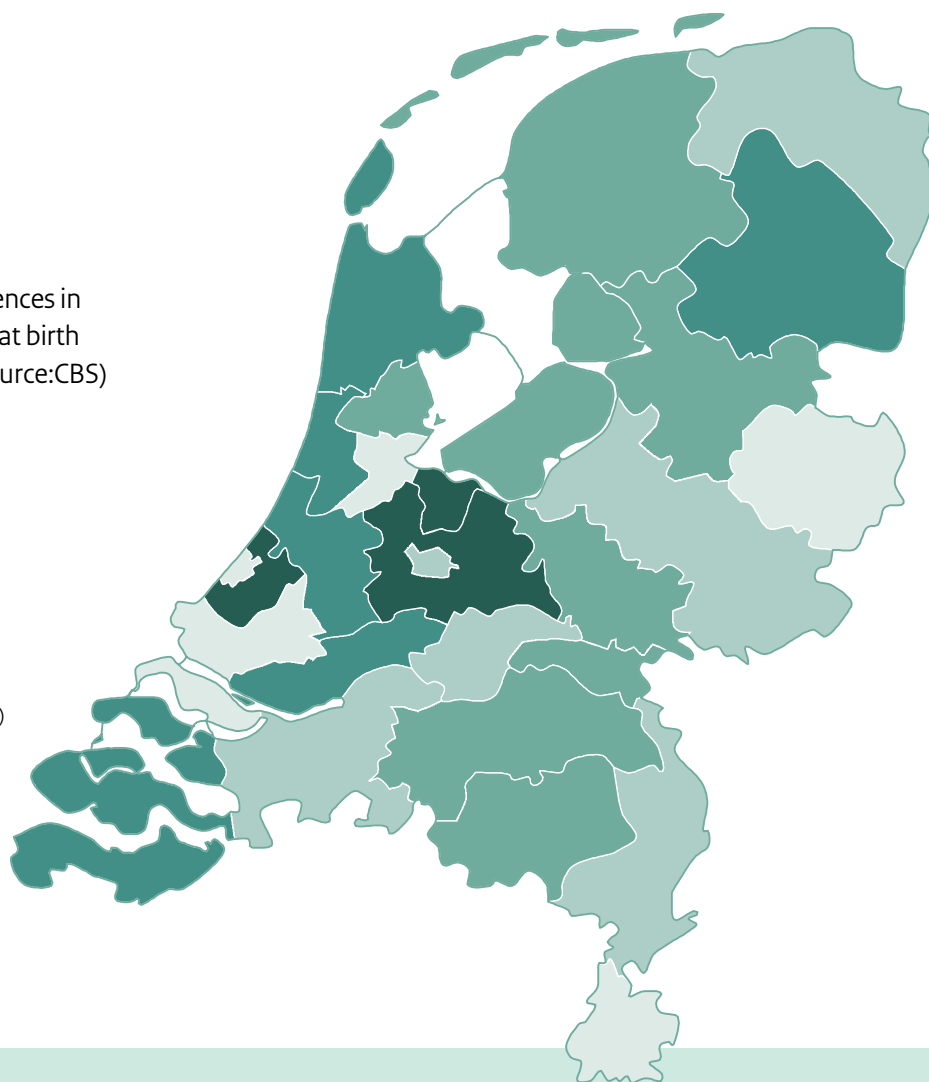


1.5

Regional differences in life expectancy at birth 2005-2008 (Source: CBS)

- 79.0 - 79.5
- 79.5 - 80.0
- 80.0 - 80.5
- 80.5 - 81.0
- 81.0 - 81.5

years (average is 80.1)



1.4

Global differences in wealth and life expectancy, 2007

income per head in euros



Mortality has shifted to higher age groups

The decrease in child mortality is one of the key factors in the increase of life expectancy. Around the year 1900, the Dutch mortality rate in the first year of life was about 15%, a century later it was lower than 0.5%. But child mortality was not the only figure that went down: the mortality rate fell for all ages. This is nicely depicted in *Figure 1.6*. It takes no more than one glance to see that the number of deaths in the 1 to 40 age groups shifted to higher age groups (4). The graph also reflects the most significant incidental events, such as the aforementioned Hunger Winter and the Spanish flu, as well as a number of outbreaks of infectious diseases (cholera and smallpox) in the nineteenth century. A comparison between men and women identifies two remarkable phenomena: a higher mortality rate for young men from the end of the 1950s to the mid-1970s caused by traffic accidents, and an increase in the mortality rate for men aged 50 and above, reflecting the long-term impact of the increase in smoking behaviour since the 1920s.

Deaths caused by cardiovascular diseases have decreased spectacularly since the 1970s

‘Epidemiological transition’, which was mentioned above, means that a development in life expectancy is caused by a changing mortality pattern. Since the late nineteenth century, ever fewer people have been dying from infectious diseases. In the twentieth century with wealth-related conditions such as cardiovascular diseases and cancer replaced infectious diseases as a major cause of death. Developments in the area of cardiovascular diseases had a very significant impact on life expectancy. Following a period of sharp increase, deaths caused by cardiovascular diseases have dramatically fallen since the 1970s (*Figure 1.7*). In addition to a healthier lifestyle, including a reduction in the number of male smokers, developments in preventive medicine (cholesterol and blood-pressure lowering drugs), new surgical techniques (angioplasty and bypass surgery) and organizational innovations (stroke units) played a significant role. In 2010, cancer took over the position as the leading cause of death in the Netherlands.

The future of Dutch life expectancy

What does the future have in store? Will life expectancy continue to rise, or is a maximum life expectancy slowly being reached? The latter seems unlikely considering the recent sharp increase in life expectancy in the Netherlands and the even higher life expectancy in other countries. Previous life expectancy predictions for the Netherlands have been categorically too low (*Figure 1.2*). The recent acceleration in life expectancy has conjured up the idea that a new epidemiological transition is at hand based on the fact that previous transitions were also marked by a sharp rise in life expectancy. The nature of this new

transition is not clear but it may be related to the fact that environmental influences are gaining the upper hand on behavioural factors. This is discussed in more detail in *Chapter 3*.

Life expectancy to increase by six years by 2050

Although past performance is no guarantee for future success, the starting points used in projection methods to determine life expectancy are based on historical trends. This is done in both simple and more advanced ways. We will follow the Dutch demographers Fanny Janssen and Anton Kunst, who have made projections on the future life expectancy for this PHSF (5). Using advanced methods that take different trends into account for smokers and non-smokers and in which the existence of shared international trends is assumed, they expect life expectancy at birth in the coming decades to steadily increase to 88.1 years for women and 83.8 years for men by the year 2050 (*Figure 1.1*). This means that the increase for men and women will be almost the same, namely six years. According to these predictions, life expectancy for older people will also increase, namely by more than four years for people aged 65 and by more than two years for 80-year-olds.

There are, of course, other projection methods. Statistics Netherlands (CBS) estimates that mortality decline will level off, among other things, because of the expected adverse developments in the lifestyle of the Dutch, and in particular the smoking trend among women. Together with a number of other assumptions, this results in a projection that is lower than the above-stated 85.5 years for women and 83.2 years for men. Noteworthy in CBS’s outlook is that the gender gap in life expectancy keeps narrowing because a much lower rise in life expectancy is expected for women. In Janssen and Kunst’s projection, this gap is virtually stable. For the future of health care, this is of vital importance.

Is there such a thing as maximum life expectancy?

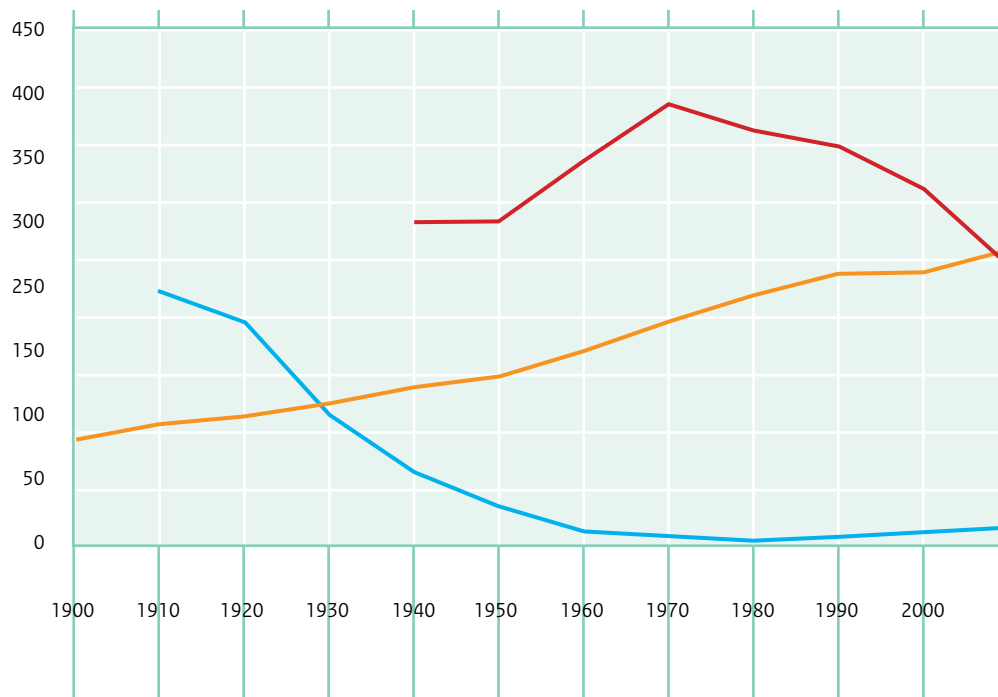
In 1980, the American professor James Fries contended that life expectancy will reach a ceiling at 85 years (6). The above-mentioned Dutch projections break that ceiling. In Japan, life expectancy for women has currently already exceeded 86 years. The existence of a maximum life expectancy is therefore an interesting question indeed. Maximum life expectancy is not the same as maximum age, which will always be higher. For example, Grietje Jansen exceeded the average life expectancy in the year she died by thirty years. Not to mention her life expectancy at birth, which was not higher than fifty. There is a lot of speculation about the maximum age, and an age of 140 is even mentioned. The main focus of this report, however, is life expectancy.

1.7

Mortality by infectious disease, cancer and cardiovascular diseases, 1900-2008 (Source: CBS)

Cardiovascular diseases
Cancers
Infectious diseases

mortality (per 1,000), women



1.8

Best practice trend in female life expectancy, 1950-2007, according to Christensen (Source: Human Mortality Database, Oeppen & Vaupel)

United Kingdom
France
Japan
Sweden
United States
Netherlands
East Germany
West Germany
Trend
Best-practice

life expectancy (in years) at birth, women

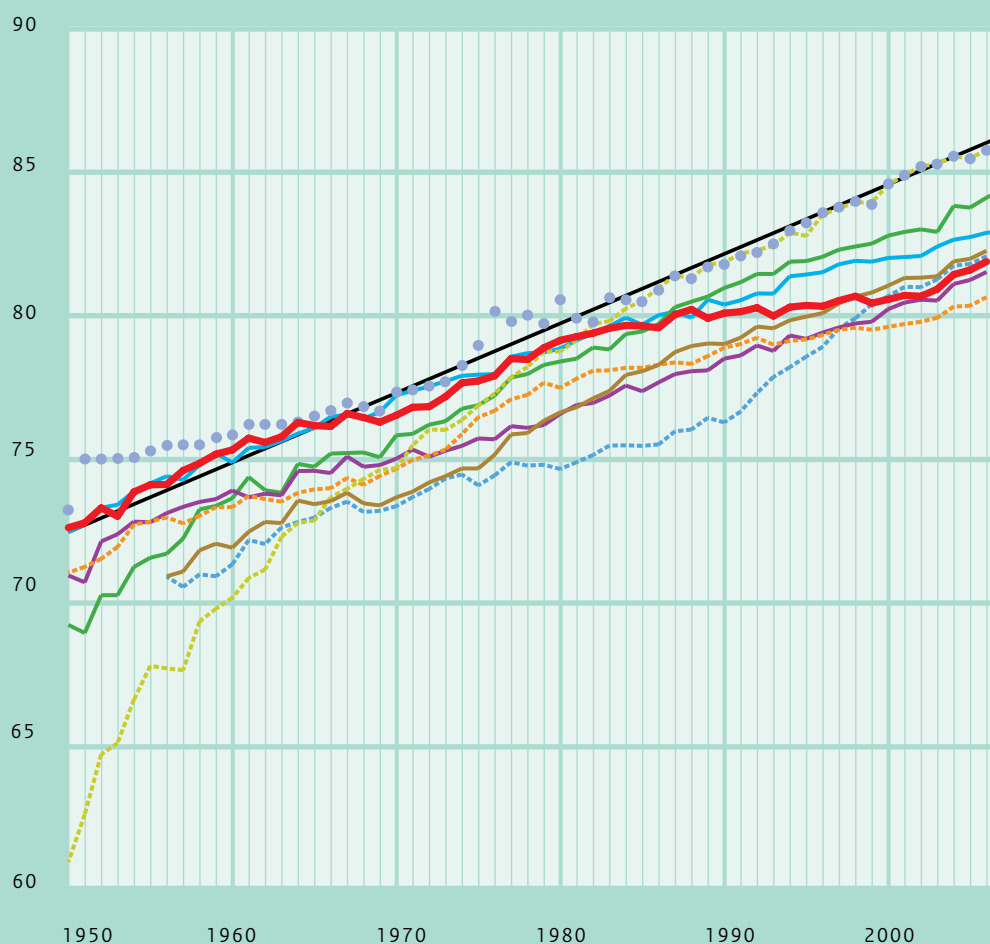


Figure 1.8 is based on an interesting article by Christensen and colleagues that was published in the Lancet in 2009 (7). This graphic shows what is called 'best-practice life expectancy', meaning the highest life expectancy in the world that developed in a more or less straight line for more than a century and that increased by 0.2 years per calendar year. Christensen contends that, imagining this line continues to develop in the same way during the twenty-first century, half the children born after 2000 in these leading countries will celebrate their one hundredth birthday. The authors shied away from statements about maximum life expectancy. It's not a very important limit. More important is the question whether the years gained are healthy years and how society can meet the demand for care associated with ageing.

Meaning

A white spot in our knowledge

Dutch life expectancy is still on the rise. This is good news, but it is still disappointing that previous projections were categorically too low and that experts are still unable to pinpoint what has been causing the recent rapid increase in life expectancy. Are their common factors occurring in all countries? Is it true that better care played an important role? Or are there other influences? Mortality rates will have to be further investigated in order to determine why life expectancy keeps increasing. This is not only interesting because of the historical developments: a better understanding of the trends will result in better predictions about future life expectancy. The assumptions a projection is based on do really matter. Further refinement is desirable.

Life expectancy as social investment ...

Increasing life expectancy is good news for the inhabitants of the Netherlands and for the government. At the same time, further ageing gives rise to new questions and problems, for example, in the area of pension plans. Although this will repeatedly put increasing life expectancy on the political agenda, ageing and its problems should never be a reason to stop striving for a further increase in life expectancy. Quite the contrary! The Constitution of the Kingdom of the Netherlands states that the government must take measures to promote the health of the population. An increasing life expectancy clearly may indicate that the population's health is improving, and an ageing population can be seen as an achievement of a highly developed society.

Because the increase in life expectancy was considerably higher than estimated, one might think that the government should sit back and relax. This is a misconception. In order to attain a further increase in life expectancy, mortality rates will have to further decrease. This means that the mortality rates for other causes of death, such as cancer, will have to drop as much as for cardiovascular diseases. Prevention and treatment will have to become more effective, which requires investing in prevention and health care. The government will have to make these investments if it sets an increase in life expectancy as one of its objectives.

... requires a wider view

An increase in life expectancy does not automatically imply that the population's health status has improved. More important is that the years gained are healthy years and that ageing people do not suffer from old age ailments or limitations that prevent them taking part in social life. Healthy ageing is the challenge society is facing. Another important theme is the gap in life expectancy. Why do people in lower socioeconomic groups live so much shorter, and can something be done about it? The government, too, is confronted with the effects of ageing on health care needs. How can society meet future care demands? These questions are discussed in Chapters 2, 5 and 8.

Further reading

This chapter is based on the sub-reports and the website of the Public Health Status and Forecasts Report 2010. More information can be found on the websites of the Dutch National Public Health Compass and the Dutch National Atlas of Public Health.

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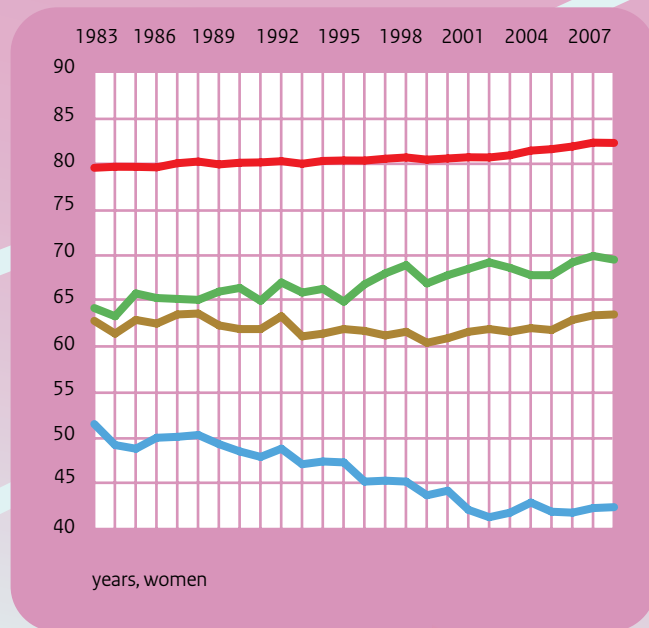
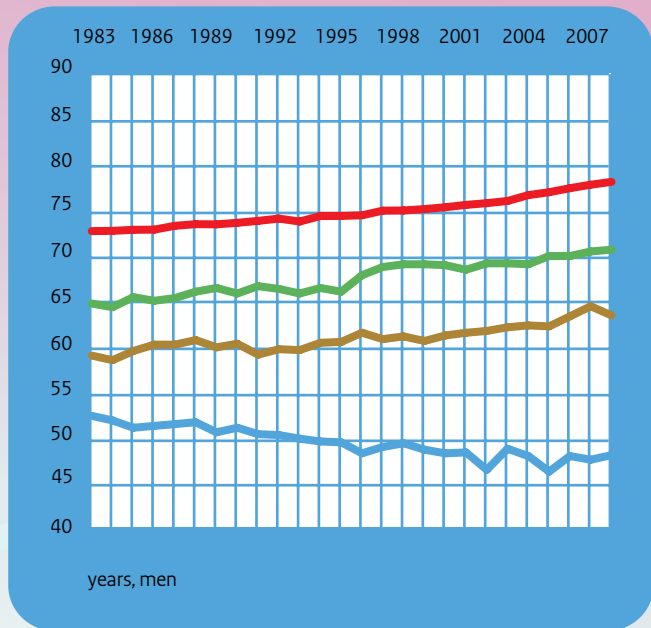
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2

More disease, but not less healthy

Dutch life expectancy is rising, but is the population getting any healthier? This question is difficult to answer. If we are to believe Trudy Dehue, professor in Groningen, the Netherlands is fighting a real depression epidemic (1). And according to the national health funds, at least fifteen million Dutch are chronically ill. The Dutch Rheumatism Fund (Reumafonds) reports 2.3 million rheumatism patients and the Dutch Skin Foundation (Huidfonds) and the Dutch Digestive Diseases Foundation (Maag Lever Darm Stichting) estimate their target groups to consist each of some two million patients. It would therefore appear that the Dutch population is getting sicker. But that's only one side of the story. The other side is nicely described by a respondent who participated in a survey on perceived health. According to her, 'Being healthy means feeling healthy, whether you're sick or not.' She said what a lot of people think: health is not so much the absence of disease as the physical and mental ability to do the things we want. Looking at it from this perspective, the health of the Dutch has not gotten worse. More disease as well as more health. That is the main message of this chapter.



2.1

Healthy life expectancy
1983-2008
(Source: CBS)

- life expectancy (= l.e.)
- l.e. without limitations
- l.e. in good self-perceived health
- l.e. without chronic diseases

Life expectancy with disease and healthy life expectancy

Dutch life expectancy is still on the rise. *Figure 2.1* shows that the years of life gained in the last 25 years are mainly years with a disease. In this period, life expectancy without a disease decreased for both men and women to 48 and 42 years respectively, representing a decrease of four to nine years. In 2008, a Dutch woman will live almost half her life with a chronic disease. This, however, doesn't mean that the health of the Dutch population is deteriorating. There is also good news: since 1983, the Dutch have gained an average of 5 years without physical limitations and 2.5 years lived in good perceived health (2). This is almost as high as the increase in life expectancy (four years). Consequently these additional years are mainly years without limitations and with a good perceived health. Although more and more people are ill, the Dutch do not feel less healthy or more limited.

Disease in the Netherlands

The trends show a considerable increase in the number of people that have a disease. What are the main diseases and health problems, and are they increasing or decreasing?

Most common diseases

Diabetes mellitus is the most common disease in the Netherlands, followed closely by arthrosis, coronary heart disease, neck and back complaints, and hearing impairments, each with more than 600,000 cases (*Figure 2.2*). The top-10 diseases with the highest prevalence (existing cases) are mainly chronic diseases. Incidence (new cases) is a better indicator for short-term illness, such as infections and accidents. The main four illnesses in this category are the common cold, neck and back complaints, acute urinary tract infections and accidents in the home. The prevalence and incidence figures are based on data from health care registrations, especially those maintained by general practitioners. This means that mild diseases and conditions for which people decide not to consult a health-care provider are not included and that the figures are consequently lower than the actual number of people who are sick. This is true for the common cold and influenza, as well as for mental disorders. The latest NEMESIS study shows that depression occurs 1.5 times and anxiety disorders 10 times more often than the general practitioner is aware of.

Mortality and lost years of life are mainly caused by coronary heart disease and lung cancer

In 2007, 133,000 people died in the Netherlands, 12,000 of which died from coronary heart disease. This disease is

undisputedly the number one killer, with lung cancer not far behind. Lung cancer tops the list of life years lost (*Figure 2.3*) for both men and women due to the relatively young age at which these cancer patients die. For women, lung cancer has not only caught up with coronary heart disease, but also with stroke and breast cancer. Together, the top-ten main causes of death represent about half of all deaths.

Disease burden

Combining lost years with the most common diseases (taking the severity of the disease into account) indicates how much disease impacts Dutch public health. Expressed in disease burden (DALYs [disability-adjusted life years]), coronary heart disease, depression and stroke are the three main contributors to the total burden of disease (*Figure 2.3*). Compared with mortality and years of life lost, the top-ten list of disease burden is mainly populated with diseases that have a significant negative impact on quality of life but do not cause death, such as mental disorders and arthrosis.

'Rare diseases occur frequently'

Some further distinguishing is required when talking about disease burden, as it refers to the total disease burden for the whole of the Netherlands. This is why frequently occurring health problems are at the top of the list. This is also important from a public health perspective. At the same time, one must realize that a number of rare diseases that present a huge disease burden for patients are not included in this national overview. A disease is considered to be rare if it occurs in fewer than 1 in 2,000 people. Rare diseases consist mainly of genetic disorders. The Dutch Rare Disease Foundation (Zeldzame Ziekten Fonds) estimates that one million Dutch have a rare disease. When added together, rare diseases no longer seem rare, and the disease burden is no longer negligible. The rarity of these diseases makes them difficult to diagnose and makes the development of medicines unappealing to the pharmaceutical industry.

Cancers catch up with cardiovascular diseases as main cause of death

In 2007, for the first time more people in the Netherlands died of cancer than of cardiovascular diseases. This is mainly because the mortality rates for coronary heart disease and strokes have sharply fallen, whereas the mortality rate for cancer has not. The decrease in deaths from cardiovascular diseases, and in its incidence, is the result of positive changes in the number of smokers and better prevention of high blood pressure and high cholesterol. The number of deaths is also falling thanks to better treatment of patients suffering from coronary heart disease, heart failure and stroke. The decrease in cardiovascular diseases is higher for men than for women

because the number of men who smoke is falling faster than the number of women who smoke. This means that the number of men suffering from lung cancer and COPD is falling, whereas the number is still rising for women. Striking too, is the increasing number of people suffering from diabetes. This is undoubtedly linked to the increasing number of people who are overweight and the fact that general practitioners are more actively looking for diabetes patients. An active general practitioner who is more inclined to check a patient's blood glucose levels invariably registers more patients. And finally, general practitioners are also registering more and more patients suffering from depression and anxiety disorders. And yet, new population studies have revealed that the number of people with mental disorders remains more or less steady. This means that more and more people with mental problems are seeking help and that their problems are being recognized and treated.

Low mortality from coronary heart disease and stroke compared with other countries

Although coronary heart disease and strokes are among the main causes of death in the Netherlands, internationally, the Netherlands is not doing badly. The number of deaths caused by these diseases is among the lowest in Europe. Moreover, the decrease in the Netherlands, and especially that for coronary heart disease, is one of the largest in Europe. Compared with other European countries, also relatively few people in the Netherlands die from traffic accidents and suicide. The Netherlands does not fair so well among the EU-27 in terms of cancer deaths: the mortality rate for breast cancer and lung cancer among Dutch women is high, and the increase for lung cancer among Dutch women is among the highest in the European Union.

Multimorbidity: 1.3 million people suffer from multiple diseases

Combined, the lists of major diseases provide a coherent but incomplete picture of the diseases and health problems among the Dutch population. This is not because a large number of diseases were not taken into account, but because the lists use diseases as their starting point and neglect the fact that people may be suffering from several diseases at the same.

Using people instead of diseases as the starting point shows that at least 4.5 million people in the Netherlands have a chronic disease. Of these 4.5 million people, 1.3 million suffer from several diseases at the same time. Multimorbidity is relatively rare up to the age of 55, but is much more common among older people. Almost one in three people over the age of 75 suffers from more than one chronic disease (*Figure 2.4*). The consequences for patients are worse for multimorbidity than for a single condition.

Disease in the future

Diabetes mellitus and arthrosis will continue to be the diseases with the highest prevalence in the Netherlands. They are also the diseases for which the absolute prevalence will increase the most. The number of men and women who have experienced an acute myocardial infarction, the number of women with COPD and the number of men with prostate cancer will increase most. The future causes of death are increasingly characterized by ageing-associated diseases: conditions that people die from at an old age. From a public health perspective, this is a less meaningful way of ranking disease and mortality. It is much more interesting to look at the disease that will disrupt a person's life most. This is done using the indicator 'years lived with disease' (YLD) (*Figure 2.5*). The ranking of the diseases will more or less stay the same, but a few diseases will show an absolute increase. Mental disorders and diabetes have the highest percentage increase.

Why more Dutch have a disease ...

More and more Dutch have a disease. How can this be? Have we adopted an unhealthy lifestyle, are we exposed to more risks, or are other factors at play? Determinants of health and disease certainly play a role, but they do not fully explain the increase in the number of people with a disease. Apparently, something more is going on. Two factors clearly stand out: the first is the influence of medical science, the second is the concerted action of all kinds of social influences.

Medical factors: early detection and better chances of survival

Advances in medical science increase knowledge about diseases, their causes and their treatments. This means that more can be done and that health of the population will improve. This new knowledge helps prevent diseases, but it also helps increase their occurrence because they may be detected earlier and treated better. Early detection and better treatment enable people to live longer with a disease, but they also increase the number of people with a disease. A few examples of increased disease prevalence through early detection are diabetes mellitus and various types of cancer for which population screening was introduced. Cataracts are another example. Better surgical techniques enable more people with cataracts to be treated. This improves public health, but also increases the occurrence of cataracts in our statistics, as measured by the number of surgical procedures. The number of patients is increasing, but that is good news too. Diseases are detected at a stage at which people experience only relatively few problems and can still be treated. This brings us to the second aspect. Successful treatment actually

increases a sick patient's chances of survival. In short, a side-effect of successful health care can be an increase in the number of people with a disease.

Societal influences

A lot of Dutch people say 'there's something wrong' with them, and according to health surveys, that number is increasing. One of the reasons could be the changing demands of society. On the one hand, this is a logical and rational development: civilization not only goes hand in hand with increasing demands, but also with a society that is willing to meet them. On the other hand, people are less prepared to accept discomforts and setbacks, and seek professional help instead. Health problems can thus become a way of getting attention. People are also less tolerant of variations in behaviour and health status in part because our society more often sees prevention and treatment as solutions. There is no objective need for people to smoke, drink or be fat. Moreover, the continuing expansion of the health idea into the area of wellness and vitality is adding ever more behaviours, experiences and desires to the field of health and disease. Bearing this in mind, it is not surprising that the number of people with diseases is increasing in the medical sector and in people's own perception.

Health-care professionals and the pharmaceutical industry also contribute to the increase in the number of sick people in the Netherlands by medicalizing common conditions. This form of medicalization is referred to as 'disease mongering', a reference to the inappropriate widening of the diagnostic boundaries of 'disease' (3). The Dutch Consumer Association refers to it as 'symptom advertising' and has engaged in a fight against TV commercials for nail fungus, restless legs and overactive bladder that in this way medicalize ordinary discomforts (4).

The last contributors to the increase in the number of 'sick people' are the ever changing and increasing demands that our knowledge economy is putting on people. Certain population groups find it increasingly difficult to deal with all pressures, as is clearly reflected in the area of mental disorders. Children who were once described as very active and later proved fully capable of holding a job are now diagnosed with ADHD and risk receiving disability assistance for handicapped young persons as soon as they leave school. A learning disability such as dyslexia is also increasingly treated as a disease.

More disease is not necessarily a bad sign

The increase in disease perception and in the number of people who are sick can be interpreted in a number of ways but does not have to be alarming. It can even reveal a positive development in public health. It is not clear

whether there is actually a higher burden of disease, but it is very clear that more diagnoses are being made.

... and why more diseased people does not automatically mean less health

More diseased people, or actually more diagnoses, but not less health. This is depicted in *Figure 2.1*. Being healthy is apparently not the same as not having a disease. Research conducted by the Netherlands Institute for Social Research into health perceptions showed that for many people health is determined by two aspects. The first aspect is the feeling that they are healthy, fit, vital and simply feel good. The second aspect refers to 'the ability to do the things they want to', which also encompasses independence and freedom (of choice). People with a chronic disease can perceive themselves as healthy when these two conditions are met. Participation in the sense of actively participating and belonging can help a person feel healthy in spite of a disease or disability. It is difficult to feel healthy when a disease makes a person dependent, or when the disease is unpredictable, highly incapacitating or frightening and life-threatening.

This makes health much more than just the complement of disease, as is shown in *Figure 2.6* for people with one or more chronic diseases. Although people with a chronic disease report limitations or a lower self-perceived health more frequently, it is striking that three-quarters of the Dutch with a chronic disease feel healthy and an even larger proportion indicate that they do not have any limitations. This percentage decreases as the number of health problems a person has increases. Yet, half the people with three or more diseases do not feel they have limitations. This is in part related to the influence of medicine as we discussed in the previous section. Detecting diabetes at an early stage reduces a person's risk of complications and limitations. Early detection increases the number diabetics, but it also reduces the number of people limited by the disease.

Better care and medical aids

As already indicated in the previous PHSF, the disabling effect of diseases is decreasing (5). This development is explained by improvements in the treatment of diseases and better compensation for limitations with medical aids. This trend has continued in the last years, with an annual increase in the use of almost all medical aids. Between 2004 and 2008, the number of hearing-aid users doubled (6). The increase in the use of medical aids has reduced the number of older people who depend on personal care and has increased their ability to manage on their own. Not only medical aids but also medical interventions can help reduce a person's limitations. For example, more and more

2.3

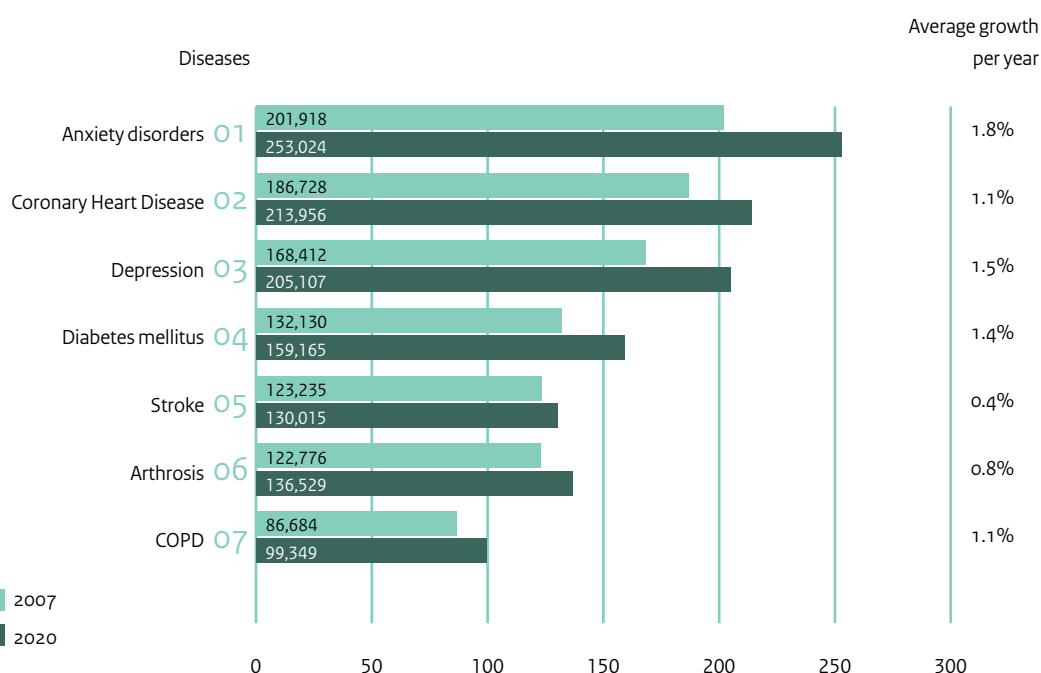
Ranking of disorders in the Netherlands: mortality, years of life lost and burden of disease, 2007



Mortality		Potential years of life lost		Burden of disease (DALYs)	
01	Coronary heart disease	01	Lung cancer	01	Coronary heart disease
02	Lung cancer	02	Coronary heart disease	02	Stroke
03	Stroke	03	Stroke	03	Anxiety disorders
04	Dementia	04	Colorectal cancer	04	Depression
05	Heart failure	05	COPD	05	Diabetes mellitus
06	COPD	06	Breast cancer	06	Lung cancer
07	Pneumonia	07	Heart failure	07	COPD
08	Colorectal cancer	08	Dementia	08	Arthrosis
09	Diabetes mellitus	09	Suicide	09	Home and leisure accidents
10	Breast cancer	10	Pneumonia	10	Dementia

2.5

Ranking absolute increase years lived with disease (YLD), 2007-2010

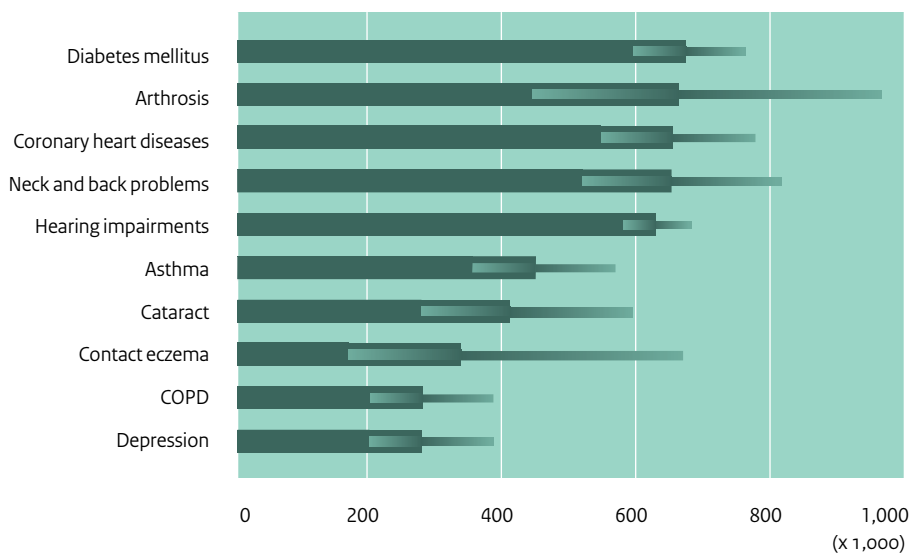


Comment: This ranking is based on the demographic projection of the 2007 DALYs



2.2

The 10 most prevalent diseases in the Netherlands
(point prevalence and 95% confidence interval, 1-1-2007)
(Source: CBS)



2.4

Prevalence of chronic diseases in different age groups, 2003-2007
(Source: LINH)

■ I.e. without limitations
■ I.e. in good self-perceived health
■ I.e. without chronic diseases

total population



over 75



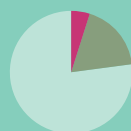
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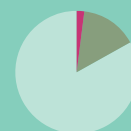
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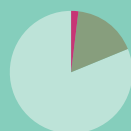
25 - 54



15 - 24

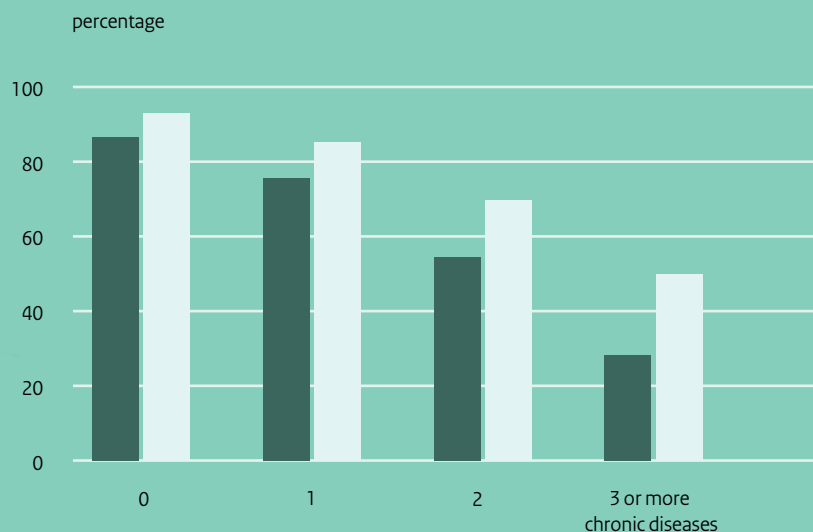


0 - 14



2.6

Percentage of Dutch with at least one chronic disease that feels healthy and has no limitation
(Source: CBS)



Dutch are undergoing surgery for cataracts or hip replacements.

Increased focus on revalidation and patient empowerment

Developments in the area of revalidation and patient empowerment also help reduce limitations, making it easier for people to deal with diseases and their effects. Patient empowerment teaches people with a chronic disease how to deal the symptoms, the treatment, and the physical and social consequences of their disease and gives them the feeling they can run their life on their own. At the same time, this may also require skills not everyone has. People used to resign to being sick and crawl up under the covers; today people are encouraged to stay active. A perfect example is the treatment of aspecific back pain, for which doctors no longer recommend rest but physical activity. Occupational medicine and the Occupational Safety and Health Administration paid a major contribution to reintegration. Their goal was to get sick employees back to work as quickly as possible. Laws and regulations also played an important role. Absenteeism has fallen sharply in recent years, which highlights an important concept: public health is not only about health, it's also an important source of social capital.

Health and wealth

Good health is not only good for people, it is also important for society. A healthy population reflects a society's level of civilization and also says something about the quality of the social system. The absence of disease and suffering in public life is only one of the aspects. In a modern society, a healthy population is an important prerequisite for a participatory society. Health enables people to participate in society, which is why limitations are an important indicator of health.

Participation consists both of social participation and labour participation. Viewed from this angle, public health contributes to both the informal and the formal economy, or in other words, to paid work, voluntary work and informal care. Both physically demanding work and the knowledge economy put high demands on employees, and good health is a prerequisite to meet these demands. Health is the foundation of human capital. Improving the health of the population can increase labour participation – also at higher ages – and reduce absenteeism and incapacity for work. Social legislation has achieved a lot in this area, but facing the future, further improvements are desirable. The working-age population is shrinking, making labour participation all the more important. Billions of euros are at stake, but it will take a lot of time and effort before the benefits can be reaped. The labour market and social security are affected by many more

factors than just health, and often it is not easy to reduce incapacity for work and absenteeism and increase labour participation. Raising the retirement age is one way of increasing labour participation. Because of the increasing life expectancy, this could be an important source of benefits for our society.

Anticipate the increase in diseases and reduce limitations

The disease burden overview shows where the main public health problems are and where action needs to be taken. The next question is what the most important determinants of these problems are (*Chapter 3*) and what can be done about them (*Chapter 6*). The focus should not only be on top-lists and averages, but also, for instance, on rare diseases and on population groups that have considerably more health problems (*Chapter 5*).

More people with disease in the future means a higher demand for care. The care that is offered will have to be able to handle increasing comorbidity. The main conclusion of this chapter is that efforts should not only focus on reducing disease, but also, and especially, on reducing limitations with a view towards health as people describe it themselves and towards the associated benefits for society. A positive aspect is that the trends in the occurrence of limitations are more positive than for the occurrence of diseases. Here too, substantial improvements can be reached. The Dutch live longer and in better health. If we keep investing in the reduction of limitations, people could even have more 'good years'.

Further reading

This chapter is based on the sub-reports Gezondheid en determinanten (Health and its determinants), Maatschappelijke baten (Health is wealth) and Tijd en Toekomst (Timetrends and future), and the survey on the health perceptions of the Dutch. More information can be found in the National Public Health Compass and The Dutch National Atlas of Public Health.

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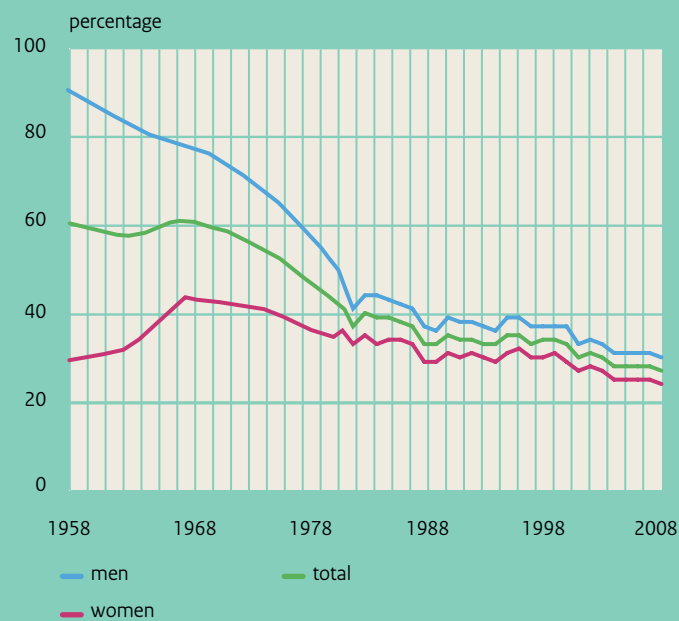


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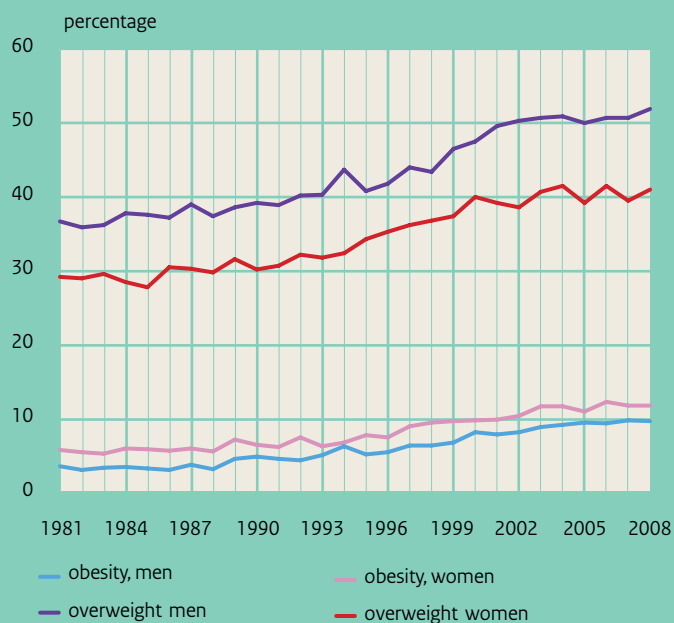
Living a healthy life in a healthy environment

Seventy years ago, the recipes in the American cookbook 'Joy of Cooking' had an average of 268 calories. This has since increased to 437. The recipes became sweeter and fatter and were for lesser portions (1). The size of a portion increased slowly and subtly and this has shifted the norm. The same phenomenon can be observed in the fast-food sector. The inflation of the portion is one of the factors that make it hard to follow a healthy diet. The Dutch believe that good health is important and a lot of people try to live healthily. In the Netherlands of 2010, this is not always easy, because there are a lot of temptations to resist.

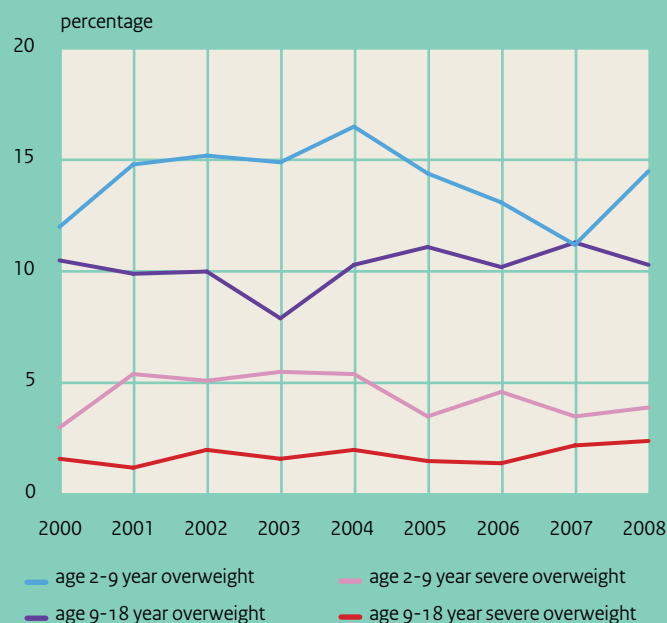
3.1 Time trends smoking 1958-2008 (Source:Stivoro, 2009)



3.2 Percentage of people (aged 20 year and above) with overweight and obesity 1981-2007, standardized for age and sex distribution in 1981 (Source: POLS, 2008)



3.3 Percentage of young people with overweight and obesity 2000-2008 (Source: CBS Jeugdmonitor, 2009)



People are confronted in all kinds of ways with ads for healthy and unhealthy food. Utrecht Central Railway Station, in the centre of the Netherlands, is a good example. There is so much food in and around the station that anyone with enough money would have trouble going hungry. Noteworthy is that the selection has been extended over recent years to contain more 'healthy' products. At the same time in the designated smoking area, smokers watch their heavily taxed cigarettes go up in smoke, and Sonja Bakker's (a well known Dutch 'media' dietician) cookbooks are no longer among the bookstore's 10 best-sellers since her diet was heavily criticized. The travellers are in a hurry and have little time to relax. They squeeze on to the escalators and ascend to the main hall. This description of a random train station in the Netherlands provides an impression of the numerous ways the environment can influence our health.

A lot has been done in recent years to influence the lifestyle of the Dutch. The smoking ban in the hospitality sector was a major step towards banning smoking in public areas. The image of the average smoker is also changing. A survey among pupils in the province of Limburg concluded that smokers are increasingly seen as 'people with problems'. A lot can change in a relatively short period of time. How long will it take for overweight to pay a higher contribution to the disease burden than smoking? A lot of people are struggling with overweight. Between 2003 and 2007 (2), the percentage of people who exercise rose from 61% to 67%, and fitness and running have gained popularity. Supermarkets have introduced a variety of new logos and labels for healthy food.

It is not entirely clear how a changing environment and measures aimed at changing behaviour will affect Dutch lifestyle, but recent trends have not been unfavourable. The percentage of smokers is falling, that of heavy alcohol use and drug abuse is stable, and the number of people with overweight appears to be stabilizing.

Lifestyle trends not unfavourable

Percentage of smokers falls by 1%

After a period of stability, the number of smokers fell again in 2008 to 27%. The trend shows a clear downward slope since 1970: ever fewer men and women smoke (*Figure 3.1*). The percentage of smokers fell steadily from 60% in 1958 to 33% in 1988, and then remained stable until after 2000, when it fell to 28% in 2004 and 27% in 2008. Although the trend is looking favourable, the percentage of smokers in the Netherlands is still high compared with our neighbours, especially for women. Perhaps recent measures, such as the smoking ban in the hospitality sector, will have an effect.

No big changes in alcohol and drug use

The percentage of teetotallers and excessive and heavy drinkers has stabilized. This is also reflected by the sales figures for alcohol. Since the 1970s and 1980s, the consumption of alcohol has slightly decreased. Fewer youths drink, but when they do, they drink a lot. Of the youths that drink, 68% are binge drinkers. In 2008, 337 youths were taken to hospital in an alcohol-induced coma (4). Binge drinking among youths aged 12 to 14 did decline in recent years. Addiction centres have witnessed an increase in the number of over 55s with alcohol problems (5). Drug use in the Netherlands has hardly changed, with the exception of cannabis use among youths. The percentage of cannabis users fell by 5% since 1996 to 17% in 2007. There are other substances that can affect health, however. It is for instance known that stimulants are being used by 160,000 Dutch people who work out (6).

Number of overweight Dutch people is stable

Almost half the Dutch population is overweight and about 11% are seriously overweight (obese). The percentage of people who are overweight has not risen or has risen only slightly since 2000, whereas the percentage of people who are seriously overweight rose in the same period by 2% from 9 to 11%. There was, however, a substantial increase in the occurrence of overweight and obesity (*Figure 3.2*) before 2000: the percentage of obese people doubled between 1980 and 2000. But the Netherlands is not doing that poorly compared with many other European countries; for both men and for women, the Netherlands is among the top-five European countries in terms of the percentage of population with a good weight. And that is also true for Dutch youths. For this group, the percentage having overweight has stabilized since 2000 (*Figure 3.3*).

Overweight is caused by an imbalance between the amount of calories consumed and the amount of calories expended. In other words, people eat too much in relation to the exercise they get. It is not clear whether the increase in overweight between 1980 and 2003 can be attributed to less daily physical activity or more calories. The figures on food intake are a bit outdated, but the trends up to 1998 show a decrease in calorie consumption. The number of people that meet the Dutch standard for healthy exercise has been stable for several years at just above 50%. So the eating and physical activity trends, to the extent anything can be said about them, concur with the observation that the percentage of people who are overweight has stabilized. Eating and exercising are closely linked to the environment. This is referred to as the 'obesogenic society', meaning a society that is structured in such a way that people are enticed into eating too much and being physically inactive.

Few Dutch people meet the dietary guidelines

The Dutch generally eat a lot and have a bad diet. They consume far less vegetables and fruit than recommended by the dietary guidelines. They eat too much saturated fat and not enough fish.

A lot of people 'wrestle with a healthy diet'. They follow diets, and find themselves dealing with the yo-yo effect. People have moments or periods in which they eat a lot, which they may compensate with 'balance days' (a day of eating less after a day of eating more). There are also cases of malnutrition, however, for example in care homes. Teenage girls worry about their weight at an increasingly younger age, and can develop eating disorders such as anorexia or bulimia. A lot of people don't really know what 'a healthy diet' is. Too much fat is bad, but the body also needs fat. A 'healthy' sandwich ('broodje gezond') consists of nothing more than a roll, cheese, some lettuce, cucumber and a slice of tomato and doesn't really have a lot to do with 'healthy'. The nutritional value of such a 'healthy' sandwich is comparable to that of a normal cheese sandwich. And cheese contains a lot of calories and saturated fat.

Less 'physical' in our daily activities

There used to be a lot of professions that required hard physical labour. Today, machines and the enforcement of occupational safety and health legislation have reduced the number of such labour-intensive jobs. Work in and around the home has also become less arduous. On the one hand, the amount of daily physical activity has decreased, but on the other hand, participation in sports has increased. The percentage of people who exercise has risen from 61% to 67% between 2003 and 2007 (2). Physical activity has progressed from a means to a goal. A positive exception is that the bike, certainly compared with other countries, is still a popular means of transport in the Netherlands.

Unhealthy behaviour does not come alone

People who smoke more often also have an unhealthy diet, exercise too little and drink excessively. Alcohol and smoking is the most common combination. For youths, the combination (clustering) generally consists of drinking, smoking and using cannabis. The use of stimulants is part of a wider lifestyle that is typical of a specific subculture. The combination of lifestyle characteristics among youths is associated with their own characteristics, such as their sense of self-esteem and perception of risk. But the social environment also plays a role. Do these people show similar behaviour and/or accept it?

Attempts to influence lifestyle need to take clustering into account, for example, by doing more about an underlying cause than about the actual behaviour it is causing. On the other hand, it may be possible to break the cluster by addressing one factor.

High blood pressure and high cholesterol increasingly treated

Smoking, drinking, eating and exercising all affect high blood pressure and high cholesterol, two important risk factors for cardiovascular diseases. These factors can be influenced by behaviour as well as by medicine use. The use of blood pressure and cholesterol-lowering drugs has sharply increased in recent years. The beta-blocker, Metoprolol, is prescribed to some one million people with hypertension, and two blood pressure lowering drugs are on the top-ten list of risers. Between 2004 and 2008, the use of these two drugs increased by 72% and 78% respectively (8). It is not clear what this increase means for the prevalence of hypertension and hypercholesterolemia. Recent data are unfortunately not available.

Potential for health gains

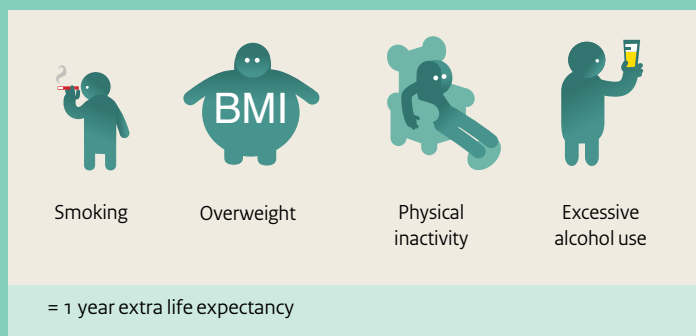
The trends in lifestyle factors are relatively favourable. But there are still large groups that do not have a healthy lifestyle. Smoking and overweight, for example, occur more frequently among people with lower education. In theory, there is still potential here to achieve some major health gain. But it is not easy for people to change their behaviour. First, because there is for some behaviours not always a clear separating line between what is healthy and what is not. Second, because lifestyle is not an independent entity, but embedded in a person's social and physical environment.

The environment is also important for health

Social and physical environment have a direct and indirect influence

Our environment influences how we move around, how we build houses and what we eat. The physical environment can stimulate a healthy lifestyle, but it can also incite new, unhealthier types of behaviour. The physical environment also has a direct impact on health through exposure to environmental factors, the risk of (traffic) accidents, or a labour-intensive profession.

Of the so-called classic environmental factors, exposure to particulate matter poses the biggest threat to public health. The measured concentrations of particulate matter have fallen in the Netherlands in recent years, but because the Netherlands is so densely populated, the exposure is higher than in other European countries. The dense population, increasing mobility and the 24-hour economy also mean that noise pollution is a persistent problem. Thanks to effective noise suppression measures and technological developments, noise has not increased everywhere. Noise pollution can cause sleep disturbance and hypertension. Another important problem is the air



3.4 Effects of eliminating risk factors on (healthy) life expectancy in the Dutch population, 2007



Remaining life expectancy



Remaining healthy life expectancy



Life expectancy at individual level



Healthy life expectancy at individual level



0.5



0.9



1.2



2.1



0.4



0.5



0.9



1.2



0.2



0.3



0.6



0.9

quality inside Dutch homes: the indoor environment. Technical improvements to our homes, such as the addition of air-conditioning systems, have brought some relief. A few innovations were less successful, such as the introduction of heat recovery ventilation systems, which are energy-saving but can cause health problems if they are not serviced or used properly.

Successful environmental policies have reduced many of the environmental risks that were created in the Netherlands in the recent past. There is progressive insight into the harmlessness of certain environmental factors. The soil and drinking water in the Netherlands are of such good quality that they will generally not cause any health problems. And the occupational health and safety guidelines in the Netherlands have helped eliminate almost all exposure to hazardous substances on the workplace.

Influence of social environment and socio-psychological factors

Both the physical and the social environment are important for population health because they constitute the environment people live in. The social environment can be both a source of stress and a source of support. The values and norms of a social network are also important in determining a person's lifestyle. The social environment is likely to have a substantial impact on public health, but a lot of these influences occur indirectly, making the impact difficult to quantify. Stress affects a person's blood pressure and immune system and can cause headaches and insomnia. Socio-psychological factors are mainly associated with mental disorders and health problems, and with the course of diseases. Social cohesion and social bonds have a lot of influence on the broader concept of health and are therefore more difficult to relate to specific diseases or health problems. Relationships with family, friends and colleagues and involvement in society are strongly related to well-being, among other things, indirectly through health (9).

What are the most important determinants?

Smoking creates the biggest disease burden

The sum of the factors that influence public health provides a variegated picture of dissimilar factors. As in the previous PHSF reports, we used the RIVM chronic disease model to calculate the contribution of these factors to the total disease burden. This model is somewhat limited because it does not contain every determinant and chronic disease. Of the calculated determinants, smoking is the main culprit. If everyone were to stop smoking, the healthy life expectancy of the Dutch

population would increase by 2 years (*Figure 3.4*). Eliminating overweight would increase life expectancy by 0.9 years. The gain is higher at individual level. The remaining (healthy) life expectancy of a person who stops smoking increases by 4.6 years.

The factors shown in *Figure 3.4* often occur in combination and may have a common underlying cause. The social and physical environment also have an impact on population health. Environment and labour related risk estimates show that each contributes some 5% to the total disease burden. However, the biggest part of the described effect of the (living) environment on health is impossible to quantify with today's knowledge and information.

A lot of determinants are still unknown

Epidemiological research has produced knowledge about factors that contribute to the emergence of diseases and health problems. Smoking and overweight are good examples. Insight into the factors causing a disease enables it to be prevented. This type of research has also produced a variety of trivial relative risks, such as the effects of specific foods, the risk of drinking coffee and the risk of using deodorant. These risks are usually small and the insights can change quickly. This isn't always clear to the general public, and can cause 'epidemiological confusion'. People lose sight of what is healthy and what is not.

Despite increasing knowledge about factors that cause diseases, there is still a lot we don't know. For example, about the determinants of depression, anxiety and dementia, which are all diseases that are among the top-ten disease burdens. This lacking knowledge about determinants applies to many other diseases as well.

Tackle the biggest problems?

Key policy objectives such as smoking, overweight and alcohol have shifted the focus of the national prevention policy (10) to lifestyle. This is very well justified by their estimated contribution to the total disease burden. A lot of effort has been put into preventive interventions for these policy objectives. The results are described in the sub-report 'Effecten van preventie' (Effects of prevention) and summarized in Chapter 6. That chapter explains that not enough is known yet about the effects of interventions or that their effects are often marginal. It is apparently not easy to persuade people to adopt a healthy lifestyle.

Not easy to adopt a healthy lifestyle

There are at least three reasons why it is not easy to adopt a healthy lifestyle. First, it is not always clear what 'healthy lifestyle' exactly means. For smoking, the message is

unequivocal: every cigarette is one too many. But for alcohol, the message is a bit more complicated. Moderate alcohol consumption can have a positive effect because it increases the HDL cholesterol and thus decreases the risk of heart disease. At the same time, alcohol increases the risk of breast cancer, and too much alcohol is bad for the liver and the brain. And what is a healthy diet? The messages about diet and health are very contradictory. Second, there are personal traits that make it hard for people to adopt a healthy lifestyle. Genetic differences determine, for example, why some people become addicted to nicotine and alcohol and others don't. And for some people, the amount they eat is determined by their emotions. These 'emotional eaters' eat or do not eat to feel better or happier while external eaters are strongly influenced by the availability of food in their immediate vicinity. This brings us to the third point, namely the environment. Lifestyle is deeply embedded in the environment. All kinds of external influences and temptations make it difficult to 'live a healthy life'. It may be hard to live healthy, but it is still not impossible. The fact that the number of smokers has decreased by 50% in the last 50 years proves that behaviour can change. For some smokers, stopping smoking was an incentive to improve their entire lifestyle, and that has broken the circle of unhealthy behaviour.

The environment as starting point for change

'Make the healthy choice the easy choice' is an often-heard expression. If lifestyle is so clearly embedded in the environment, then it should be possible to change the environment in such a way that it is easy to change one's behaviour. Physical activity, for example, can be stimulated by making it more appealing to take the stairs than the elevator. Subtle changes to the environment, such as applying footprints to the floor or opening a door automatically often is all that is needed. And changes can be made in the supply-side of food products. Interesting are the food industry's initiatives to change the composition of their products. Saturated fats, for example, have already been replaced in a number of products with the safer unsaturated fats. Margarines that have a positive effect on cholesterol are also available. And efforts are undertaken to further improve products, for example, by reducing the amount of salt they contain. The social environment is also a source of values and norms. The norms for smoking, for example, have changed considerably in the last decades. Smoking has been banned almost everywhere: public transport, the workplace, and since 2008 even in the hospitality sector. Smoking is less taken for granted and according to some, something people with problems do. The example of the size of food portions this chapter opened with has everything to do with norms. Is 50 cl of Coke a normal amount?

Lifestyle is given a lot of attention by policy makers. But the environment is just as important because of the direct and indirect effect it has on health. The fact that a lot of behaviour occurs in clusters emphasizes that behaviour cannot be viewed in isolation. A healthy lifestyle in a healthy environment has a kind of a natural division of responsibility between individuals and the government. A healthy lifestyle is seen as a personal responsibility, whereas responsibility for the environment is mainly assigned to the government and civil society. Personal freedom plays a major role in behaviour change, making it a thorny issue for the government. The government can intervene if others are harmed by a person's behaviour, such as in the case of passive smoking. The government can also intervene when parenting is involved or people make the wrong choices because they received wrong information. In general there are possibilities in the planning of public space and in stimulating 'healthy choices'. Legal measures such as smoking bans also play a role. Healthy choices can be stimulated through information, prices, or subtle hints (nudges) without taking away a person's ability to make his or her own choice (11). Facilitating a healthy choice is mainly about helping (motivated) people make healthy choices (*Chapter 6*).

Further reading

This chapter is mainly based on the sub-report 'Gezondheid en determinanten' (Health and its determinants) and on information in the National Public Health Compass.

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4 A healthy society

The Netherlands is in good shape. Living conditions in the Netherlands kept improving all the way up to 2009 and the impact of the financial crisis is not yet really visible, says the Netherlands Institute for Social Research in 'De sociale staat van Nederland' (The Social State of the Netherlands), which was published at the end of 2009 (1). Of all of the European countries, the Netherlands scores the lowest on the misery index; the Netherlands has the lowest unemployment rate, the lowest inflation rate and the lowest budget deficit in Europe. Despite the financial crisis, three-quarters of the Dutch believe the Netherlands is a prosperous country. Social participation in the Netherlands is high. A lot of Dutch people are members of social clubs or societies. Labour participation has increased, and, at 68% is the highest in Europe, even though the Dutch have a higher ratio of part-time workers.

Wealth and public health go hand in hand ...

The Dutch health status is in good shape as well. There is, of course, a logic in this. Health and societal well-being are strongly interrelated. We saw in Chapter 1 how wealth and life expectancy affect each other. The twentieth century has brought wealth and health to many countries around the world. Significant economic growth and a sharp drop in the mortality rate took place in particular in the western and northern European countries. *Figure 4.1* illustrates this trend for the Netherlands. In the 1970s, McKeown pointed out that these developments probably have a causal relationship: economic growth increases life expectancy (2). And Robert Fogel, the winner of the Nobel Prize in economics, conclusively demonstrated that this economic growth is predominately the result of a better diet and better health. One could say that it is the result of an interaction involving all kinds of social developments. Developments that in turn influence the way we think about health and its causes.

... society, too, plays an important role

But the Dutch are not healthy in every respect. There are big inequalities in health and a lot of people find it difficult to adopt a healthy lifestyle. Here, too, society plays an important role. The previous chapter addressed the importance of the environment. This chapter discusses it in more detail. A lot of health problems are deeply rooted in society. In addition to traditional determinants, there are social determinants of health and disease that create the context for the determinants described in *Chapter 3*. Prevention can only succeed if these social determinants of health are taken into account.

This chapter discusses two aspects in more detail. It first discusses how society influences health and then it describes a few of the consequences this has for the way we think about health.

Social determinants of health and disease

‘What is a healthy lifestyle?’ was an important question in the previous chapter, which focused on the determinants of health and disease. When social determinants are brought to the fore, this question shifts from an individual perspective to a societal level: ‘What is a healthy society?’ It’s not so much about the environment influencing individual behaviour like an exogenous variable, as about the deeper social structures. Social determinants refer to the political, social and economic structures that influence the conditions in which people are born, raised and grow old. For example, the level of wealth and how it’s distributed, educational opportunities as well as other socio-cultural influences (3-5).

Distribution of wealth

Population health is influenced by a country’s standard of living and possibly by the distribution of wealth as well. According to Pickett and Wilkinson, more equal societies have a higher life expectancy (6). The findings are not entirely undisputed, one of the reasons being that the analyses were done at the country level and the effects on the individual social groups were not considered (7). In-depth research shows that this inequality only has an additional effect on population health in countries where income inequality is high (8). Countries with a Gini coefficient (a measure of the inequality of a distribution, for example, income) above 0.30 feel the effect a lot more than countries with less income inequality. In 2007, the Netherlands was at the edge of the line with a Gini coefficient of 0.25, where no additional effects were expected to be felt. However, within the Netherlands there are inequalities in the distribution of income as well. For example, in urban areas where income inequality is higher and the critical limit is sometimes even exceeded (8).

In the 1950s and 1960s, income distributions in the Netherlands were a lot more distorted than they are today. In the 1970s, income inequality sharply declined, especially through the increase in incomes of the non-active population. Since the 1980s and 1990s, income inequality in the Netherlands has been reasonably stable (9).

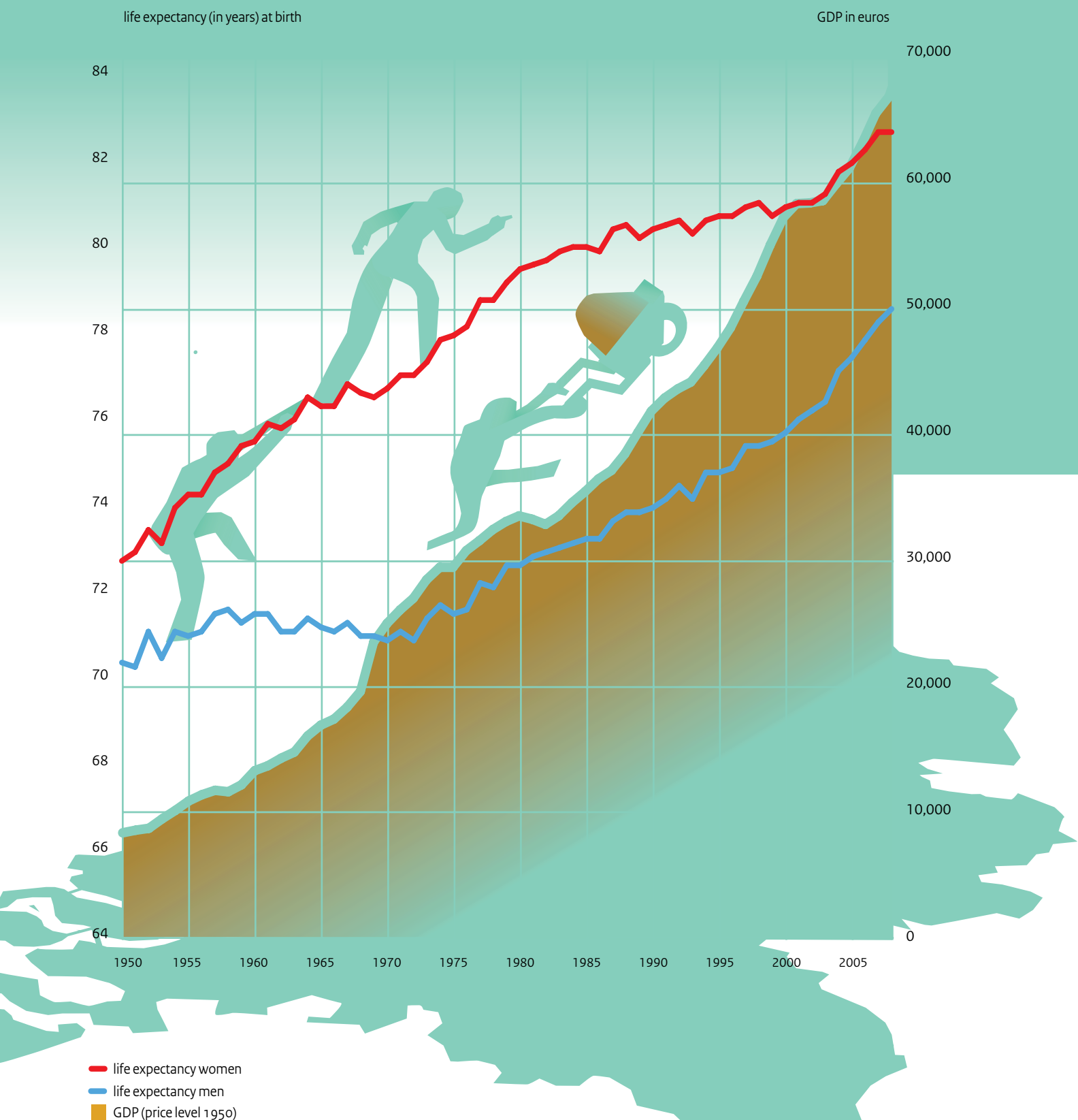
Education and social stratification

A person’s origin and level of education strongly determine their chances in Dutch society. Taking advantage of the chances not only requires money, resources and power, but also access to information, cultural and social participation, as well as health. Together with other social influences, a person’s level of education virtually ‘pre-sorts’ them for a certain path in life, which can be hard to leave. Today’s social system, which attaches a high value to

4.1

Trends in Gross Domestic Product and life expectancy, 1950-2008

(Source: National Accounts, key population figures)



education, provides more opportunities for people to use their skills as much as possible. But the disadvantage is that people with much less skills can't keep up and quickly lose touch with social life. This explains why there are always vulnerable groups at the bottom of the social ladder. From a social perspective, the question one must ask is whether the living conditions of this group are below a specific threshold. In the Netherlands, for example, we identify a 'poverty-limit'. Besides, the relative distance between the groups at the bottom of the ladder and other social groups, i.e. the relative deprivation, is also important from a societal perspective.

Socio-cultural influences

Social stratification 'pre-sorts' people for specific patterns in living, housing, working and leisure activities. These patterns have an impact on people's lifestyles, health, stress and the way they deal with it. This was also shown in the SCP survey on health perceptions, in which Dutch people were asked in twelve group discussions what they see as major threats to a healthy lifestyle. The answers to this question clearly reflect the downsides of modern Dutch society. On the one hand, being busy, stress and an irregular lifestyle are seen as threats to a healthy lifestyle, but so is boredom. Sociability was mentioned as a threat because of its food and drink component, which, on the other hand, provides for a great atmosphere. But traumatizing events and a sense of helplessness can make it difficult to live a healthy life. And finally, the abundance of the consumer society and mass media as its promoter were also mentioned as major threats. The people who participated in the SCP survey stated that a healthy lifestyle is also heavily threatened by social factors and that different population groups deal with them differently. 'Opting for a healthy life' is more within the reach of highly educated Dutch people. People with a low education have less freedom of choice and more difficulty liberating themselves from the socio-cultural patterns they grew up in. This limiting effect can also be seen in more specific population groups. The SCP has established that there is a group of people in the Netherlands whose living conditions are not very good and who are dissatisfied with society. These are also the people who participate less in a number of areas (1). Other researchers pointed out that there is a growing divide between people with a high education and people with a low education (10). Important social and political positions are filled by people with a high education, while people with a low education are barely represented at all. This under-representation can make them feel less appreciated. The question is what the consequences of this supposed social dichotomy are for society and public health.

Health and disease as social phenomena

Health and disease are not static concepts. The definition of health strongly depends on the social context. The opinions about it change over time. The same is valid for disease. Society puts demands on 'normal performance', and under the influence of technological and economic developments, the demands put on employees, for example, change. In the wake of 'human capital', the expression 'mental capital' is used today to indicate that the mental abilities of knowledge workers have to meet certain prerequisites. This is discussed in the sub-report 'Maatschappelijke Baten' (Health and wealth). These prerequisites also have consequences for what is considered to be normal and abnormal. And this again has repercussions for the definition of, for example, mental disorders in general and behavioural disorders in children. At the same time, people are demanding more of themselves. Therefore discomforts are sooner designated and treated as diseases. A common example is orthodontics. Irregular teeth are no longer considered acceptable because regular teeth are the new norm.

Health as defined by the World Health Organisation

This last example refers to the influence of medical care, which is much broader. The increase in the number of people with a disease that was established in Chapter 2 is mainly the result of more medical possibilities. This increase should therefore not be considered alarming. Health is not the same as the absence of disease. This was recognized already in the definition coined by WHO in 1948, in which health is defined as 'a state of complete physical, mental and social well-being'. This definition was highly criticized, but in our changing society, health seems to be taking on a broader meaning and moving closer to the definition coined by WHO. Advertising is a perfect example: food, holiday parks and fitness products are increasingly advertised in terms of health and vitality, well-being and wellness.

Prevention and health care as part of social developments

Nonetheless, scientists and policymakers are mainly interested in the determinants of diseases and health problems. Smoking increases the chance of lung cancer and cardiovascular diseases, and excessive eating can result in obesity and diabetes. But according to WHO's definition, these are only some of the health determinants. The way in which health is defined forces one to look differently at the factors that can influence it. Determinants of well-being are different from determinants of cardiovascular diseases.

As mentioned before, in prevention and health care, the approach to health is more narrow. Nonetheless, this disease concept is not static. This more narrow definition also changes as more knowledge becomes available. Risk factors are increasingly approached and treated as diseases. This is true for hypertension and hypercholesterolemia as well as for obesity and even smoking. Striking is that disease and health predominantly are seen as personal matters. In any case, problems are usually identified at an individual level. A person is either sick or has an unhealthy lifestyle. Solutions are also looked for at the individual level in the form of a treatment or a change in behaviour. Linking this approach focused on the individual to the broad definition of WHO creates an interesting picture. Health care and prevention mainly focus on disease and not on general well-being. But by stretching the definitions of health and disease, aspects related to well-being are drawn into the medical domain, giving them a individual approach. This type of personalization, however, largely excludes the social influences. And these social influences are of great importance for the generally accepted broad health concept. .

This is why expanding the health domain is not enough to do the broader concept of health justice. The way things are looked at and thought about will have to change as well. In this regard, a parallel can be drawn with the work of the public health specialists ('hygienists') at the end of the nineteenth century. These hygienists not only strived for better health care, they also strived for better housing, sanitation, working conditions, social services and education.

Towards a healthy society

If the legacy of the hygienists is characterized as 'flood control', the crucial question is what will be considered as flood control in the Netherlands in the twenty-first century. A healthy society is more than a country with healthy people. A healthy society is also resistant against economic and socio-cultural shocks. In this sense, the current economic recession is a good test case. The Netherlands is standing the test in part because of its socio-economic policy. But the question remains how this will affect specific groups in the long term, such as people with a low education.

This chapter does not provide a quick and easy answer to this question. It only provides a look at disease, health and their causes from a different perspective. This produces already a number of interesting insights for policymakers, practitioners in the field and researchers.

Relevance for policy and practice

Public health policy also has to pay attention to the opportunities and threats of the social determinants of health. Wealth and the distribution of wealth are, for example, social determinants that the Netherlands is performing well in. The health gap between people with a low education and people with a high education remains an important issue (*Chapter 5*), however, not so much in terms of income differences as in terms of people with and without opportunities. In order for prevention (*Chapter 6*) and health policy (*Chapter 7*) to be effective, it is important to look at the social causes and the socio-cultural dimension of public health problems. The same applies to public health practitioners: focusing only on behavioural and lifestyle interventions (5) is simply not enough. It is also important that people need to be enabled to participate in society, which may require other skills from, for example, health promoters.

Expanding into the societal perspective also enables us to look at the meaning of health from a different angle. Health is not only important for people, it is also important for society. Robert Fogel saw in the development of the health of the population one of the main catalysts for economic growth in the Western world. In this vision, good population health is an important source of social welfare and it is worthwhile to invest in prevention and health care (*Chapter 8*).

Research agenda

It is well known that behaviour cannot be viewed in isolation. The 'shift' to a societal perspective implies that researchers have to change or expand their field of interest. Today's chronic disease epidemiology cannot answer tomorrow's public health questions. According to some scientists, an eco-epidemiological approach may offer a good alternative (11). Such an approach also looks at the social context and the dynamics of public health. Medical sociology can pay an important contribution to the development of theories in this area as well (12). All this may contribute to a possible transition in public health. A change towards a public health that champions a healthy society in which health, well-being and wealth reinforce each other.

Further reading

This chapter is based on the sub-reports to the PHSF 2010 'Maatschappelijke baten' (Health and wealth), 'Gezondheid en determinanten' (Health and its determinants) and the sub-report on health perceptions that was compiled in collaboration with the SCP.

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5 The health gap

‘Social justice is a matter of life and death.’ This is how the WHO committee’s final report ‘on social determinants of health’ with the ambitious title ‘Closing the gap in a generation’ starts (1). Under the chairmanship of Sir Michael Marmot, the committee makes a strong plea to address the health gap between rich and poor. The publication of the report and the conference that followed in November 2008 spurred the debate on health inequalities in Europe. Various European countries, with the United Kingdom in the lead, embraced the committee’s findings and translated them into national action plans. The Dutch Minister of Health, Welfare and Sport also put a plan in place. The differences in health between people with a high education and people with a low education are known to be large in the Netherlands.

There are various reasons why health inequalities should be tackled. The Marmot Committee bases its argument mainly on the principle of justice: everyone has the right to enjoy the highest attainable standard of health. This approach not only strives to improve the health of those who are the worst off, but also to reduce the gap. Other arguments as well are conceivable as well, such as the utilitarian approach, which says that public health in general can be improved the most by focussing on the group with the biggest health problems. People with a low education have the lowest life expectancy – a lot can be achieved in this area. In other words, it will be difficult to achieve the overall health objectives without eliminating at least some of the health inequalities.

Reducing health differences important for society

The motto of the fourth Balkenende Administration ‘Working together, living together’, revolves around social participation. Participation is important for people themselves, but also contributes to economic welfare and, even more important, the overall quality of society. Health is a prerequisite for participation, either in society or the labor force. A lot of people at the bottom of the social ladder does not participate in a number of areas at all for health reasons, among others. It is essential that this group takes part in economic and social life sooner rather than later, especially because of the shrinking working-age population.

Health gaps remain large

Men and women with a high education live longer

The gap in life expectancy between highly educated and less educated people in the Netherlands is 7.3 years for men and 6.4 years for women (*Figure 5.1*) (2). A gap in life expectancy of seven years is big it is even bigger than the life expectancy gap between men and women. The life expectancy of men with a low education (74 years) is comparable to that of the average Dutch male at the end of the 1970s.

The gap in healthy life expectancy by level of education is even bigger (*Figure 5.1*). People with a low education have an average life expectancy without limitations of 61 years, whereas people with a high education live an average of 75 years without limitations. Limitations can prevent people from participating in society, making them more important than life expectancy as such. The gap is fourteen years!

The gap in life expectancy stagnated between 1997 and 2008. Life expectancy shows similar increases for all categories of education. This also means that the life expectancy of people with a low education increased between 1997-2000 and 2005-2008: for men by 3.1 years

and for women by 0.7 years. The gap in life expectancy without limitations increased slightly during the same period.

The level of education is an important indicator for socioeconomic status (SES) and the position a person has in society. Gaps in health between SES groups measured by levels of education are referred to as socioeconomic health differences.

Big differences in self-perceived health

Four in ten people with a low education perceive their health as less good. This is 3.5 times higher than the group of people with a high education, where only 12% perceive their health as less good. The differences are not as big for perceived limitations and self-reported chronic diseases, but they are obvious (*Figure 5.2*). These differences have remained pretty much the same since 1990 (3).

A number of risk factors also occur more frequently among disadvantaged groups (*Figure 5.3*). Dutch people with a low education smoke almost twice as much as people with a high education and the mortality rate from smoking-related diseases shows a clear gradient by level of education. Striking is also that between 1990 and 2007 the differences in smoking by level of education even increased. This difference is mainly due to the fact that people with a high education have stopped smoking (4). It will be interesting to see whether people with a low education will follow this pattern where after the differences will again decrease over time. A similar phenomenon can be observed for overweight. In recent years, serious overweight increased among people with a low education, but decreased among people with a high education.

Health inequalities among migrants

The differences in health by level of education or socioeconomic status also manifest themselves in differences between migrants and natives. The mortality rate among non-western migrants is on average higher than among natives. The difference is, however, decreasing (5). In some aspects, migrants are clearly doing better. The mortality rate among Moroccan men over 45 is considerably lower than that for the native population (6). Today's migrants are expected to gradually assimilate into the dominant culture in the same way the Dutch Surinamese did. But the number of first-generation migrants is not expected to decrease, on the one hand, because marriage partners are looked for in the country of origin and, on the other hand, because of newcomers from new migration countries (7).

Health inequalities also geographically visible

The municipality with the lowest life expectancy in the Netherlands is Kerkrade. Here, life expectancy is eleven years shorter than in Eemnes, where it is 88 years. The

differences between geographic areas are even bigger if we look at the disadvantaged neighbourhoods in the big cities. Health inequalities are, however, also a problem in rural areas. In socioeconomically deprived areas in particular, such as the northeast of the Netherlands and the province of Limburg, the health of large groups of Dutch people is lagging behind (Figure 5.4).

Differences similar to other countries

The socioeconomic health differences in the Netherlands are similar to those in other countries (8), where the differences in mortality between high and low SES groups are increasing. It is not clear whether the same is happening in the Netherlands (9). In Europe, the variation in health differences is considerable. Socioeconomic differences in mortality are relatively small in the southern European countries and big in Eastern Europe and the Baltic countries. The variations in health between European countries seem to be mainly related to smoking and alcohol (10).

Health inequalities affect society

Health inequalities affect society in a number of ways. The existence of inequalities implies that there is a group that uses more health care than average. It also implies that there is a group that is unable to participate because of health problems. This starts already at school, with bad health being a major cause of school absenteeism. School dropouts are much more likely to have health problems than non-dropouts. Health also affects school performance. Children with health problems score lower in their Cito test (a test in the Netherlands to determine which type of secondary school a child should be placed in) and may be advised to be placed at a lower educational level than healthy children, regardless of their parents' socioeconomic status. This means that health may induce social inequalities at a young age.

As a consequence, more and more pupils are transitioning from normal secondary education to special-needs secondary education. The number of pupils following special secondary education has tripled in seventeen years to more than 30,000 in the school year 2008-2009 and includes an increasing number of children with behavioural disorders (11). Especially the number of pupils in schools for children with learning difficulties is sharply increasing. Many of these pupils will never work but will leave school and immediately receive disability assistance for handicapped young persons (12). The number of people receiving disability assistance for handicapped young persons increased in the last ten years by 50% to 184,000 in 2009 (11).

Employees with a lower or pre-vocational education are seven times more likely of being incapacitated for work than people with a higher vocational education (13). The group of unhealthy people is lost to employment at a relatively young age. People between the age of 55 and 65 who still work are usually healthy, and people who want to continue working beyond the age of 65 are usually healthy, highly educated and work in relatively good conditions. Health is therefore very important in order to participate in the labour process. At the same time, participation is a means of acquiring and keeping a position in society, which again has repercussions on health. Health differences, therefore, play an important role in all kinds of social participation and exclusion processes.

Possible action points for policy

What is a successful way of improving the health of the groups with the biggest disadvantages so they can increase their participation in society and improve the average health of the whole Dutch population? This is not an easy question to answer because health inequalities are complex and tough. Both the causation and selection processes play a role, whereby in the first case a low social position is the cause of less good health and in the second case, it is a consequence thereof. The Dutch Committee Socioeconomic Health Differences (The Albeda Committee) formulated in 2001 four action points to tackle health inequalities. First, the living conditions and the lifestyle of disadvantaged groups can be improved. Second, the socioeconomic differences can be reduced. Third, an effort can be made to reduce the socioeconomic consequences of health problems. Finally, access to and the effectiveness of health care for disadvantaged groups can be improved. These four action points are discussed below in more detail.

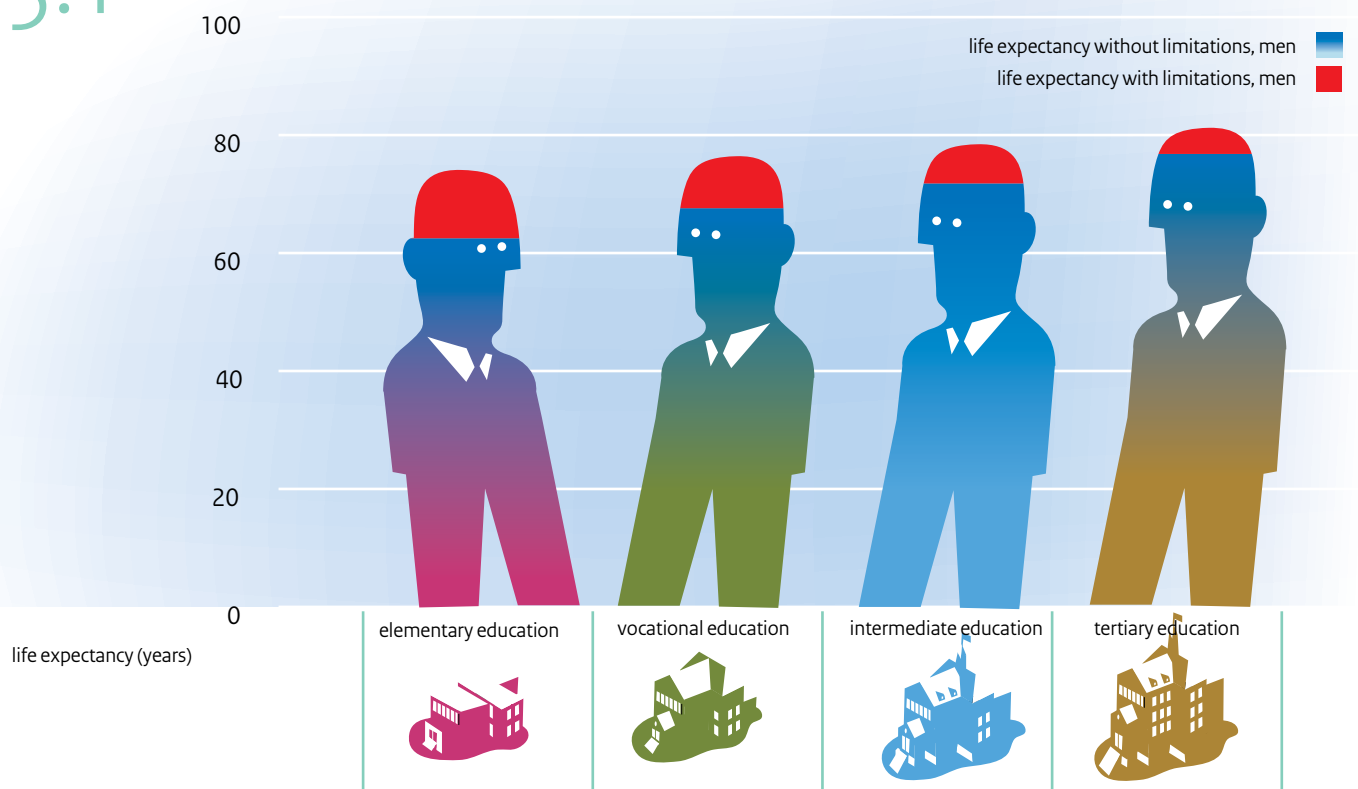
1. Change living conditions and lifestyle

The prospect of better living conditions and a healthy life is lower for the people with a lower education than for the highly educated.. Take the working conditions for low-skilled labour as an example. The work is often arduous and takes toll on health. The living conditions are generally not very good either. These conditions do not make it easy for people with a low education to live healthily.

Professionals are trying to change this through interventions. However, the effectiveness of many of the interventions is unfortunately not known, and many measures do not reach the disadvantaged groups or do not reach them sufficiently. Successes are sporadic, and there is no formula for a large-scale implementation of interventions to reduce health inequalities. Nevertheless it concerns millions of people in the Netherlands

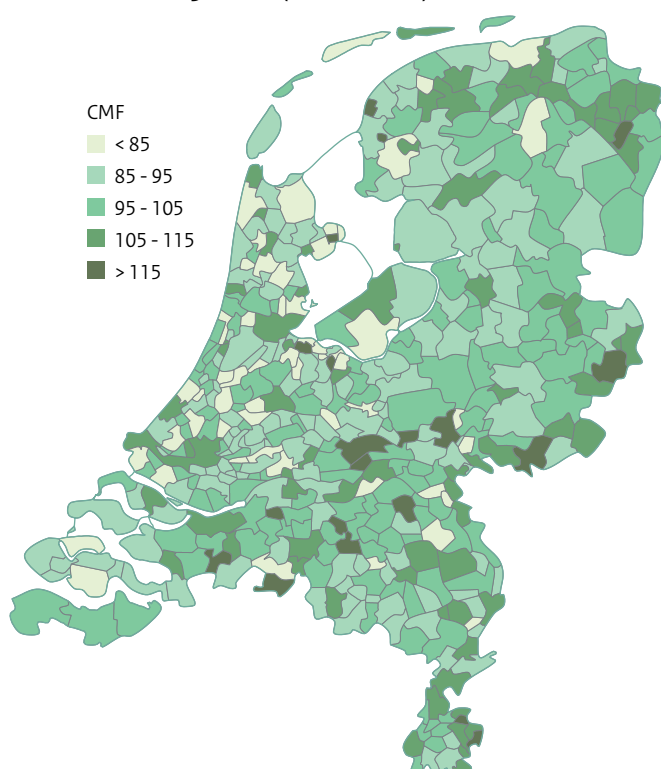
5.1

Life expectancy by level of education, 2005-2008 (Source: CBS)



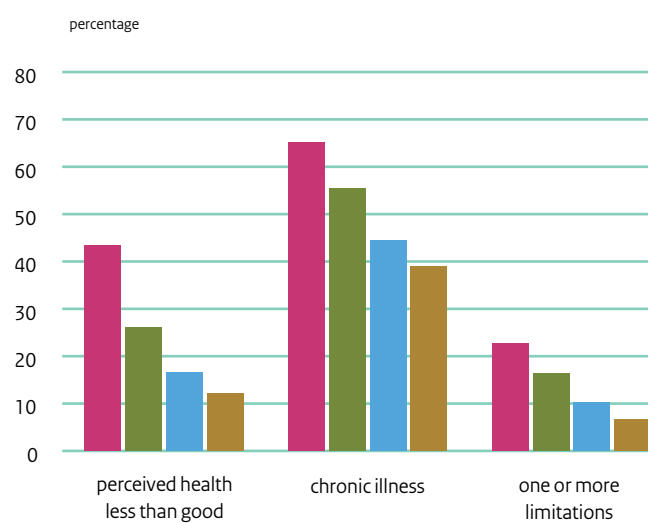
5.4

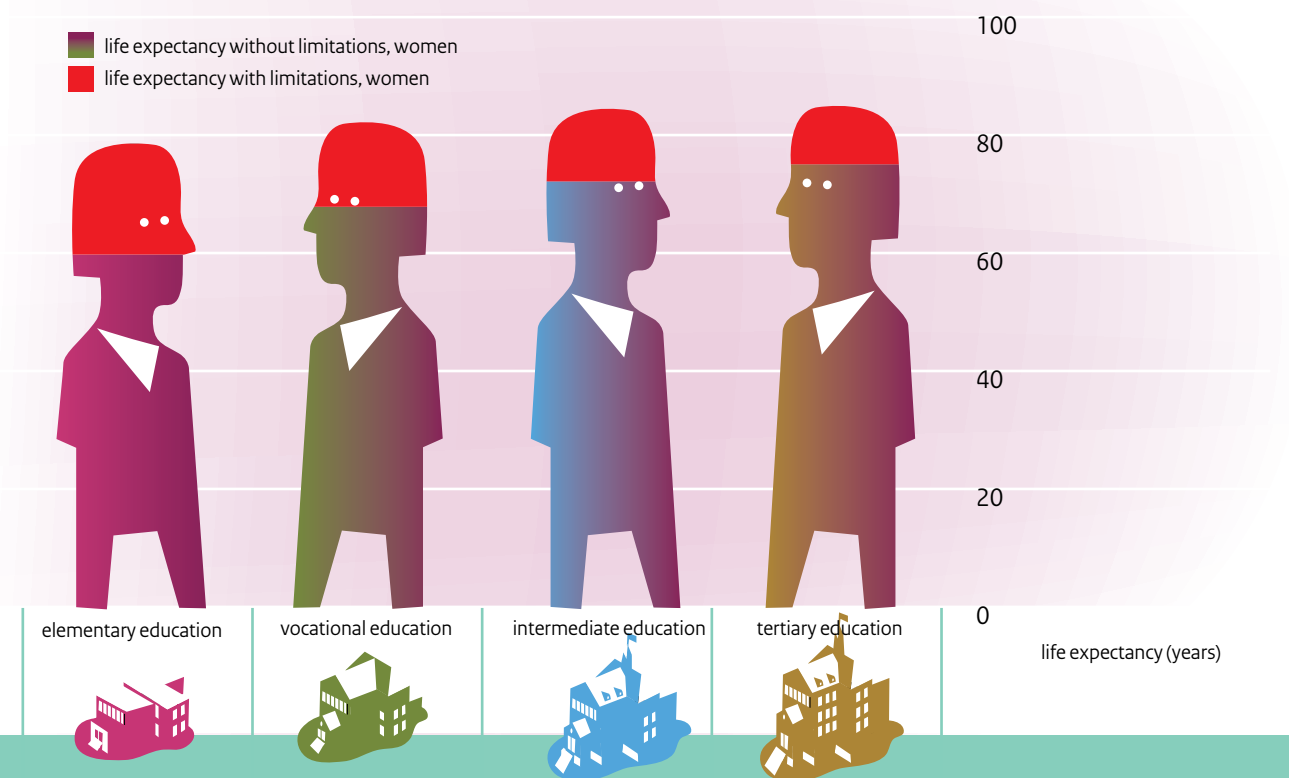
Total mortality by municipality, 2005-2008 (Source: CBS)



5.2

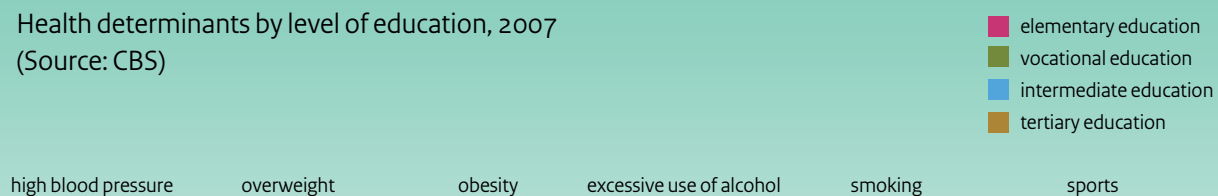
Perceived health, chronic diseases and limitations by level of education, 2007 (Source: CBS)





5.3 Health determinants by level of education, 2007

(Source: CBS)



The challenge consists of carrying out interventions that mainly benefit people with a low education. Smoking is a good example. Differences in smoking by level of education have recently increased. Behavioural and pharmacological support provided at the general practitioner's office enabled 20% of the participants to successfully stop smoking. This is where the chances lie.

The prospects for the so-called 'beweegkuur' (exercise therapy) are also bright. Exercise therapy and interventions aimed at other causes can also focus on helping people with a low education. It is still easier said than done, though, because many interventions do not tie in with this target group's social environment and daily problems. The chances of successfully stopping smoking are also related to skills, group norms, perceived stress and other conditions. For people with a low education who are unemployed and smoke, finding a job has a higher priority than stopping smoking. Smoking is not something they would even consider addressing until they found a job. Here, the social determinants are more important than the determinants directly related to health and disease. Policymakers and health practitioners are often not aware of the issues people with a low SES are dealing with. A survey on the health perceptions of people with a low SES revealed that health messages are often perceived as patronizing because their tone is condescending. People with a low SES perceive them as an obligation rather than a choice. Known unhealthy habits are experienced as important moments of pleasure. Health promoters with a high education base their messages to people with a low education on a normative idea about what is good for 'them'. This can create a 'we-them' feeling and thus distance (14).

Neighbourhood interventions are currently a popular way of addressing living conditions. The neighbourhood is the place where the target group can be reached. But it is not only a place where health problems can be found, it can also cause them. The Dutch approach for the 40 deprived neighbourhoods ('krachtwijken') is a good example of neighbourhood intervention. How the interventions will affect the health of the residents is not yet known and will only become visible afterwards.

Neighbourhood interventions endeavour to change the environment and/or stimulate residents to change. The reasons why people live in a certain neighbourhood are unclear. A person lives in a certain neighbourhood because of its composition and the available housing. There are disadvantaged neighbourhoods with very tight social structures that residents do not want to leave. Restructuring these neighbourhoods can have an adverse effect on the residents. Restructuring can improve a neighbourhood's liveability, but the improvement would mainly be an effect of the changing composition of the neighbourhood's population (15). This is why it is important that

within a neighbourhood approach the underlying social determinants and their dynamics are taken into account.

In short, changing the lifestyle and living conditions of people is more successful when the impact of social determinants is also taken into account. These determinants are very important for people's daily lives, living environments and chances in life. This brings us to the second action point.

2. Do not let socioeconomic differences get too big

The fact that health inequalities are so big is related to the socioeconomic inequalities in our society. There is still a big gap between rich and poor. Inequity manifests itself in unequal opportunities in education and the labour and housing markets. In fact, we find ourselves speaking of social determinants of health, the same determinants with which this chapter opened and that the WHO committee stressed in its aforementioned recommendation (1). The committee made an appeal to tackle the conditions in which people live and die. Conditions that are shaped by political, social and economic powers. In addition to improving everyday living conditions, the final recommendations mainly concerned tackling the unequal distribution of power, money and other resources: the deepest roots of health inequalities.

Socioeconomic differences will probably always exist. For a society as a whole it is very important that these differences should not reach a size that adversely affects the health or other areas of society. A vision that focuses more on equality stresses that the differences in society should not get too big. The previous chapter explained that income inequality in the Netherlands does not have an additional effect on overall life expectancy. This does not mean, however, that narrowing the gap between people with a high education and people with a low education is no longer important. The education policy is strongly geared towards promoting equal education opportunities. With the increasing importance of education and skills to acquire a position in society, education has become the most important factor in social stratification. So, education not only creates equal opportunity, it creates inequality at the same time. Participation in education has dramatically increased since the 1950s, as has the level of education, but the gap in health has increased rather than decreased. The significance of education for a person's social position changes over time. On the one hand, society is putting ever-higher demands on employees in the knowledge economy. On the other hand, there is talk of degree inflation. A degree from a lower secondary vocational school is now comparable to a degree from a lower vocational education in 1965. School dropouts are one of the problems policymakers are currently focussing on. The Dutch Scientific Council for Government Policy

recently published a report on this issue. A reason for students to drop out of school can be an accumulation of problems and stressful events. The Dutch Scientific Council for Government Policy is appealing for more structure and consistency for these youths in an educational system that consists of more than transferring knowledge. Schools must help youths find their place in society (16).

In addition to education, income policies and social security are important policy instruments to limit social differences. These instruments are still very important in the Netherlands (17).

3. Prevent social exclusion caused by health problems

Health is one of the factors that determine a person's position in society. To tackle health inequalities, it is essential that people do not become incapacitated for work because of health problems and end up getting caught in a spiral of exclusion and deteriorating health. Reintegration is very important for everyone who is incapacitated for work and in particular for youths receiving disability assistance for handicapped young persons. The same applies to children in special schools. Every form of social participation needs to be promoted and the obstacles related to health problems removed. Local governments can do a lot, among other things, within the framework of the Dutch Social Support Act (WMO) and the Dutch Work and Welfare Act (WWB).

4. Access to and effectiveness of health care for disadvantaged groups

There are no indications that limited access to health care causes health inequalities in the Netherlands. People in lower SES groups use considerably more health care, but when the health status is similar, the use of medical services is not that much different for people with a high education and people with a low education. The Netherlands therefore already meets the Albeda Committee's fourth action point. But it is important to guarantee equal access and to keep investing in low-threshold, financially and physically accessible and effective health care for everyone, including the disadvantaged groups.

Health inequalities back on the agenda

Until 2001, the Netherlands was the European leader in policies and research focused on tackling health inequalities. This is no longer the case (18, 19). In 2001, the government published a viewpoint in which the minister stated that existing policy measures would be continued and intensified and that options for new policy initiatives

would be formulated. This was based on the insight that policies that had been carried out in a number of areas had reduced socioeconomic health differences and that an intersectoral approach to reducing socioeconomic differences needed to be intensified. However, nothing much happened after 2001.

It was not until 2007 that the fourth Balkenende Cabinet revived the policy on health inequalities. At the end of 2008, a policy plan was published and a supplementary letter followed in 2009. The plan described an approach to reduce 'health differences based on socioeconomic backgrounds', contained elements of the above-described action points and was based primarily on the Dutch prevention policy report in which the key objectives for lifestyle changes were defined.

In response to this policy plan, the Dutch Lower House asked for concrete targets for health inequalities, because a clear position at the national level is important for involvement at the local level. A municipality cannot effectively tackle health inequalities on its own. Policymakers and professionals don't really know how to tackle problems at the local level. Most of the health promoters who work with regional health services believe they are either not capable or not capable enough to tackle socioeconomic health differences (20).

Narrowing the gap

Inequalities in health in the Netherlands are big and intractable. They can be looked at in a number of ways, but whatever way they're looked at, it is essential that they are reduced in order to achieve the overall health objectives and ensure enough people can perform paid and volunteer work in the future. The government expressed its intention to tackle health inequalities. The question now is whether it will be possible to translate this ambition into concrete actions that will produce results. All kinds of national and local measures have been implemented over the years to improve the social position and lifestyle of people with a low SES. But the health gap has increased rather than decreased. It is not clear what the contribution of the different efforts was, and what was and was not effective. The effects were either not investigated or they were marginal. This is why the Netherlands would do well to systematically investigate the effects of implemented policy measures on direct objectives and their contribution to reducing health inequalities.

In their joint recommendation 'Buiten de gebaande paden' (Off the trodden paths), the Dutch Council for Public Health and Health Care, the Education Council of the Netherlands and the Dutch Council for Public Administration (Rob) argue that more needs to be done to reduce

socioeconomic health differences than has been achieved by the numerous measures that have already been taken. 'Extensive efforts are required to ensure that effective interventions and policy measures have enough reach among lower socioeconomic groups to measurably reduce health differences. Daring to make a difference is more important than taking measures that apply to all citizens' (21).

As we saw in Chapter 4, health inequalities cannot be seen separately from social determinants, which are about upstream social structures and processes. Sir Michael Marmot sees the financial crisis as an opportunity to discuss how society is organized with the goal of achieving an equal distribution of health within countries and around the world.

Health inequalities play an important role in a person's ability to participate in social and economic life. And finally, the most health gains can be achieved among the disadvantaged groups. The tackling of health inequalities and how they are to be addressed needs to be discussed. A discussion in which normative aspects are inevitable.

Further reading

This chapter is based on information in the PHSF 2010 sub-reports 'Gezondheid en determinanten' (Health and its determinants), 'Effecten van preventie' (Effects of prevention), 'Maatschappelijke baten' (Health is wealth) and 'Nederlanders aan het woord over gezondheid en gezond leven' (Dutch citizens talk about health and living healthily). Information from the National Public Health Compass was also used. More figures and trends over SES health differences can be found in the Monitor Gezondheidsachterstanden (MGA) (Monitor on Health Inequalities).

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6

The potential of prevention

Prevention is better than cure. Healthy living has been in the spotlights for years, not only among the public, but also in policies. 'We must invest in health because the health of the Dutch is getting worse thanks to smoking, the harmful use of alcohol and overweight,' wrote the then Minister of Health, Welfare and Sport in his prevention policy paper in 2006 (1). The tone was set by the title: 'Opting for a healthy life'. There were five key objectives: smoking, alcohol, overweight, diabetes and depression.

Prevention today

A lot has happened since then. Shortly after taking office in 2007, the new Minister of Health, Welfare and Sport placed his predecessor's key objectives in a broader context. 'Be healthy, stay healthy' was the title of the Cabinet's vision on health and prevention, which drew special attention to the social significance of good public health (2). The importance of health protection and disease prevention was emphasized under the motto 'cultivate and innovate'. A commitment was also made to work on comprehensiveness, linking prevention and health care, and improving the administrative environment. The goal was ambitious: 'Together towards better health in the Netherlands!'

Countless initiatives to promote a healthy lifestyle

Things moved quickly from then on. A few examples: The municipalities published their public health policy papers. In 2008, the new Public Health Act was enacted. The Dutch Health Care Insurance Board (CVZ) ran an extensive project to determine whether preventive interventions could be a part of the health care insurers' packages. The National Institute for Public Health and the Environment (RIVM) established the Centre for Healthy Living and the Centre for Youth Health. The smoking ban became effective throughout most of the hospitality sector. The Covenant on Overweight and Obesity was continued as the Covenant on Healthy Weight. The Social and Economic Council of the Netherlands (SER) discussed the possibility of promoting health at the workplace (3), and the Education Council of the Netherlands, the Dutch Council for Public Administration (Rob) and the Council for Public Health and Health Care (RVZ) published their joint recommendation on intersectoral policy (4).

The 'comeback' of infectious diseases

Most striking, however, was the re-emergence of infectious diseases in society and policy. The 'comeback' started with SARS and bird flu, and was given new impetus in the spring of 2009 with the HPV vaccination for young girls. Then swine flu came. The severity of the disease and the vaccination policy created a lot of public concern. And finally, Q fever turned into a major public health problem and boosted the importance of intersectoral cooperation.

The urgency of prevention

A lot of attention is given to prevention by both political-administrative circles and the general public, and the sense of urgency seems to be increasing. Although public health is in good shape in a number of areas, this PHSF shows that the urgency is still pressing. Life expectancy for women may be increasing, but it continues to lag behind other countries (*Chapter 1*). The number of sick people is increasing, and life expectancy without limitations lags behind normal life expectancy. The total burden of disease is considerable (*Chapter 2*). The trends in unhealthy behaviour may not be as unfavourable as they once were, but the number of people with an unhealthy lifestyle is still high and a lot of people simply cannot change their behaviour (*Chapter 3*). This is also caused in part by the so-called epidemiological confusion. People get so much health information that they can't see the wood for the trees and no longer know what is healthy and what is not. Another reason for the urgency of prevention is that health is a prerequisite to participate in economic and social life (*Chapter 4*). With a shrinking working-age population, it is important that everyone participates. Health enables people to do just that. Last, but not least, health differences are big (*Chapter 5*): large groups of people are unhealthy and live unhealthy. A lot of health gains could be achieved for these groups. Improving their health is a prerequisite for further improvements in the health of the total Dutch population.

Recent experiences with the HPV and swine flu vaccinations point to another reason why prevention policy is so urgent. There were a number of conflicting reports about the vaccination programmes in the news, and the internet was a breeding ground for all kinds of rumours, distrust and bad sentiment towards the government. As a result, a lot of people thought the HPV vaccination was controversial, and turnout was low. There is no way of knowing what the effects of this behaviour will be. It is clear, however, that new ways of communicating and dealing with citizens are needed to implement the prevention policy.

Prevention regards a broad field

Prevention is better than cure, and that in a number of ways. Population studies, vaccination programmes, routine check-ups by dentists and health centres, cholesterol and blood-pressure lowering drugs, the removal of household waste, clean water and road safety, are all examples that show just how broad the field of prevention is. There are different ways of dividing the area and mapping it out (*Figure 6.1*).

Prevention has many faces

Each of the different aspects has its own purpose and relevance. Anyone looking for action points in prevention will find the classification into primary, secondary and tertiary prevention very useful, and anyone wanting to map out the target group will prefer a classification from collective to personal. These two classifications are impossible to combine into one universal classification, with the exception of health protection, which always consists of primary prevention that targets the whole population. Other preventive measures can have several combinations: health promotion consists of legislation (universal prevention) and lifestyle interventions (including indicated or preventive health care) and disease prevention can consist of early detection (secondary prevention) as well as of vaccinations (primary prevention) or of preventing complications (tertiary prevention). Because prevention is so multifaceted, it is difficult to make general statements about it, and when statements are made, it is important to understand which forms of prevention they relate to. In day-to-day conversation, prevention is usually seen as one specific form of prevention, namely health promotion.

Prevention expenditure mainly for health protection

Figure 6.2 provides an overview of prevention expenditure in 2007 by health protection, disease prevention and health promotion. Noteworthy is that health promotion and lifestyle changes only constitute a small part of the prevention activities. Most of the money is invested in health protection, and that investment is usually made by parties other than the Ministry of Health. Insurance companies also fund a considerable part of preventive care, as can be seen in *Figure 6.2* under disease prevention. The funds are mainly put towards routine dental check-ups and drugs to prevent cardiovascular diseases. However, their contribution is understated because the table does not really take preventive health care into account. It must also be said that employers undertake a lot of health promotion in the form of occupational health care. Finally, it can be noted that very little money is spent on health promotion in the areas of smoking, alcohol and nutrition, especially when compared with the industry's advertising budget.

Infectious diseases at the top of the list of prevention expenditure

The money spent on prevention is mainly used to fight infectious diseases and accidents (*Figure 6.3*). These are also the only disease groups where prevention expenditure is higher than health care expenditure. Consequently, the investment in the prevention of respiratory diseases is high and put mainly towards disease-prevention measures such as improving the quality of the air. Cardiovascular diseases are prevented mainly by investing in cholesterol and blood-pressure lowering drugs. On the other hand, comparatively little money is spent on prevention for some disease groups with a high disease burden and high costs, including mental disorders, musculoskeletal diseases and cancer. Here too, prevention has potential, even if it will never be possible to avoid health care expenditure altogether.

Effects of prevention

Health protection produces a lot of health

Considering how wide the area of prevention is and the diversity of measures, it is not surprising that there is no generic answer to the question whether prevention works or not. Looking back on the twentieth century, health protection measures in the area of hygiene, clean drinking water and better housing paid a major contribution to reducing infectious diseases. This led to a sharp decrease in mortality, which led to a sharp rise in life expectancy (*Chapter 1*). The reduction in the number of road traffic victims is one of health protection's more recent successes. The number of road traffic casualties has decreased dramatically since the 1970s. After Malta, the Netherlands has the lowest number of traffic victims compared with the rest of Europe. Legislation, its enforcement and infrastructural measures played a role, as did the increasing safety of cars and improved driving behaviour. This underlines the importance of coherent policies.

The potential of health protection is far from depleted

Water fluoridation and the fortification of bread with folic acid could provide a contribution to public health that is also cost effective. Several countries have already done this. But these examples also show that cost effectiveness is not sufficient. Both of these measures spurred discussions on the unsolicited addition of substances to existing products, which is why neither has so far been deemed feasible.

6.1 Classifications and descriptions of prevention

Type of measure

Health protection



Measures that are taken systematically and routinely without the direct involvement of citizens.

Disease prevention



Measures that are specifically aimed at preventing specific health problems.

Health promotion



Measures that are aimed at the physical and social environment and the lifestyles of individuals and groups.

Stage in the disease process

Primary prevention



Has the goal of preventing disease by eliminating the cause.

Secondary prevention



Has the goal of detecting disease at an early stage and preventing it.

Tertiary prevention



Has the goal of preventing disease getting worse and compensating adverse effects.

Target group

Universal prevention



Targets the people who are not characterized by a higher disease risk.

Selective prevention



Targets risk groups among the population.

Indicated prevention



Targets people who have not yet been diagnosed with a disease but show risk factors or symptoms.

Preventive health care



Targets people who are sick or have health problems.

Disease prevention has also produced a lot of health gain...

In the second half of the last century, disease prevention made the highest contribution to life expectancy with the introduction of vaccines, statines and screening for certain types of cancer. Meerding and colleagues examined the total contribution of disease prevention and health care to the rise in life expectancy since the 1950s (5). They attributed at least half of the increase to disease prevention and health care mainly for infectious diseases and cardiovascular diseases, and to a lesser extent for cancer (Figure 6.4). Screening and early detection in youth health care can also be considered as successes, especially because of their high reach among the target group. A lot of health problems are detected at an early stage and treated, but there is certainly room for further improvement.

... and disease prevention can further improve public health

There is a lot of untapped potential in the area of disease prevention. The National Institute for Public Health and the Environment took stock of cost effectiveness programmes that have not yet been implemented in the Netherlands, such as colon cancer screening. There is increasing evidence that population screening is both efficacious and cost effective. In 2009, the Health Council of the Netherlands recommended implementing this screening. The Ministry of Health, Welfare and Sport, however, decided in 2010 not to implement this screening due to lack of resources. Other examples are vaccinations for chickenpox, the rotavirus and pneumococcus, screening for skin cancer and aneurysms, and the preventive use of aspirin by specific risk groups (Figure 6.5). This list is by no means exhaustive: because of the emphasis in these studies on cost effectiveness, the interventions that have not yet been examined for their cost effectiveness but are known to be cost effective have not been included. It is also worth noting that the results of cost-effectiveness studies must be interpreted with care because of the many assumptions they are based on.

Effects of health promotion

In the last prevention policy document, key policy objectives were defined with ambitious targets for smoking, the harmful use of alcohol, overweight, diabetes and depression. But is it possible to motivate people to live healthier? In the field of health promotion, a number of dilemmas make lifestyle policy difficult (Figure 6.6). The effects of prevention are discussed systematically in the Dutch sub-report 'Effecten van preventie'. The decrease in the number of smokers is one of the most successful examples. The smoking example emphasizes how important it is for policies to be coherent across sectors, be it in terms of legal bans, excise taxes, mass-media campaigns or lifestyle interventions for people with health problems that have been registered by the general practitioner. It also underlines that prevention is a question of perseverance.

Laws and regulations seem to be particularly effective measures because they are generic and affect everyone. This applies, for example, to the smoking ban and the ban on selling alcohol to youths under a certain age. It is extremely important that compliance with these measures be monitored. One must realize that the effectiveness of laws and regulations is the result of a very long process. The smoking ban in restaurants and pubs was not an isolated event, but one of the final stages in a long process to gain social support. In areas such as nutrition and overweight, it can take years before the time is ready for statutory measures.































Price measures are also a good way of reducing the consumption of unhealthy products. This certainly applies to the excise taxes on tobacco and alcohol. Using price and tax measures to influence the consumption of food is more difficult because for most people it's less obvious what healthy is. The harmful effects that smoking and drinking have on others played an important role in the adjustment of the excise taxes for these two goods. This doesn't really apply to food. The effect of mass-media campaigns is difficult to measure and therefore unknown. Nothing indicates that these campaigns engender lifestyle changes, but there is also no evidence that they are not effective. But then, the goal is not usually to bring about a lifestyle change but to spread knowledge and gain support for other measures. It is therefore better to see these campaigns as a setting within which other measures, such as legal bans, excise taxes or lifestyle programmes, can be implemented. Media campaigns help raise awareness and have an agenda-setting function, but on the contrary they can also lead policymakers to believe that some topics are sufficiently covered by national campaigns and statutory measures and do not need to be dealt with at municipal level.

















6.2

Distribution of preventive expenditures by risk factors and diseases, 2007

■ Health promotion (HP)
■ Health protection (HPT)
■ Disease prevention (DP)

Risk factors	HP	HPT	DP	Total
Smoking 	7.6	1.5	4.5	13.6 
Alcohol abuse 	8.3	1.5		9.8 
Substance abuse 	7.4	1.5		8.9 
Compulsive gambling 	1.1			1.1 
Healthy diet and overweight 	12.9			12.9 
Physical activity and sports 	21.3			21.3 
Screening in the Youth Health Care 			104.6	104.6 
Dental care and screening 	0.5		593.0	593.4 
Sexual health, contraception (< 21 years) 	19.0		12.0	30.9 
Road safety 	59.6	1989.4		2049.0 
Fire prevention 	1.8	46.0		47.8 
Sports injuries 	10.6			10.6 
Non occupational accidents 	2.2	8.6		10.8 
Working conditions and occupational safety 	165.4	16.5		181.9 
Violence 		11.9		11.9 

Noise-related nuisance			330.0		330.0
Quality of drinking and swimming water			1499.3		1499.3
Waste disposal			1731.5		1731.5
Sewering			765.0		765.0
Food safety			154.2		154.2
Air quality, housing quality, environmental safety			3487.4		3487.4
Disease groups		HP	HPT	DP	Total
Mental disorders		75.0			75.0
Cancer		15.7		78.1	93.8
Diabetes		1.0			1.0
Cardiovascular disease				1211.2	1211.2
Congenital anomalies, perinatal disorders and pregnancy complications				132.1	132.1
Osteoporosis				122.4	122.4
Infectious diseases: vaccinations and screening				222.2	222.2
General health (not specified)		44.9		44.9	89.8
Total (in million euros)		454.1	10044.2	2524.8	13023.1

Personalised prevention and preventive health care, such as interventions that physicians offer people with health problems or who belong to a high risk group, are known to produce good results. Behavioural support for people who want to stop smoking, eat or drink less, or exercise more is a good example. Positive results are also reported for people with a low socioeconomic status and certain ethnic groups. For smoking, the effectiveness is increased by pharmacological treatment. With maximum support, this approach is successful in one in five smokers, which, compared with other measures, is a very good result.

Effects of local health policy

An important task has been shifted from the prevention policy to local health policy: municipalities now have the task of translating national key objectives into local measures, for example, for schools, sports canteens and neighbourhoods. A lot of interventions are offered, but little is known about their effectiveness and their reach. This is why the Netherlands Health Care Inspectorate (IGZ) draws a negative conclusion: 'It is not expected that the current municipal health policy, which specifically targets overweight, smoking, the harmful use of alcohol, and depression, will pay a substantial contribution to reducing these public health problems' (7).

Local health policy documents usually include the national key objectives, but according to the IGZ, the majority of the municipalities do not link them to their implementation plans. The interventions they implement are usually based on local circumstances, but the effectiveness of most of the interventions is unknown. The same applies to the quality requirements professionals have to meet in order to successfully implement lifestyle interventions. The IGZ was surprised to learn that regional health services only had limited information about the interventions that were implemented and their reach. The scarce information that was available revealed that the local health policy did not reach enough people to have an impact on public health as a whole.

One can wonder whether the picture the IGZ is painting of the local health policy is not too dark. The Minister of Health, Welfare and Sport has broadened the prevention policy, which means that assessment of key objectives set by the previous minister will not be entirely fair, even though the assessment may be the actual task at hand. The municipalities are also seeing improvements. The local policy documents may not meet all of the requirements by far, but that has not prevented progress being made over the years. This trend also sets expectations for the future. Finally, some municipalities take the implementation of health policy very seriously and could be seen as trendsetters for other municipalities.

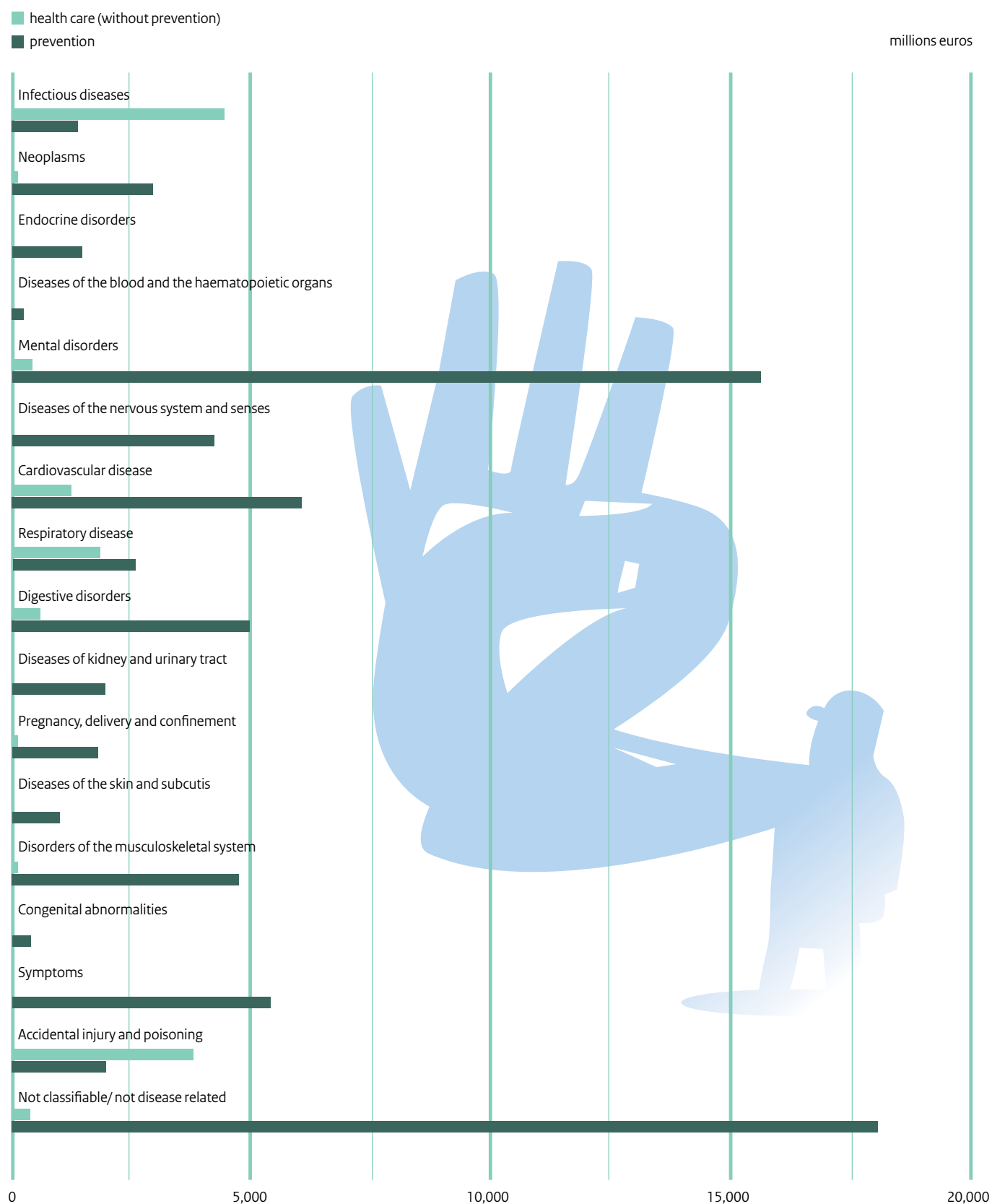
Prevention targets not fully met

'Opting for a healthy life' was the first prevention policy document to formulate concrete and measurable targets. The targets for overweight in adults and depression are likely to be met, contrary to the targets for smoking, alcohol use, diabetes and overweight in children (*Figure 6.7*). In hindsight one may conclude that some of the targets were too ambitious. It doesn't wonder, therefore, that some of the ambitions for 2006 were lowered. Some targets were purposely set high to function as 'inspirational goals' that offer an appealing perspective and are not meant to be measured. In the key objectives, and therefore in the policy, the different types of targets were used simultaneously.

Conclusion

Prevention is better than cure, even though it is not always easier. In the last century health protection and disease prevention contributed greatly to the health of the Dutch population. Further improvements are still possible. In comparison, the results achieved through health promotion and local health policies are still limited, but here too, there is enough potential to improve public health. The urgency is there. The potential of prevention is there too, and the challenge will be to exploit it.

6.3 Total prevention and health care expenditure by disease group in the Netherlands, 2007 (millions of euros)



6.4

Total contribution of prevention and health care to life expectancy and quality of life and average cost-effectiveness for infectious diseases, cardiovascular diseases and cancers
(Source: Meering et al., 2007)



	Infectious diseases	Cardiovascular diseases	Cancers
Life expectancy (years)	+1.4	+2	M: +0.3 F: +0.85
Quality of Life (disease-year equivalents)	+0.2	+1	Minimal
Average cost-effectiveness (€/QALY)	3,800 (2,900 – 5,300)	2,000 (1,600 – 3,500)	17,000 16,000 – 18,000
Diseases with a considerable attained health gain	Tuberculosis, bronchitis pneumonia, influenza	Stroke coronary heart disease	Breast cancer colon cancer

6.5

Cost-effective interventions in the area of disease prevention that have not yet been implemented in the Netherlands

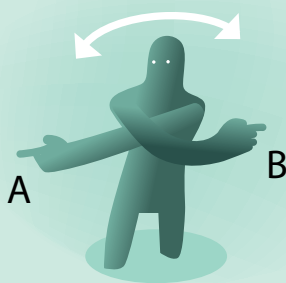
Disorder	Target group	
Rotavirus Hepatitis B Hepatitis A and B Influenza Chickenpox Whooping cough Pneumococcus	Infants Infants Children Children Children Adolescents Elderly	Vaccination
Neonatal group-β streptococcal infection Stomach disorders (helicobacter pylori) Osteoporosis (bone density) Hearing impairments Myocardial infarction (troponin screening)	Pregnant women Adults Elderly women Elderly People with a ruptured aneurysm after surgery	Screening
Cardiovascular disease (aspirin) Recidive myocardial infarction (Omega-3 fatty acid)	Risk groups People that had myocardial infarction	Medication

6.6

Health promotion dilemmas

Health is not easy to promote.

This has to do with three dilemmas (6):



The freedom of choice dilemma

Health promotion and lifestyle changes affect personal freedom and personal responsibility. Personal freedom and health are both considered to be very important. But pressure or an obligation to be healthy are seen as an attack on personal freedom, despite the fact that bad health can seriously impact personal freedom. This dilemma forces one to weigh the pros and cons between personal and social responsibility, and between appropriate and inappropriate measures. How much is the government allowed to interfere in a person's life? And how? Opinions differ widely, which makes it difficult to intervene effectively.

The missing evidence dilemma

The scientific evidence for the effectiveness of health promotion is often weak. It is not easy to demonstrate that an intervention works. This is why effectiveness studies frequently look at outcome measures, such as behaviour change, which can be very different from the intended health target. This creates a dilemma: The contribution to the targets in question cannot be measured or have not been measured, and the targets that are being studied do not clearly show whether public health is advancing. This is a tricky dilemma for policymakers and prevention workers. Which targets should be pursued and which degree of 'evidence' is needed in order to take action? Opinions differ, and the usefulness of 'evidence-based' working is often viewed in its entirety with scepticism. Some health promoters tend to see an 'evidence beast' that is incompatible with their good intentions to help other people.




Institutional dilemmas

The institutional environment of health promotion is characterized by vertical decentralization and horizontal fragmentation. There are national objectives and key objectives, on the one hand, but no hierarchical line in which they are to be achieved, on the other hand. For example, there is no national standard for the health promotion tasks carried out by municipalities. And because of decentralization health policy has become a part of local politics, which has its own objectives and interests. This also applies to how the money from the municipal fund is used, because there is still no structural or earmarked funding for local health policy. The stakeholders are also numerous. The Netherlands has several health-promoting agencies, countless health funds, numerous umbrella organizations and knowledge organizations and all kinds of networks that all have their own objectives and interests. So alongside vertical decentralization, there is also horizontal fragmentation.

6.7

Key objectives, targets and preliminary policy effects in the prevention policy document 'Opting for a healthy life' (1) and the policy plan 'naar een weerbare samenleving' (Towards a resilient society) (8-9)(Source: VWS, 2006, 2008)

Key objective	Target	Preliminary effect
Smoking 	20% smokers in 2010.	% of smokers in 2010 will be 26.
Hazardous alcohol consumption 	Diminish alcohol use among young people to the level of 1992. Reduction of problematic use of alcohol among adults from 10.3% in 2006 to 7.5% in 2010.	Percentage of problematic alcohol use probably has remained stable.
Overweight 	Percentage adults with overweight should not increase (base year 2005). Percentage of children with overweight must decrease (base year 2005).	Percentage with overweight has not increased. Percentage of children with overweight has not increased.
Diabetes 	Number of patients with diabetes should not increase with more than 15% from 2005 to 2025. 65% of the patients with diabetes has no complications.	Number of patients will double till 2025. No reliable figures available.
Depression 	More people receive preventive aid against depression (4000 in 2006).	In 2007, 8000 people received preventive aid against depression.
SEHD 	The healthy life expectancy of the lowest educated people increases with 3 years between 2001 and 2020.	Healthy life expectancy of the lowest educated people will probably increase with more than 3 years between 2001 and 2020.

Further reading

This chapter is based on the sub-report 'Effecten van preventie' (Effects of prevention). More information can be found on the website of the Public Health Status and Forecasts Report 2010 and the National Public Health Compass.

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7

A perspective for prevention

The challenge for the future of public health is to exploit the potential of prevention. ‘Together towards better health in the Netherlands!’ is what the Minister of Health, Welfare and Sport said in his 2007 vision statement ‘Being healthy and staying healthy’ (1). Four lines constitute his prevention vision: 1) the cultivation of health protection and disease prevention and innovation in these areas; 2) a coherent and integrated health policy; 3) preventive health care; 4) administrative reform with the goal of improving collaboration.

Themes covered in this PHSF are important for prevention policy

The minister's vision is just as significant today as it was then, and is an excellent starting point to further shape prevention policy. This PHSF addresses a number of issues that are worth considering in the further development of the policy, such as the impact of (physical) limitations on people's health and their ability to participate in society. This would, however, shift the focus from disease prevention, health problems and their risk factors to the prevention of limitations. Other issues worth considering are the impact of society on health and lifestyle and the intractability of health inequalities. Considering these issues would mean that an approach based on key objectives at the level of diseases and determinants would have to make way for an approach that takes the social determinants of health, disease related limitations, and social participation into account. The scarce knowledge of the effectiveness of health promotion and the 'comeback' of infectious diseases are also issues that deserve further consideration.

Considering these issues would shift the focus in the prevention debate and the prevention policy from health promotion and key objectives, which were the focus of the last prevention policy document 'Opting for a healthy life' (2), to the broader area of prevention and the relationships between the different sub-areas. This chapter contains a number of short-term and long-term recommendations for a new perspective on prevention and public health policy.

Long term

A social action programme for public health

Prevention regards a wide area that has clear implementation institutions and strategies in some areas of disease prevention, such as infectious disease control and population screening. The same cannot be said for health promotion, where prevention policy is characterized by a multitude of parties and a number of dilemmas that hamper both its formulation and its implementation. In order to achieve anything in such a complex environment, various institutes, including the Dutch Council for Public Health and Health Care (RVZ), often suggest a network approach (3). In order to be effective, such an approach needs experts, authority and leadership. This is called 'concerted action' (4), and consists of a joint and cohesive action programme that is based on the best available knowledge, in which all of the involved parties are represented and which is tightly controlled. The Minister of Health, Welfare and Sport could start such a social action programme for public health in collaboration with all of the major agencies to, using the findings in this

PHSF, further develop and concretize his policy vision. Potential participants are the Health Council of the Netherlands and the Dutch Council for Public Health and Health Care, knowledge institutes such as the National Institute for Public Health and the Environment and the Dutch Health Care Insurance Board. Other relevant parties are umbrella organizations such as GGD Nederland and the Association of Netherlands Municipalities, as well as a number of parties in the private sector. This would require finding a balance between decisive action and support. 'Concerted action' is a matter of perseverance and requires a sense of urgency, political will, involvement, a shared vision and the willingness to set aside one's own interests.

An objective tree for public health ...

One of the programme's first steps would be to get a tighter grip on the objectives formulated in the broad public health policy, both in terms of their feasibility and their mutual relationships. An objective tree is a useful instrument (*Figure 7.1*) to define related objectives (targets) and responsibilities at several levels, ranging from quality of life to behaviour change. Targets such as the prevention of disease or targets that are formulated in terms of early detection are placed between the objectives. The targets should be as realistic and feasible as possible, and one should also consider adding process objectives because they're closer to the policy. Examples of targets are: 'In 2014, the threshold to participating in exercise classes will have been removed for 90% of diabetics'. Or: 'Ninety percent of schools will not have soft-drink vending machines or will only have vending machines with healthy products'. Or: 'The number of greasy spoons per square kilometre will not be higher than ...'. Or: 'The number of regional health services to offer a specific intervention will be 80%'. Process objectives are easier to link to concrete measures than behaviour objectives, which always involve personal lifestyle choices.

The Netherlands Court of Audit developed a guideline for policy evaluation (5). Its most important idea is the advance creation of an objective tree for each policy objective. Concrete policy measures (price measures and legislation) would be listed at the bottom of the objective tree, while the policy objectives (effects such as an increase in healthy life expectancy) would be at the top. The idea behind an objective tree is to achieve policy objectives through a domino effect, meaning that the policy measure at the bottom of the tree affects an objective higher up, which affects an objective higher up and so forth until the policy objective at the top of the tree has been reached. The objective tree is a practical framework to connect the measures and the effects of a single policy objective. But public health policy objectives – i.e. the desired health

effects – usually consist of several components as the following example illustrates: If fewer youths started smoking, there would be fewer new smokers, which would result – years later – in fewer cases of lung cancer and cardiovascular diseases and finally in an increase in healthy life expectancy. The concrete closer policy objective for the number of youths who do not start smoking has an implicit, higher and more remote health objective: the increase in healthy life expectancy.

The overall objectives of public health policy – more health, less unhealthy behaviour, lower risk of disease, fewer diseases, fewer social consequences of disease and an increase in healthy life expectancy – cannot be viewed in isolation. Making the desired implicit health effects explicit for every concrete policy objective and examining the relationship between the direct effects (such as behaviour change) and the more remote effects (such as mortality) enables the health effects that are higher up in the tree to be quantified for the policy objectives that are lower down in the tree. Connecting the objective trees for every desired health effect creates an ‘objective tree for public health policy’. This comprehensive decision-making diagram perfectly reflects the stratification of objectives and targets in this policy area.

... as stimulus for administrative reform

The advantage of the objective tree is that it is created for a specific health problem. This contextual approach is a good starting point for the administrative reform that was announced in the prevention policy vision by the minister. Roles and responsibilities can be assigned and the parties that are the most eligible to achieve specific objectives can be defined during the execution of the policy and the implementation of the measures. Is this something the national or the local government should do? We need to remember that people are responsible for their own health and that parties in the private sector also play a role. An objective tree has the advantage of being comprehensive and extremely useful when expanded. The distinction between different responsibilities could be the starting point for the creation of an institutional environment that generates the right stimulus and includes effective monitoring systems.

Four possibilities for administrative reform

In the area of health promotion, there are four possibilities for administrative reform. The first possibility consists of developing clear institutions and strategies for municipal tasks in the area of health promotion that are similar to the national frameworks for infectious disease control and population screening. The second possibility consists of

developing and implementing a standard package of health-promoting activities for the regional public health services (‘GGD’en) as was done in the past for environmental medicine and youth health care.

This leads us to the third, related possibility, which consists of determining health targets in terms of diseases and determinants mainly at the national level. Municipalities should be given more say in the determination of targets for (physical and other) limitations, loneliness, participation and other social aspects of health and disease. This would create the link between health policy based on the Public Health Act (WPG) and welfare policy, the Dutch Social Support Act (WMO) and the Dutch Work and Welfare Act (WWB). Perhaps the municipalities could integrate the policy papers they write for the different areas into one cohesive document.

The fourth possibility consists of increasing the role of local health reports, and, like the national PHSF and the State of Public Health reports, enabling them to focus more on the implementation, the reach and the effects of preventive interventions. The Netherlands Health Care Inspectorate has meanwhile agreed that the regional public health agencies will record the reach and the implementation of authorized interventions on a best-efforts basis. Close collaboration with the Netherlands Demand Supply Analysis Monitor (VAAM) and the Netherlands Institute for Health Services Research (NIVEL) is also worth considering. This would create a cohesive picture of health, prevention and health care down to the level of districts and neighbourhoods. A last step could consist of turning local reports into accountability documents that are published every four years.

Assessment framework for social decision-making based on effectiveness...

In addition to the formulation of objectives, the selection of resources also needs attention. It is worthwhile to develop an comprehensive assessment framework that assesses preventive measures on their merits. The objective tree can be used in effectiveness studies, whereby the importance of the different objectives for public health would be defined before the effectiveness study starts. Attention should also be given to the negative effects of prevention, such as rare complications or false-positive results in population screenings. A measure’s effectiveness can only be determined by assessing both the positive and negative effects. This is how an assessment framework is created that enables sound decisions to be made on health programmes.

... cost effectiveness and other considerations

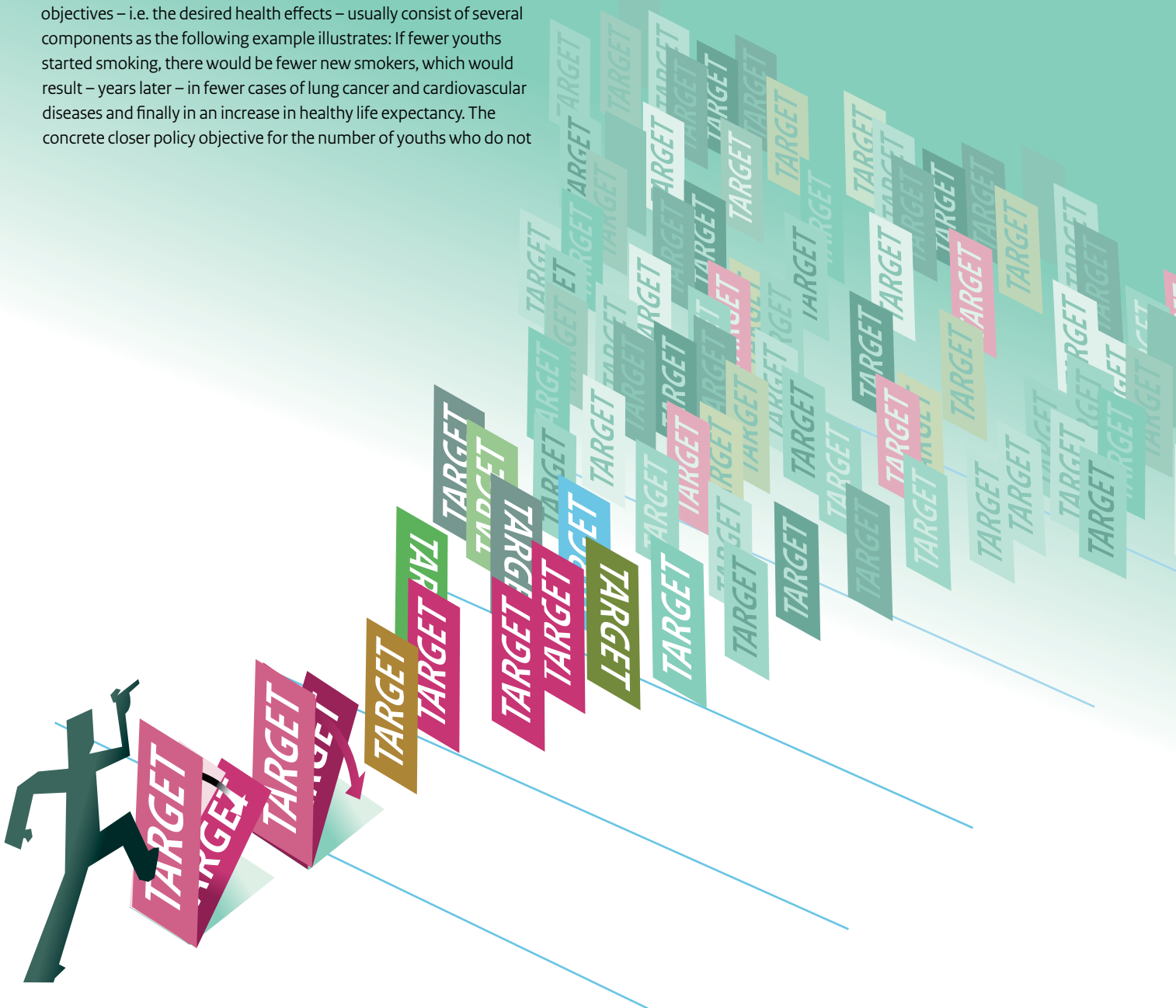
The ideas of the 1991 ‘Choices in health care’ committee, which is also known as the Dunning Committee (Dunning

7.1 Towards an objective tree for public health policy

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The overall objectives of public health policy – more health, less unhealthy behaviour, lower risk of disease, fewer diseases, fewer social consequences of disease and an increase in healthy life expectancy – cannot be viewed in isolation. Making the desired implicit health effects explicit for every concrete policy objective and examining the relationship between the direct effects (such as behaviour change) and the more remote effects (such as mortality) enables the health effects that are higher up in the tree to be quantified for the policy objectives that are lower down in the tree. Connecting the objective trees for every desired health effect creates an 'objective tree for public health policy'. This comprehensive decision-making diagram perfectly reflects the stratification of objectives and targets in this policy area.



chaired the committee) (6) are a good starting point for the development of a cost-effectiveness assessment framework. The time is now riper than ever to put Dunning's thoughts on prevention to good use. Central to his idea is the 'Dunning funnel', which consists of assessing the necessity, effectiveness, purpose, and financial responsibility of interventions in this order. The Dutch health insurance board (CVZ) uses this system to determine the criteria for the health insurance package. It is desirable to further develop this system (7), not only because of the technical aspects of the cost-effectiveness analysis, but also because of the normative aspects and other considerations that are determining for the measures' support and feasibility (8-9).

At the national level, the place prevention has in society and the national policy needs to be redefined, and its pros and cons weighed against health care and other policy areas. In this respect the benefits for society of health and prevention also play an important role (*Chapter 8*).

Short term

The potential of prevention is not only relevant for the long term. In the short term, additional gain can be achieved by stepping up efforts in the areas that are doing well and making new choices in those that are not.

Universal prevention

Universal prevention is chiefly determined by the government. Health protection falls entirely under universal prevention, and still pays a substantial contribution to public health. The whole field of health protection should be named and praised more often in order to counter the prevailing opinion that prevention is only about lifestyle. Considering the many billions of euros that flow into health protection, it would be wise to examine the cost effectiveness of a package of measures from a societal perspective.

Cultivation can be seen as vigilance for new health threats. The comeback of infectious diseases underlines the need for vigilance. It is very important for public health that diseases such as Q fever are discovered at an early stage and that the right measures are quickly adopted in a setting in which other interests also play a role. Comprehensive assessments and intersectoral cooperation are the basis.

Innovation is equally important. A good example is the HPV vaccination campaign, which revealed that new ways of communicating specific diseases and risks, and expert knowledge in general, to the public need to be developed. These new ways of communicating also have to involve citizens more. New communication strategies need to be

developed that utilize the potential of the new media and that tie in with modern technology, changing opinions about personal responsibility and the relationship between citizens and the government without jeopardizing the public nature of the government.

There is still untapped potential in the area of disease prevention and in particular in the areas of vaccination and screening. These areas should be invested in. The decision on colon cancer screening should be reconsidered. One could also think about creating a systematic map for the effectiveness, feasibility and affordability of untapped potential in disease prevention and developing programmes for the nationwide implementation of the resulting possibilities.

Universal prevention should take people's life courses into account. Every life course has moments of uncertainty, such as the transition from primary school to secondary school when children become susceptible to an unhealthy lifestyle. Retirement is another, very different example. There are moments when people become susceptible to behaviour change, such as leaving the parental home, their first job, or pregnancy. A life-course approach enables universal prevention to anticipate these moments.

For health promotion in the long term, we suggested considering more national frameworks. For the time being, price measures and excise taxes are examples worth considering. In terms of alcohol prevention, a number of municipalities are already indicating that the legal purchase-age limit should be set by the national and not the municipal government. Better supervision would strengthen local health policies.

Preventive health care

Prevention offered by physicians and hospitals is at the other end of the scale. Here, prevention is mainly the initiative of the health care users and the health care providers, who each have their own responsibilities. Chapter 2 states that the Netherlands has 4.5 million people with a chronic disease and that this number will continue to rise. These are people who have been diagnosed with one or more diseases and who are registered with their general practitioner or other health care provider. Because they are registered enough information should be available to do more in terms of prevention. This means that preventing complications would become more and more a normal part of good health care, but the main challenge consists of expanding prevention into new areas and paying more attention to lifestyle, limitations and their impact. This requires a different way of thinking from many health care providers and the willingness to work with other parties. Adding prevention to health care standards and guidelines or even getting health care

insurers to develop their own generic prevention modules could accelerate the process, especially if insurance companies made it one of their key priorities when buying care and then supervising the implementation.

But prevention as a form of health care also has its downsides. It can lead to individualization and the medicalization of all kinds of health issues, such as psychosocial problems, erectile dysfunction, unhappiness about one's looks, and all kinds of risk factors. This may result in people taking medicine instead of adopting a healthy pace of life. A 'polypill', for example, could result in people dismissing the idea of adopting a healthier lifestyle because they can take a pill to compensate for their unhealthy behaviour instead. This is why other forms of prevention and a clear assessment framework are needed to offset the pressure from the pharmaceutical industry. Preventive health care offers many chances. It will never be an alternative for a healthy society, but rather an expression thereof.

Indicated prevention

Indicated prevention is very similar to preventive health care, the difference being that the target group is not sick yet, but has a high risk of becoming sick. People at risk are indicated for prevention if they meet certain criteria. In this case, prevention consists mainly of combined lifestyle interventions in the area of smoking, overweight and alcohol consumption. Although the effectiveness of these interventions is proven, their effects are limited at population level because of their low reach. Increasing the reach would achieve a lot of health gain. Including interventions in the health insurance package, as suggested by the Health Insurance Board (CVZ), could provide new impetus (10). The cost of an intervention can be a barrier for people with a low income and a reason for them not to start one. Including interventions in the health insurance package also has an informational function: people become aware of the available possibilities. Finally, adding interventions to the health insurance package also creates clarity for general practitioners and health care providers, who no longer have to sift through all different health plans, but can refer every patient who meets the criteria. However, including interventions in the health insurance package is not enough. The availability of a suitable and satisfactory supply is just as important. According to general practitioners, this is a major bottleneck. In their opinion, there should be one provider to which a person indicated for prevention can be referred, and the referring parties have to know who the provider is. This underlines the role of health care procurement for insurance companies as soon as interventions are included in the insurance package.

The issue of reach is not only related to upscaling what is already available, but also to approaching and motivating the right people and further developing interventions to suit the health needs of specific population groups.

Selective prevention

Selective prevention addresses population groups with a high risk of disease that have not yet been indicated for preventive interventions, such as children whose parents have a psychiatric disorder and families with genetic disorders. The importance of selective prevention will increase as more knowledge about genetic factors becomes available. Better risk profiling enables more groups to be indicated as being at risk. The detection of high-risk groups and the determination of their eligibility for prevention and health care are also areas of selective prevention, but their funding is a major bottleneck. The Health Insurance Board argues that selective prevention does not fall within the health insurance package. A solution to this problem has not yet been found. It is a grey area, which is why it is not clear which party is the most suitable and how the activities in this area should be funded. Is this a task for public health or primary care? Or both? Should municipalities or health insurers fund selective prevention?

Another development is taking place in parallel. High-risk groups also include socially delineated groups, such as school dropouts, youths in specific target groups and people living in specific neighbourhoods. These groups are mainly targeted by municipal policies, but they have characteristics that make them interesting for other policy areas. Health insurers, for example, that have a lot of clients in specific cities or neighbourhoods, could take co-responsibility for these target groups and work with the municipalities on tackling health problems in certain disadvantaged neighbourhoods. This is currently being done in Utrecht and Amersfoort.

There is not only a lot of confusion in the area of selective prevention, but also a lot of short-term potential, which makes it a perfect area for innovation. Innovation should make it possible to be even more selective in the future. Linking prevention and health care is also under discussion. The link could be established from public health as well as from primary care. Selective prevention is a bridge between universal prevention and health care and the first examples indicate that prevention still has a lot of potential.

Prevention is not easier than cure, but it is better. Prevention is the future!

Further reading

This chapter is based on the sub-report 'Effecten van preventie' (Effects of prevention). More information can be found on the website of the Public Health Status and Forecasts Report 2010 and the National Public Health Compass.

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8

Health and wealth

‘A young cuckoo’ is how economist and columnist Flip de Kam described health care in one of his columns in NRC Handelsblad. Health care is an increasing burden on collective expenditure, and ‘is evicting other collective services from the budget nest’ (1). This problem not only applies to government finances, but also affects the whole economy. Will there be enough people and money in the future to meet the demand for care? Or will this bottleneck resolve itself when public health improves? It is an appealing thought: more health, less health care.

This chapter is about the future of health care. The focus is on the macro-economic aspects of health care expenditure and health care personnel without going into the institutional aspects of the health care system that are discussed in the Health Care Performance Report (2). Health care expenditure will continue to increase, and this demands new solutions from new perspectives: health and wealth.

More health: not less health care

Prevention is better than cure, but it is unfortunately not cheaper. At the micro level, more health does not result in less health care. There are several reasons for this. Health care is an important determinant of better health. People live longer thanks to successful treatments and, as a result, run the risk of coming down with 'competitive diseases'. These can, in turn, result in the need for additional care. One of the findings in Chapter 2 was that the number of people with a disease will invariably increase. The success of medical science is increasing the possibilities of treatment and the use of care. 'The pain is in the gain.' Moreover, the highest health care expenditure is incurred in the last years of life. These high costs cannot easily be prevented and most likely will be postponed when life expectancy increases.

Healthy ageing not a panacea for increasing demand

Healthy ageing should not be expected to curb the demand for care. James Fries may have expected that compressing morbidity would reduce health care expenditure (3), but Lubitz has since shown that it doesn't really matter if someone is healthy or not (4). Healthy people use less care but they live longer and their total health care costs increase gradually with their age. Unhealthy people have higher health costs over a shorter period because they die sooner. Lubitz's analysis applies to the situation in the United States. In the Netherlands, a number of studies are being conducted to find out what the different influences are. The first results relate to hospital care and long-term care (5-6). This shows that the use of care is related to the level of (physical) limitations rather than self perceived health. More attention for limitations, as discussed in previous chapters, is also important for the future of health care and the development of health care expenditure.

Forecast

In the last decades, health care expenditure rapidly increased and reached 75 billion euros in 2007 (7). This is the total public and personal expenditure, including the costs for playgrounds for children, which the CBS includes in the Health Accounts. Health care expenditure will

further increase in the coming decades (*Figure 8.1*). Based on today's levels of health care use, health expenditure will increase every year by 1.1% as a result of demographical developments, and ageing in particular. There are, however, big differences between the sectors. For example, the increase will be small for mental health care and disability care because the patients are relatively younger. These sectors are less affected by ageing. Not surprisingly, elderly care is the most affected by ageing and will see an increase in expenditure of 2.5%.

If today's trends continue, health expenditure will grow in the coming decades by 4 to 5% a year

The demographic development has a limited influence on the volume of care. Other influences, such as medical technology, play a much more important role. The demand for health care will also change because there will be more people with a chronic disease and more people will be suffering from several diseases at the same time. These influences are usually grouped under 'other volume growth'. In the past, other volume growth was always 2% or more annually and showed considerable fluctuations that were generally the result of government policy. Although past performance is no guarantee of future results, it can reveal certain characteristics. Based on the trends between 1999 and 2007, the total volume of care will increase by 3 to 4% a year until 2030, with a substantial spread across the different sectors (*Figure 8.1*). The exact result is uncertain, but the big picture is clear: a substantial increase in the volume of care is looming in the distance, and the so-called Baumol Effect will cause an additional growth of about 1% per year (*Figure 8.2*). Based on the stated scenarios, health expenditure will grow roughly by 4 to 5% a year (8) excluding inflation.

A lot more health care personnel needed

In 2007, some 1.2 million people were working in health care, most of them women. Because a lot of people work part-time, this amounts to some 800,000 work years. This number will rise sharply due to ageing. By 2030, some 300,000 additional work years will be required only as a result of demographic developments alone (*Figure 8.3*). Using the current part-time factor, this translates to some 450,000 jobs. For every two employees, one employee will need to be hired, while at the same time the working-age population will shrink by at least half a million people. As a result, the share of health care in the total number of work years will increase from 12% in 2007 to 18% in 2030 for men and women combined. For women, the share will be much higher. Today, one in four women work in health care compared with one in twenty men.

If this historical increase in health care personnel repeats itself in the future, the increase will be much higher. Between 2001 and 2008, the number of people working in

health care increased by 2.8% per year. This was more or less in line with the growth in the volume of care for this period. If this trend continues, 750,000 additional work years will be needed in 2030. This means that more than one million additional people will have to work in health care. It also means that there will have to be two health care workers in the future for every health care worker today. These forecasts are indeed rather rough, as they take neither a turn in the trend for health care demand or supply into account, nor an increase in labour productivity, nor the possible reduction of part-time work and the rise in retirement age. In short, there are enough reasons to assume that the need for health care personnel will increase less than the total volume of care, which doesn't mean that the personnel situation will be any less problematic.

There may be enough informal caregivers, but this can clash with labour participation

It is estimated that there are some 3 million informal caregivers in the Netherlands, but according to the stricter definition of the Netherlands Institute for Social Research (SCP), the number is closer to 800,000 (10). The SCP expects both the demand and the supply for informal care to increase such that it will more or less be in balance. This balance would, however, be out of whack if more women worked fulltime because it is likely that there will not be enough informal caregivers to meet the demand. A solution to personnel shortages in formal care can create a problem for informal care.

Baby boomers and elderly care

This dark picture, however, contains some positive elements which are often overlooked and can shed some other light on the ageing debate. All of the forecast reports are based on the year 2007 and on trends prior to 2007. This means that the forecast, for example, for elderly care is entirely based on the Pre-World-War-II cohort. But the elderly of the future were born after World War II and grew up in very different times than their parents who are today's users of elderly care. Is this not a reason for health care demand to develop differently, and will this different development not affect health care demand? House ownership among baby boomers is much higher than among previous generations, and baby boomers are wealthier. There is no doubt that this will decrease the demand for elderly inpatient care. Who would not want to stay in their own familiar environment for as long as possible? The context for the demand for health care will

change not only because of the changes in demography and epidemiology, but also because the elderly of the future will have other preferences.

People with a partner use less health care

The composition of the household is another factor that plays a role. Because of the difference in life expectancy, there are many more elderly women in the Netherlands than there are elderly men. Moreover, in most relationships, the man is older than the woman. There are therefore relatively more single women, and they depend a lot earlier and a lot more on formal care. In a nutshell, women do not have a problem giving the informal care they will never receive, and men do not have a problem financing the elderly care they will never need (11). This could change in the future if the life expectancy of men increases more than that of women. This is also the expectation of Statistics Netherlands (CBS). This PHSF, however, follows the scenario in which the gap in life expectancy between men and women will remain more or less the same (*Chapter 1*).

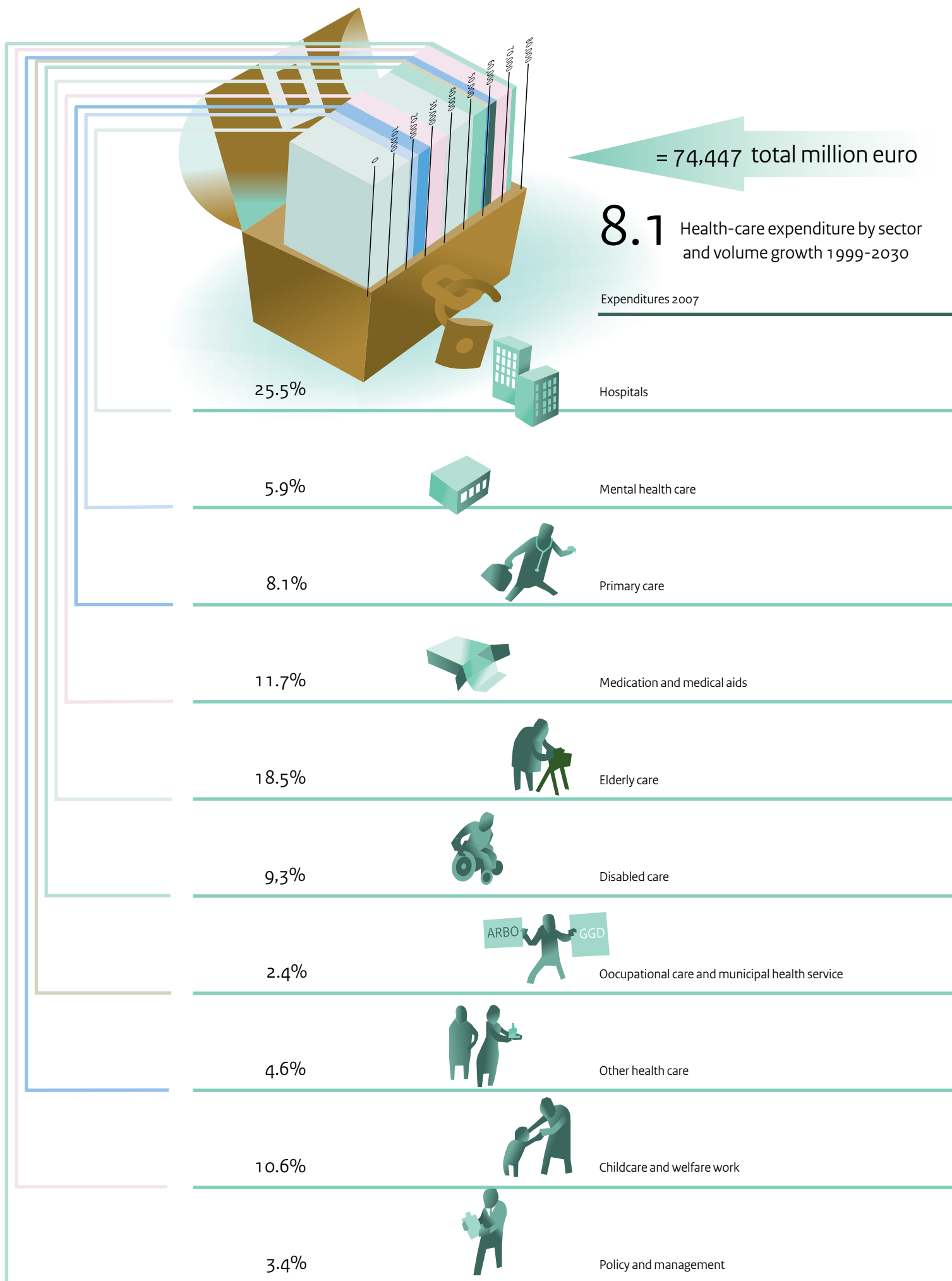
The SCP made forecasts based on CBS's projections and a number of other influences, such as level of education and the health status of the population (12). The SCP expects the number of care users to increase by 1.2% and the total volume of elderly care users by 1.5% per year. This is far less than we projected because the SCP assumes that other volume growth will be minimal. Unfortunately, one cannot say whether the assumptions are correct and which scenario is the most plausible. An obvious option would be to look at both scenarios as a range within which long-term policy can be developed.

Three dilemmas for the future of health care

The future is uncertain, but all of the signals are pointing towards a substantial expansion of health care in the next decades. So substantial that the question whether it will be possible to organize and fund health care is already being addressed. Thinking about it produces three dilemmas that are all related to labour: the labour market dilemma, the labour productivity dilemma and the labour participation dilemma (13).

1. The labour market dilemma

In the future, health care will suffer either from a lack of funding or a lack of human resources. Imagine that health care increases by 4% a year. Considerable economic growth would be needed to ensure health care remains affordable. According to the Council for Public Health and Health Care (RVZ), the demand for health care may not grow more than



* Average growth according to the demographic growth based on the CBS population forecast and other volume growth between 1999 and 2007.

** The range is based on the growth between 1999-2003 and 2003-2007.

4.4		2.9		1.1		3.4		(3.1 – 4.0)	
Volume growth (% per year)				Demography		Total*		Range**	
1999-2003		2003-2007		2007-2030					
2.9		4.5		1.1		3.2		(2.5 – 4.0)	
5.6		5.7		0.2		5.3		(4.9 – 5.6)	
2.4		2.2		0.5		1.9		(1.9 – 2.0)	
3.9		3.6		1.0		3.1		(3.0 – 3.2)	
6.1		3.2		2.5		4.2		(3.1 – 5.5)	
6.1		3.3		0.3		4.2		(3.1 – 5.4)	
5.1		-4.0		-0.1		0.3		(-4.1 – 4.8)	
6.2		1.9		0.5		3.6		(1.9 – 5.5)	
4.5		-0.8							
2.1		3.6							

twice as fast as the gross domestic product of the Netherlands. In that case, economic growth would have to be at least 2% (14), but even that would not prevent what Flip de Kam describes as the ‘young cuckoo bird problem’. The economy has to grow more. A growth of 4% also dramatically increases the demand for health care personnel, although the opinions on how many people will be needed vary. More important is that (strong) economic growth and the availability of health care personnel remain at loggerheads with each other. When the economy is booming, there is enough money but not enough people to provide the care. When the economy is in recession, there are enough people to provide the care but not enough money to pay for it.

2. The labour productivity dilemma

An economic growth of 4% is not likely to jeopardize the affordability of health care. An economic growth of 4%, however, is quite considerable, certainly when compared with experiences during an economic recession, but also in terms of long-term developments. The development of labour productivity plays a crucial role in its totality and per employee. Because the potential working-age population is shrinking, the importance of labour productivity per employee is increasing. In order to achieve an economic growth of 4% across the Netherlands, the growth per employee has to be higher than 4%. And in order to free up employees for health care and because of the Baumol effect, the growth has to be even higher. This can create a double spiral of ever faster increasing health care expenditure, on the one hand, and ever increasing work pressure on health care personnel, on the other hand.

3. The labour participation dilemma

History tells us that economic growth is possible. We all know about the rapid growth of the 1960s. Striking in recent history is the sharp increase of wealth since 1985, which is mainly the result of more women working. Striking is that the total supply of informal care has not increased. Nevertheless, the SCP concludes that paid work can be at loggerheads with the provision of informal care, especially if women – who are currently providing the most informal care – were to work less part-time: ‘Women who combine children and work are under such time pressure that another important care task, helping their fellowman, is also under pressure’. Compared with previous generations, it is also getting harder for siblings to share the care for parents and in-laws because families are getting smaller. And this can create a dilemma as soon as the government has the ambition to stimulate more women to work and to increase informal care. A time budget simply cannot contain more than 24 hours a day or 168 hours a week. Work and care act as communicating vessels.

Healthy health care

Improving public health means investing in prevention and health care. But better public health does not reduce the demand for health care neither health care expenditure. More health and more health care is the dilemma that hangs above the future like a dark cloud. And this cloud will not simply blow over because it is deeply anchored in the structural trends of public health and health care. The future of health care is something we need to be concerned about. And the current economic situation makes this concern all the more pressing.

Cost cutting and innovation

There are no standard solutions to these dilemmas. Of course, cost containment is an option, and it is advisable to take all the cost-cutting measures that do not jeopardize population health. Innovation is also important, especially technological developments that could reverse the trends in the use of care or result in labour savings (15-16). Levelheadedness is called for: in the past, technological developments always increased the use of care.

More health: more health care providers and informal caregivers

The Public Health Status and Forecasts Report provides another perspective. More health may not imply less health care, but it does provide new opportunities for more health care providers and informal caregivers. Good health is always a prerequisite for participation (*Chapter 4*). With a shrinking working-age population, society needs everyone, in addition to good public health. ‘Healthy ageing’ may not reduce the demand for care, but it will enable people to work longer, be it formally or informally. On the one hand, expanding health care forces participation to increase, and on the other hand, it enables the increase by improving public health. Health care and labour are not necessarily at loggerheads at the macro level. Concern for better health care can indirectly contribute to ‘healthy care’.

The social benefits of health, prevention and health care

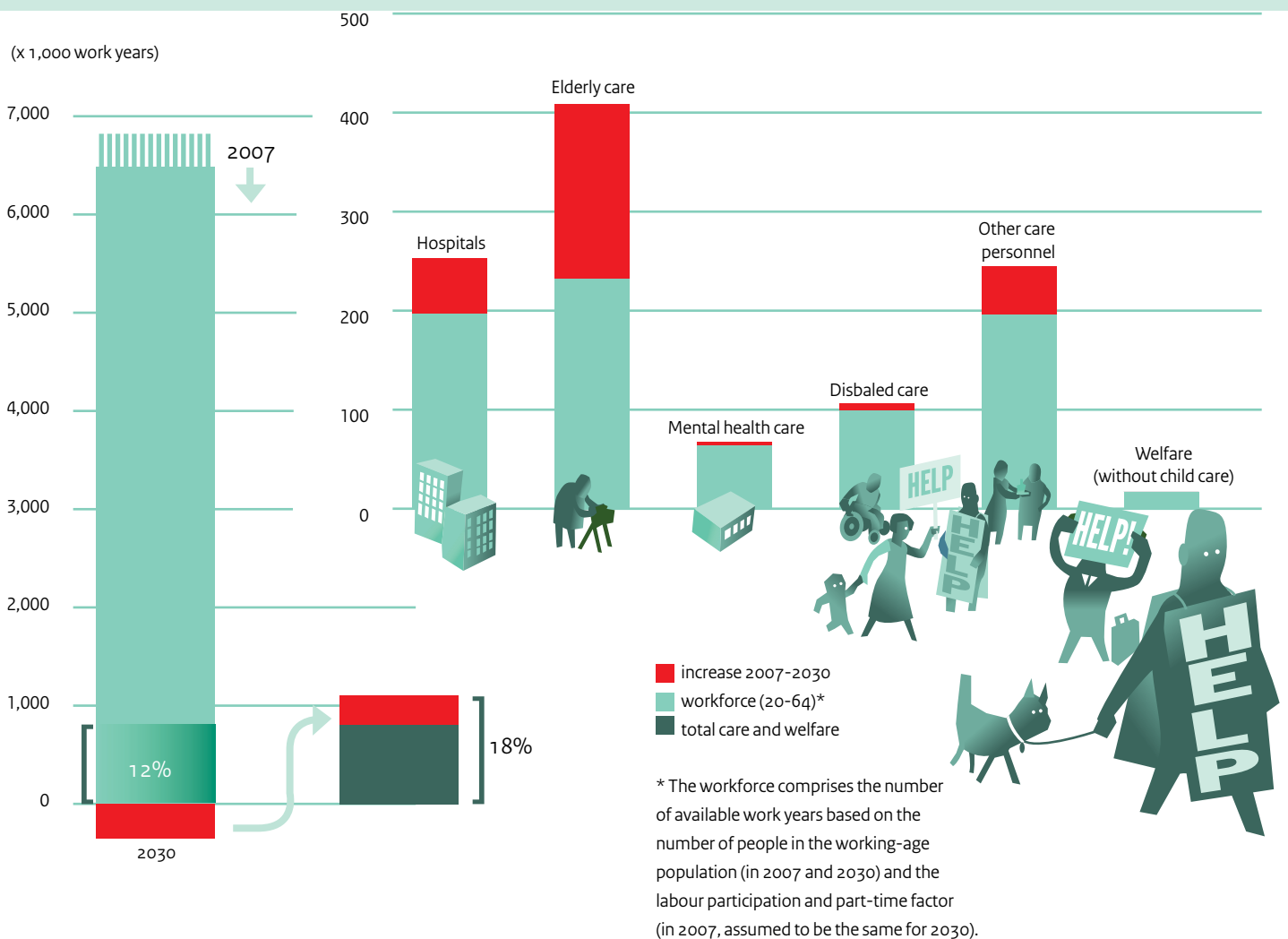
According to Flip de Kam, health care is a young cuckoo bird that jeopardizes wealth. But does the same not apply to labour participation? Are health care and wealth always at loggerheads? Is health care really a young cuckoo bird? Marc Pomp, policy economist, doesn’t think so. In his newest book, he describes health care as a goose with golden eggs (17). He does not see health care as a threat to the society, but just the opposite, as a source of wealth and



8.2 The Baumol Effect

Like in education, a special phenomenon is occurring in health care, which is known as the Baumol Effect, named after the American economist William Baumol, who first described it. His idea focuses on the development of labour productivity, which cannot increase in the health care sector as quickly as in industry where process innovations often result in labour economies. Because labour productivity determines wage increases, wages are under pressure. But to prevent health care personnel walking out, wages must, at some stage, be aligned with overall wage developments. This is what makes each 'product' more expensive compared with other sectors. For the Netherlands, the Netherlands Bureau for Economic Policy Analysis estimated this effect at 0.8% per year and somewhat higher for the future (9).

8.3 Demographical forecast for health-care personnel in work years, 2007-2030



many more social benefits. This point of view is based on the work of the American economists Robert Fogel and David Cutler. Fogel, who won the Nobel Prize in Economics in 1993, demonstrated using data spanning two centuries that one-third of economic growth in England was the result of improvements in public health. And according to him, this means that 'the increasing share of global income spent on health care expenditure is not a calamity; it is a sign of the remarkable economic and social progress of our age' (18).

This theme is systematically discussed in the sub-report 'Maatschappelijke baten' (Health and wealth). A distinction is made between the influence health has on wealth and social well-being on the one hand, and prevention and health care on the other hand.

The benefits of health

The benefits of health can be divided into three groups. First, there's the value of health itself. People attach a high value to health, which economists have tried to express in terms of money. The results were neither conclusive nor satisfactory. It did, however, become clear that the amounts were in the order of 100,000 euros per year of life in good health. Calculating with amounts of this magnitude makes public health worth a lot of money and means that almost every investment in prevention and health care has a high return.

Second, health is a source of human capital. Health has an impact on school performance and people's careers, and affects labour participation, presenteeism and absenteeism. Better public health contributes to economic growth and plays an essential role in reducing the cost of absenteeism and disability.

Third, health is an important prerequisite for social participation. Good public health contributes to the quality of society through voluntary work and informal care, as well as through all kinds of other forms of participation in social life. Good public health and a highly developed, wealthy society go hand in hand.

The benefits of prevention and health care

Prevention and health care contribute directly to public health and therefore directly to the above-mentioned benefits. A prerequisite is, of course, that investments in prevention and health care have an effect on health. Besides, health care is also an important economic sector, which Statistics Netherlands (CBS) even designated as the job engine of the Dutch economy. Thanks to health care, over one million people not only have work, they are also able to help people who depend on care.

Prevention and health care also influence the economy in a number of direct and indirect ways. There is a whole range of providers that generate economic activity outside the domain of health care. Health care can also be seen as a source of innovation that creates spin-offs in other sectors, although it doesn't happen as frequently as in other sectors.

There are also intangible assets. The fact that there is health care at a level that can be expected in a wealthy society is a source of security, trust and well-being for many people. In her policy document 'Zeker van zorg, nu en straks' (Health care certainty, now and in the future), the State Secretary of Health wrote about 'a safe environment where people treat each other with respect and dignity' (19). Health care is not only a loss-making item in the government budget. It is also a sector that contributes to the economy and the quality of society.

Towards better health

One economist sees health care as a young cuckoo bird, the other as a goose with golden eggs. Both approaches are relevant for public health policy. The fundamental question, though, is how health and health care are valued by society, and what the trade-offs are. How important is public health to society and what is society prepared to do for it? This question of value is an excellent area for political debate. But, as a source of inspiration for this debate, it is advisable to examine society's priorities and preferences. This would enable an assessment framework to be developed that goes beyond the intervention level and would make the macro-economic challenges manageable. At present, however, we do not have the knowledge to do this. We lack insight into how much society values health care, compared with, for example, education, infrastructure or private consumption. It is, however, clear that health, prevention and health care contribute to wealth and the quality of society. There is a strong case to include these social benefits in the debate on the future of prevention and health care. Towards better health implies health and wealth.

Further reading

This chapter is based on the sub-reports 'Tijd en Toekomst' (Timetrends and future) and 'Maatschappelijke baten' (Health and wealth). More information on health care expenditure and the cost of diseases and health problems can be found at http://www.rivm.nl/vtv/object_document/05417n26614.html.

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PHSF 2010: Products, project leaders, projectteam and advisory committees

Main report and sub reports

Towards better health

Main report on the Public Health Status and Forecasts 2010

F. van der Lucht
J.J. Polder

Gezondheid en determinanten (Health and its determinants)

Sub report of the PHSF 2010 Towards better health

N. Hoeymans
J.M. Melse
C.G. Schoemaker

Effecten van preventie (Effects of prevention)

Sub report of the PHSF 2010 Towards better health

M. van den Berg
C.G. Schoemaker

Tijd en Toekomst (Timetrends and future)

Sub report of the PHSF 2010 Towards better health

A.H. P. Luijben
G.J. Kommer

Maatschappelijke baten (Health and wealth)

Sub report of the PHSF 2010 Towards better health

N.A. M. Post
S.L.N. Zwakhals
J.J. Polder

PHSF websites

All the background information used in the compilation of this report can be found on the following websites

Public Health Status and Forecasts Report 2010 (www.vtv2010.nl)
National Public Health Compass (www.nationaalkompas.nl)
Dutch National Atlas of Public Health (www.zorgatlas.nl/algemeen/menu/english/)
Cost of Illness in the Netherlands (www.rivm.nl/vtv/object_document/05417n26614.html)
Zorggegevens.nl (www.zorggegevens.nl)

Project leaders

F. van der Lucht, PhD
Prof. J.J. Polder, PhD

Members of the RIVM Projectteam, Centre for Public Health Forecasting

M. van den Berg, PhD
N. Hoeymans, PhD
A.J.M. van Loon, PhD (since 01 June 2009)
A.H.P. Luijben, MSc
J.M. Melse, MSc
Prof. J.A.M. van Oers, PhD
C.G. Schoemaker, PhD
C. Schrijvers, PhD (until 01 September 2009)
E.M. Slichter-Matla (project support)
H. Verkleij, PhD
S.L.N. Zwakhals, MSc

National Scientific Advisory Committee

M.J.W. Sprenger, PhD (Chair),
Prof. T.E.D. van der Grinten (Vice Chair),
Prof. P.P. Groenewegen, PhD
Prof. K. Horstman, PhD
Prof. N.S. Klazinga, PhD
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Prof. G.J. Kok, PhD
Prof. J.P. Mackenbach, PhD
Prof. P. Schnabel, PhD
Prof. J.L. Severens, PhD
Prof. K. Stronks, PhD

Supervisory Committee, Dutch Ministry of Health, Welfare and Sport

D. Ruwaard, PhD (Chair)
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R. Groot Koerkamp, MSc
M.J. van Iwaarden, MSc
L.J. van der Heiden, MSc
M. Holling, MSc
M. Koornneef
F. Mantingh, MSc
G.C.C. Molenaar
M.C. Wijnberg, MSc
A.J.M. Zengerink, MSc



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F. van der Lucht
J.J. Polder

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All is reasonably well with public health in the Netherlands. This is reflected in the increase in overall life expectancy over the past few years. Yet at no point does this Public Health Status and Forecast Report (PHSF) suggest to reduce efforts to improve health. On the contrary: the report shows that investment in health continues to be possible. It is the most advisable way forward and from the perspective of the Dutch economy even an indispensable way forward.

The 2010 PHSF contains a wealth of data on the health of the Dutch population and ways to improve that health. The report lists what has been accomplished and what may still be expected in the next few years as a consequence of current policy measures.

This report shows first and foremost that the Netherlands can and should continue to invest in the health of its population. The intrinsic value of health as such is not the only reason for this: in an ageing society the economy urgently needs healthy citizens.

This report describes the most important developments in Dutch public health. The PHSF is made by the Dutch National Institute of Public Health and the Environment and is released every four year.

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