



THE FUTURE OF HEALTHCARE IN ESTONIA



SCENARIOS UP TO 2035



FORESIGHT CENTRE
2020

THE FUTURE OF HEALTHCARE IN ESTONIA

Scenarios up to 2035 Summary

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- Key trends and examples from other countries,
- The results of the quantitative model of health insurance and a report on the methodology,
- Scenarios for Estonian healthcare out to 2035, and
- Inequality of funding of health care and how contributing to the costs affects poverty.

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Contents

| | |
|--|-----------|
| Foreword | 7 |
| Summary | 8 |
| 1. Healthcare in Estonia and in Other Countries..... | 12 |
| 2. Trends That Will Affect the Future of Healthcare | 16 |
| 3. What Can We Learn from Other Countries? | 20 |
| 4. Future Scenarios for Healthcare | 22 |
| Scenario: A Dream of Healthcare..... | 26 |
| Scenario: A Pragmatic World..... | 30 |
| Scenario: Half of the Work..... | 34 |
| Scenario: Keep Carrying On | 38 |
| Comparison of the Scenarios..... | 42 |
| 5. Possible Solutions | 44 |
| Better behaviour for health | 45 |
| Ways of changing the sources of funding | 46 |

Foreword

The new budget period of the European Union for 2021–2027, together with the extraordinary funds that have been set up to handle the coronavirus crisis such as the Recovery and Resilience Facility, will bring several billion euros to Estonia, and officials need to think very carefully about how to prepare so that this money can be used in the best way possible. Attention is focused on helping the economy to grow by finding new sources of funds and exploiting them.

It is rarely considered that improving the health of people in Estonia would provide a new and very important source of economic growth. Recent analysis by McKinsey, a consultancy, shows that GDP in Estonia could grow by as much as a tenth if premature deaths could be reduced and people could remain longer in the labour market. Good health increases the capacity to work and raises productivity, so that investing one euro in healthcare produces a return of 2.4 euros. This is the economic perspective, but there would also be welfare benefits as each person would gain an average of 28 days of healthy life per year.

The medical healthcare system actually has relatively little impact on the health of the population. The website [Determinantsofhealth.org](https://determinantsofhealth.org) notes that medical care accounts for 11% of public health outcomes, while the social environment accounts for 24%, the physical environment for 7%, genetics and heredity for 22%, and behaviour and lifestyle for 36%.

The future for healthcare looks bright if people take more responsibility for their own health and passive patients start taking active care of their own health. This will unfortunately not happen all by itself, as motivation and opportunities need to be created.

This publication offers four scenarios for the future of healthcare in Estonia, taking possible changes in how people behave towards their health, and technological development in healthcare as its two central pillars. We also propose how the Estonian health insurance system could be designed so that it would best promote healthy behaviour and avoid the inevitable inequality that developments in technology cause. And if the full programme proves to be too much to manage, which options for savings should be considered?

I hope that this research will prove useful when decisions are taken on healthcare and the funding for it.

Happy reading!

Tea Danilov
Head of the Foresight Centre





SUMMARY



People in Estonia are living longer than ever but they are living with health problems, and while the life expectancy of Estonians has risen the most in Europe, the same cannot be said of the number of healthy life years.

Prevention must play a larger role in the future, **as half of deaths result from people's own unhealthy behaviour.** The potential long-term revenues from preventing health problems are many times larger than the amount of additional funding needed by the Health Insurance Fund to transition to universal health insurance, or to expand the range of services financed by the state.

.....

Universal healthcare at current cost levels would need an additional 79 million euros or so a year, but reducing the number of years of life lost to alcohol by 20% for example would both improve public welfare and earn the state more than 10 times as much each year.

.....

People must be encouraged more and more to take responsibility for their own personal health. They need to be empowered to do this by **improving health literacy and the use of digital healthcare solutions, and by allowing secure data sharing and developing data-based preventative systems.**

Underfunding will become increasingly evident in healthcare **because of the gradual long-term trends of an ageing population and falling tax revenues as capacity for work changes.** This will mean costs grow faster than revenues. Further problems are that there are a large number of uninsured people in Estonia, long queues for treatment, large payments required from patients, and a shortage of nurses.

The state has an important role **in ensuring that data exchange** between medical staff and patients, the private and public sectors, and the healthcare and social care sectors and other parties is **secure and meets data protection requirements**, and in assessing the impact of new technologies and preventing problems arising. **Bold steps need to be taken to move from financing individual treatment services towards funding total treatment outcomes.**

The best scenario for the future of healthcare is that people are able and willing to act healthily, which can be supported by:

- universal health insurance;
- a broader range of services funded by the state;
- new technological and data-based solutions for prevention and treatment;
- increased motivation for people to take care of their own health;
- funding for treatment outcomes based on diagnoses instead of funding for individual services.

The *Keep carrying on* scenario is the baseline scenario in which no changes are made to the health insurance system and no additional revenues are found for the Health Insurance Fund. **In**

this case the budget of the Health Insurance Fund will fall into deficit of 900 million euros by 2035. Public health insurance coverage will not be expanded and no other services covered by state spending will be added. **Public health will deteriorate and the average amount that people have to pay themselves will double.**





The *Pragmatic world* and *Half of the work* scenarios offer cost-effective ways of expanding insurance coverage and funding a broader range of services, but they do this through higher public spending than in the baseline scenario. **Public health improves on average, but inequalities in healthcare may widen.** The *Pragmatic world* introduces private insurance to cover higher personal contributions to the cost of care, which will encourage people to take more care of their own health, as insurance payments depend on this.

The best results for public health are in the scenario *A dream of healthcare*, which introduces universal public health insurance and expands the range of publicly-funded services substantially. **In this case the healthcare system would need an additional 200 million euros a year more than in the baseline scenario.**

Table 1. The cost of expanding healthcare services at 2021 prices (million euros)

| Expanding healthcare services | Additional cost to the state (million euros, 2021) |
|--|--|
| Universal health insurance | 79 |
| Primary healthcare for all | 10 |
| Subsidised medicines for all | 9 |
| Dental care for adults | 55 |
| Genetic mapping for all | 55 |
| Complete DNA sequencing for all | 250–500 |
| Defined mental health services | 8 |
| Direct and indirect costs of mental health | 570 |

Table 2. Summary of the scenarios

|  Keep carrying on (baseline scenario) |  Half of the work |  A pragmatic world |  A dream of healthcare |
|--|---|--|--|
| A diverse range of health behaviour ¹ and restricted use of technology ² , while the current insurance system remains unchanged | A change in health attitudes³ and restricted use of technology, with primary health care for everybody and subsidies for medicines | A change in health attitudes and broad use of technology⁴ in treatment , and universal health insurance with private insurance to cover costs to patients | A change in health attitudes and broad use of technology in prevention and treatment , and universal health insurance with wide coverage of services |
| The patient's out-of-pocket contribution to payment rises from 342 euros to 710 at 2019 prices | The out-of-pocket contribution remains at 342 euros at 2019 prices, but the deficit is covered by tax revenues | The annual premiums for private health insurance for people of working age would be 570–820 euros at 2019 prices. The state would subsidise the insurance premiums of children and the retired | The patient's out-of-pocket contribution to payment falls from 342 euros to 250 at 2019 prices |
| The shortfall reaches 900 million euros a year in 2035 | Spending by the Health Insurance Fund increases by 19 million euros a year at 2021 prices | Spending by the Health Insurance Fund increases by 79 million euros a year at 2021 prices | Spending by the Health Insurance Fund increases by 142 million euros at 2021 prices, of which 55 million euros is a one-off payment for the genetic mapping |

¹ Behaviour patterns on average remain the same as today, while differences in healthy behaviour widen.

² The technology exists, but solutions that cover all parts of society are not in use.

³ People take greater responsibility for their own health, and healthy behaviour improves and the differences in behaviours narrow.

⁴ Digital technologies and equipment for healthcare are available to most people. They are indirectly available to everybody, for example through the interactive database of medicines.

Where can additional funding be found?

The main ways of increasing revenues for the healthcare system are:

- larger out-of-pocket payments by patients;
- private insurance;
- higher social tax or a broader tax base;
- additional allocations from the state budget from other tax revenues.

Funding healthcare from taxes on income means that the system is funded mainly by wealthier people. Funding healthcare from taxes on consumption or from the contributions of patients means that the system is funded mainly by people on lower incomes.

Improvements in public welfare can help to keep the costs of the healthcare system under control through:

- healthier behaviour;
- prevention of deaths from treatable causes.



1. HEALTHCARE IN ESTONIA AND IN OTHER COUNTRIES



The Estonian healthcare system is built on compulsory health insurance following the principle of solidarity and almost universal access to healthcare services from private service providers. Healthcare services are mainly funded through the Estonian Health Insurance Fund.

The cost of funding healthcare in Estonia was 6.7% of GDP in 2018. The public sector provided 73.7% of this and contributions from patients

were 24.5%, and the remaining 1.8% came from voluntary insurance and other sources. The Health Insurance Fund supplied 64.4% of public sector financing, 6% came from the central government budget, and 3.3% from local government budgets. The Health Insurance Fund got 92.5% of its funding from the medical insurance part of social tax, while the rest came as direct transfers from the central government budget.

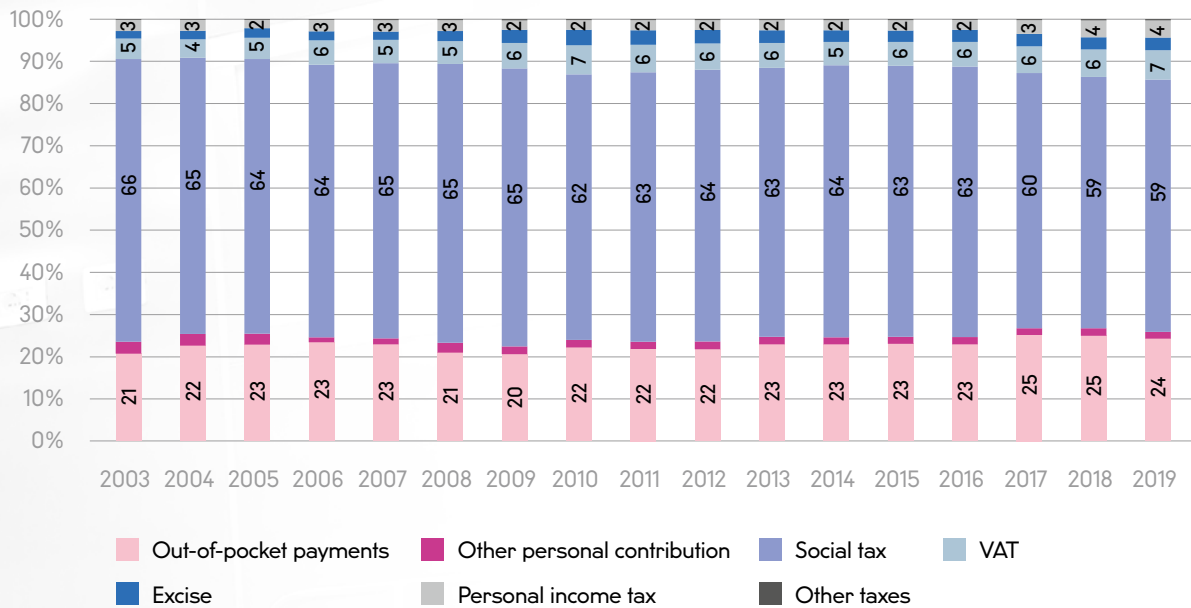


Figure 1. Sources of funding for healthcare 2003–2019
Source: Võrk and Piirits, 2020

Healthcare costs in Estonia are among the lowest in Europe.
Eastern Europe stands out for its low costs.

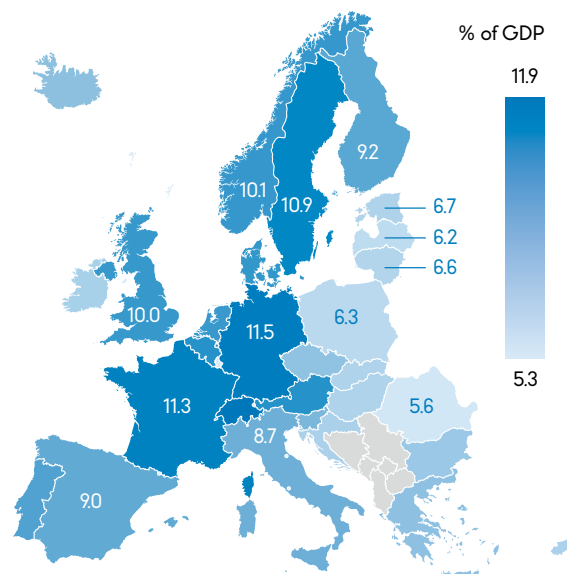


Figure 2. Healthcare costs as a percentage of GDP in 2018
* Data for Finland and Malta are from 2017
Source: Eurostat

The life expectancy of people in Estonia has risen by more than eight years over the past 20 years.

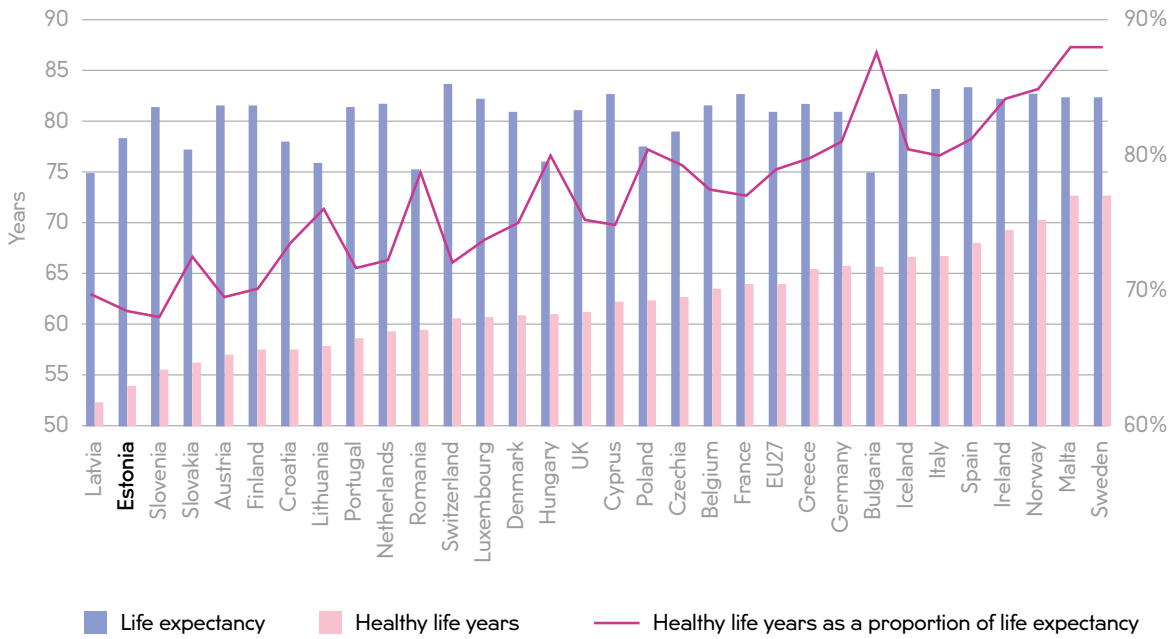


Figure 3. Life expectancy and healthy life years at birth in 2018

* Healthy life years for Iceland use data from 2016

Source: Eurostat

Out-of-pocket payments and voluntary insurance in Estonia as a share of healthcare costs are around the European average.

The out-of-pocket payments have reached the maximum limit of 25% set in the development plan for public health.

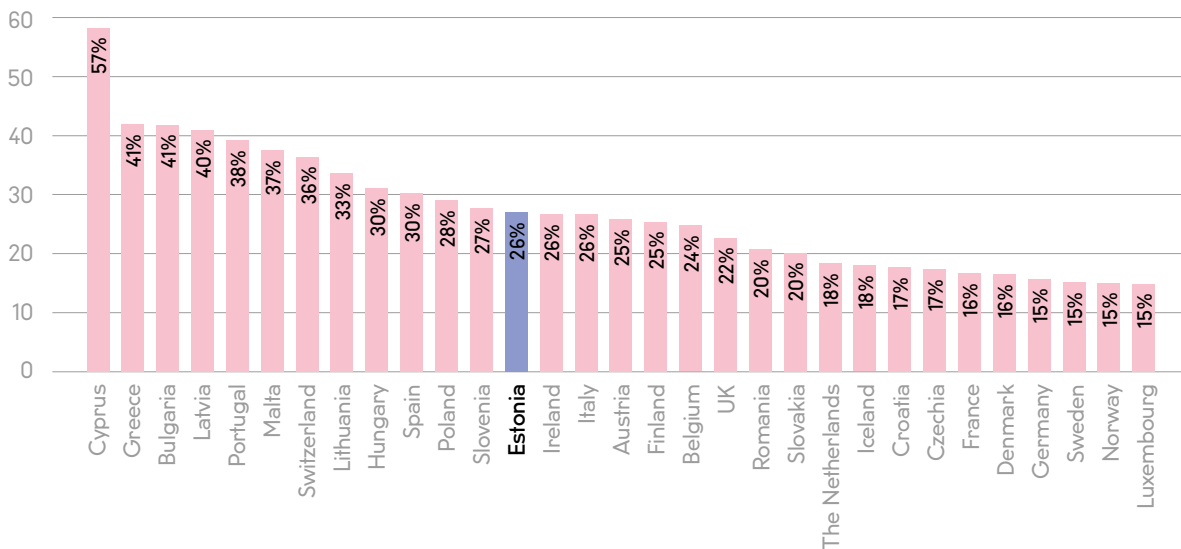


Figure 4. Out-of-pocket payments by households and voluntary insurance as a share of healthcare costs in 2018

* Data for Finland and Malta are from 2017

Source: Eurostat

Among OECD countries, Estonia has one of the largest shares of people without health insurance at 6%.

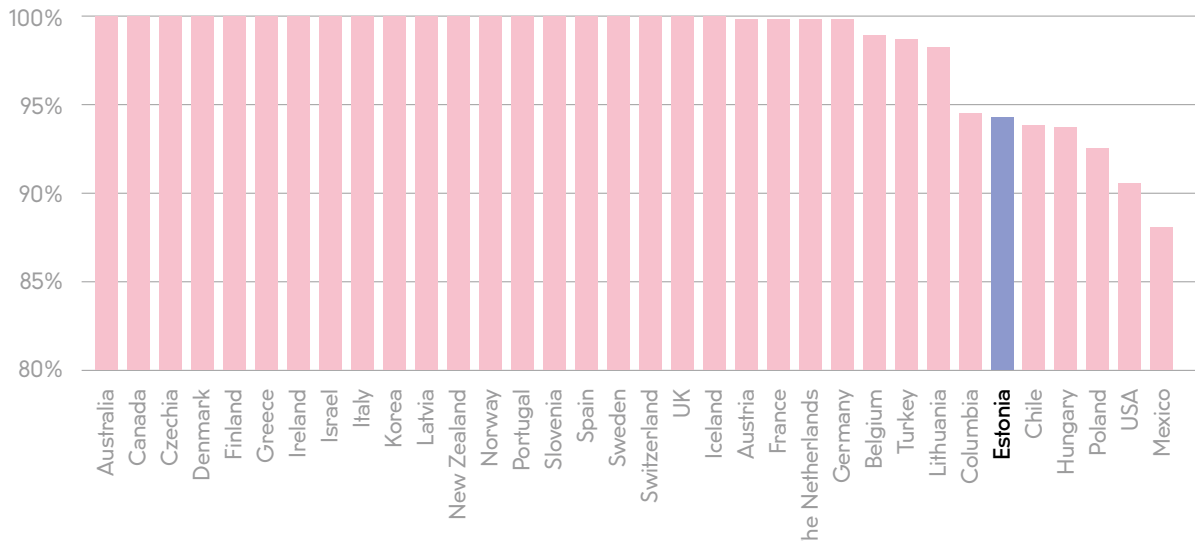


Figure 5. Share of people with health insurance in 2018
Source: OECD

Estonia has among the largest unmet need for medical care in Europe. This is mainly because of long waiting lists.

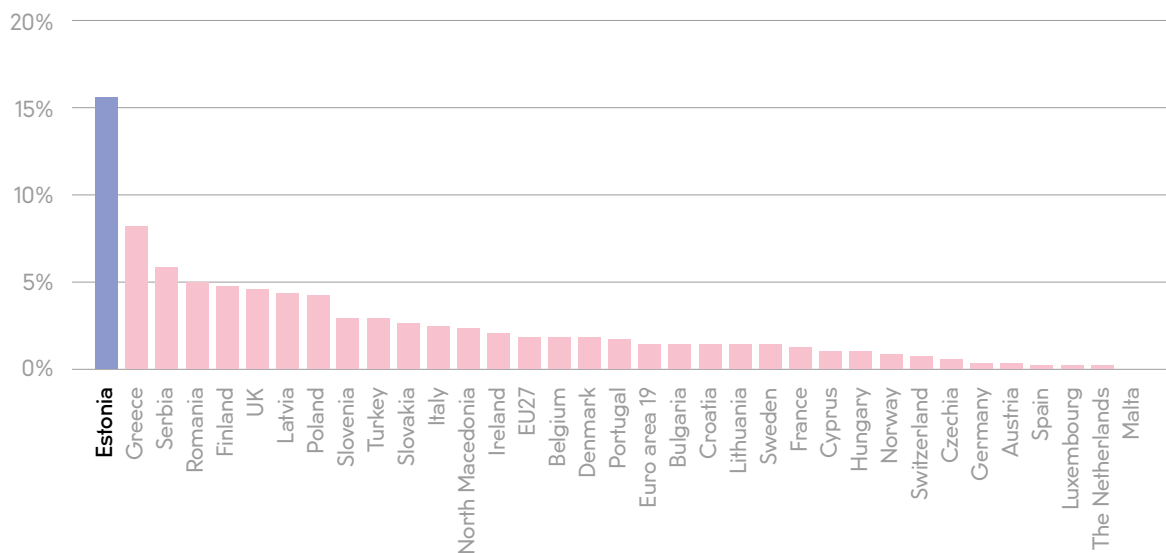
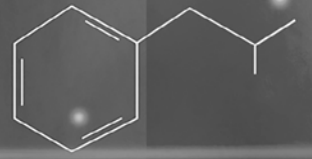
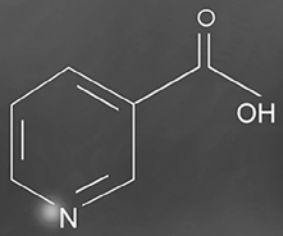


Figure 6. Unmet need for medical assistance in 2019
* Data are from 2018 for Ireland, France, Italy, Slovakia, Sweden, United Kingdom, Switzerland, North Macedonia, Serbia and Turkey
Source: Eurostat



2. TRENDS THAT WILL AFFECT THE FUTURE OF HEALTHCARE





Healthcare is a set of many activities that are intended to keep people healthy. **One of the central goals** that national health strategies and international health policy guidelines use to assess health is **the increase in the number of healthy life years**. The number of healthy life years depends on many various factors that include lifestyle and healthy behaviour, access to healthcare services, the living environment, socio-economic circumstances, and more. All of this then affects the priorities of the health insurance system.

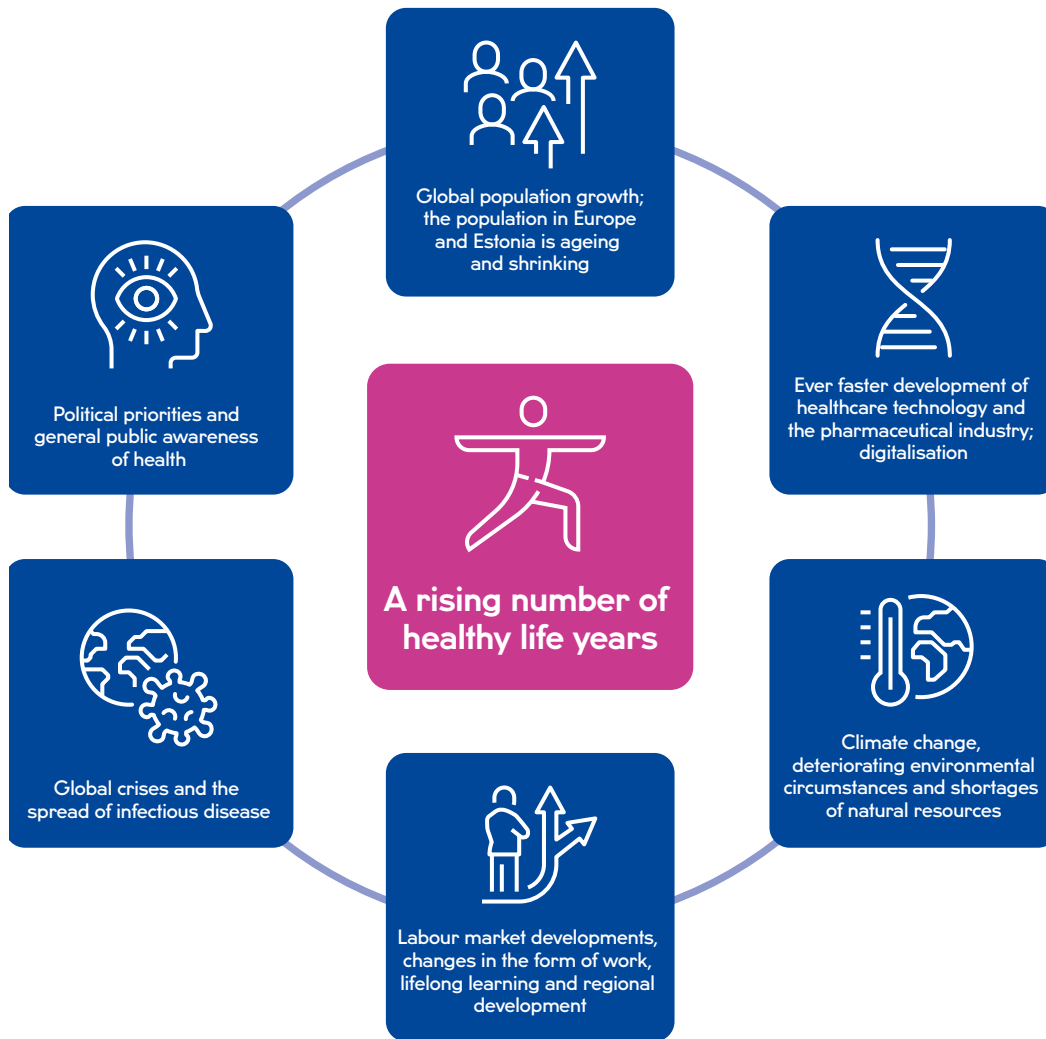


Figure 7. Factors that affect the health insurance system

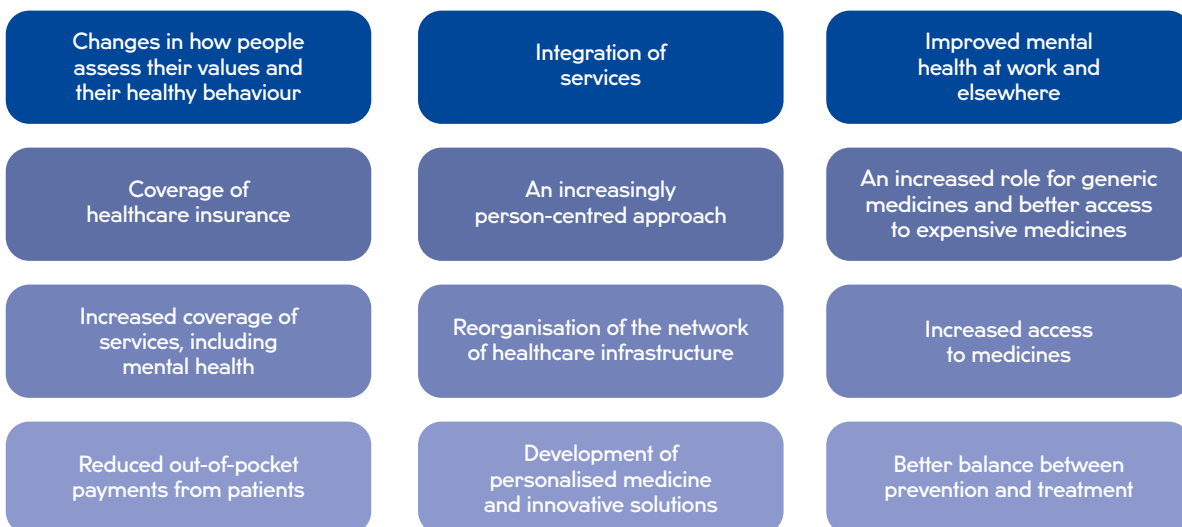


Figure 8. Factors that may be affected by the health insurance system

AGEING OF THE POPULATION WILL INCREASE DEMAND FOR HEALTHCARE SERVICES.

- The average age of the population in Estonia at the start of 2020 was 42.
- The average age has risen by four years over the past 20 years, and it is forecast to rise by another three years in the coming 15 years.

RAPID TECHNOLOGICAL DEVELOPMENT AND DIGITISATION. ICT solutions will bring healthcare closer to people who have so far found it difficult to access services, though this could also cause new problems in the digital divide. It is also the case that technology is one of the main causes of rising medical costs through investment in new equipment, knowledge and awareness. The introduction of new technology is rife with ethical issues such as whether to allow choices based on genetics to be made during pregnancy.

ACCELERATING DEVELOPMENT OF PRODUCTION OF MEDICINES. The costs of medicines are one fifth of all healthcare costs in the OECD countries. Advances in the pharmaceutical industry allow treatments to be provided for diseases that were previously considered incurable and for rare illnesses. The high prices of medicines mean that access to many new treatments is poor.

CLIMATE CHANGE. Deteriorating air and water quality affect public health and increase health risks. In the Estonian climate this could mean asthma, the spread of infectious diseases, or poisoning.

DEVELOPMENT OF THE LABOUR MARKET AND CHANGES IN THE FORM OF WORK. The main cause of these changes is technological development as some jobs disappear, new jobs are created and new forms of work appear such as platform work. The changes will also be caused by migration, which arises from freedom of movement, the globalisation of work, the need to fill new jobs, or demand for low-skilled labour. The movement of people to new forms of work will cause holes to appear in social protection and will reduce revenues from social tax. The Estonian system of social protection is designed to reflect traditional working relationships.

REGIONAL DEVELOPMENT. Urbanisation is increasing. There are questions about access to healthcare services for those who do not live in the more popular regions. Access to healthcare services is affected by hospital closures and shortages of family doctors and chemists.

GLOBAL CRISES. A global crisis is one that spreads fast and has a major impact at the individual and national levels. A crisis can cause increased demand for healthcare services while the income of healthcare falls, delivering a major blow to the whole healthcare system.

POLITICAL CHOICES. The main driver behind introducing new measures in a country or developing systems is political choice. Different political viewpoints offer different opinions about whether a healthcare system should be universal, should be based on personal contributions, or should be flexible. There are also different opinions about sources of funding, such as contributions from taxes on labour, capital or consumption.

COVERAGE OF HEALTHCARE INSURANCE

- In 2018, 94.5% of people were covered by insurance
- Coverage has gradually increased

HEALTHY BEHAVIOUR

- 50% of deaths can be connected to unhealthy behaviour
- Trends can differ: alcohol ↘ and obesity ↗

OUT-OF-POCKET CONTRIBUTION TO COSTS

- Patients paid 24.5% of healthcare costs themselves in 2018
- This was a rise in 15 years from 20.5% to 24.5%

PREVENTION

- A large share of deaths can be prevented and avoided
- Although the proportion of spending on prevention has remained at the same level, preventable mortality has fallen from 300 in every 100,000 in 2011 to 250 in 2017

MENTAL HEALTH

- There are 15 suicides and 1800 cases of mental and behavioural disorders per 100,000 people
- The number of cases has fallen a little, but there are no reliable estimates of how well the need for treatment is met

MEDICINES

- There were 10.5 million prescriptions written in 2019
- The amount of prescription medicine increased by 3.5% a year over 2010–2019



3. WHAT CAN WE LEARN FROM OTHER COUNTRIES?



JAPAN



Among the longest life expectancies in the world at 84.2 years

Spending on healthcare is 10.9% of GDP

What recent innovations have there been and could they be applied in Estonia?

POLICY DECISIONS TAKEN IN OTHER AREAS ARE ASSESSED FOR THEIR IMPACT ON HEALTH

Socio-economic factors that affect health are considered holistically. Estonia could follow Japan's example by putting health front and centre as a topic. Connecting healthcare better with other areas requires above all that policymakers actually want to make that happen.

TECHNOLOGICAL INNOVATION

It has become increasingly common in Japan to use artificial intelligence, sensors and smart prosthetics, and virtual consultations. More extensive use of healthcare technology and development of digital infrastructure suffers in Estonia though from a shortage of money, and it requires closer cooperation between the state and private companies and options for interfacing. Applying strict data protection rules will require additional resources.

THE UNITED KINGDOM



Life expectancy is above the European Union average at 81.4 years

Spending on healthcare is 10.3% of GDP

What recent innovations have there been and could they be applied in Estonia?

A METHODOLOGY FOR ASSESSING HOW COST-EFFECTIVE TECHNOLOGIES ARE

Before any new technology is introduced, assessment is made of its financial cost and the number of additional years of life that it will give people. The new technology must cross a certain threshold before the state will support its introduction. The method of assessment used in the United Kingdom could easily be introduced and applied in Estonia. The University of Tartu uses a similar form of health technology assessment (HTA) for new drugs and equipment. The United Kingdom has also introduced digital technology guidelines that take better account of the particular nature of such technologies.

THE NETHERLANDS



The Netherlands has one of the lowest rates of unmet medical needs in the European Union

Spending on healthcare is 10% of GDP

What recent innovations have there been and could they be applied in Estonia?

THE NATIONAL PRIVATE INSURANCE MODEL

The healthcare system in the Netherlands uses mandatory regulated private insurance, long-term care based on private funding, and social care funded from local taxation. Earlier research in Estonia has found that a funding model based primarily on private insurance would not work because the Estonian market is so small. In the longer term such a solution could work in Estonia through cross-border medical insurance, or if the state has an additional role in funding, say by covering the contributions of patients. This would however reduce the access of some people to healthcare services.

NURSES PRACTISING INDEPENDENTLY

A notable feature of the Dutch system is its strong primary care, as nurses practice independently and have the right to write prescriptions and carry out low risk medical procedures, as do mental health nurses. Estonia is gradually moving in the same direction, but the challenge for Estonia is to train more nurses. There are still very few mental health nurses in Estonia.



4. FUTURE SCENARIOS FOR HEALTHCARE



Different scenarios help give a picture of the possible results after some decades from the various choices made by the state and society today.

Looking at a range of possible situations in the future allows us to understand better what the best healthcare policies could be under different circumstances, and consider the funding principles and sources of finance for the health insurance system; whether the main focus of the state system should be on prevention or treatment; and what coverage health insurance should have, what range of services the state should finance, and how much of the cost patients should cover themselves.

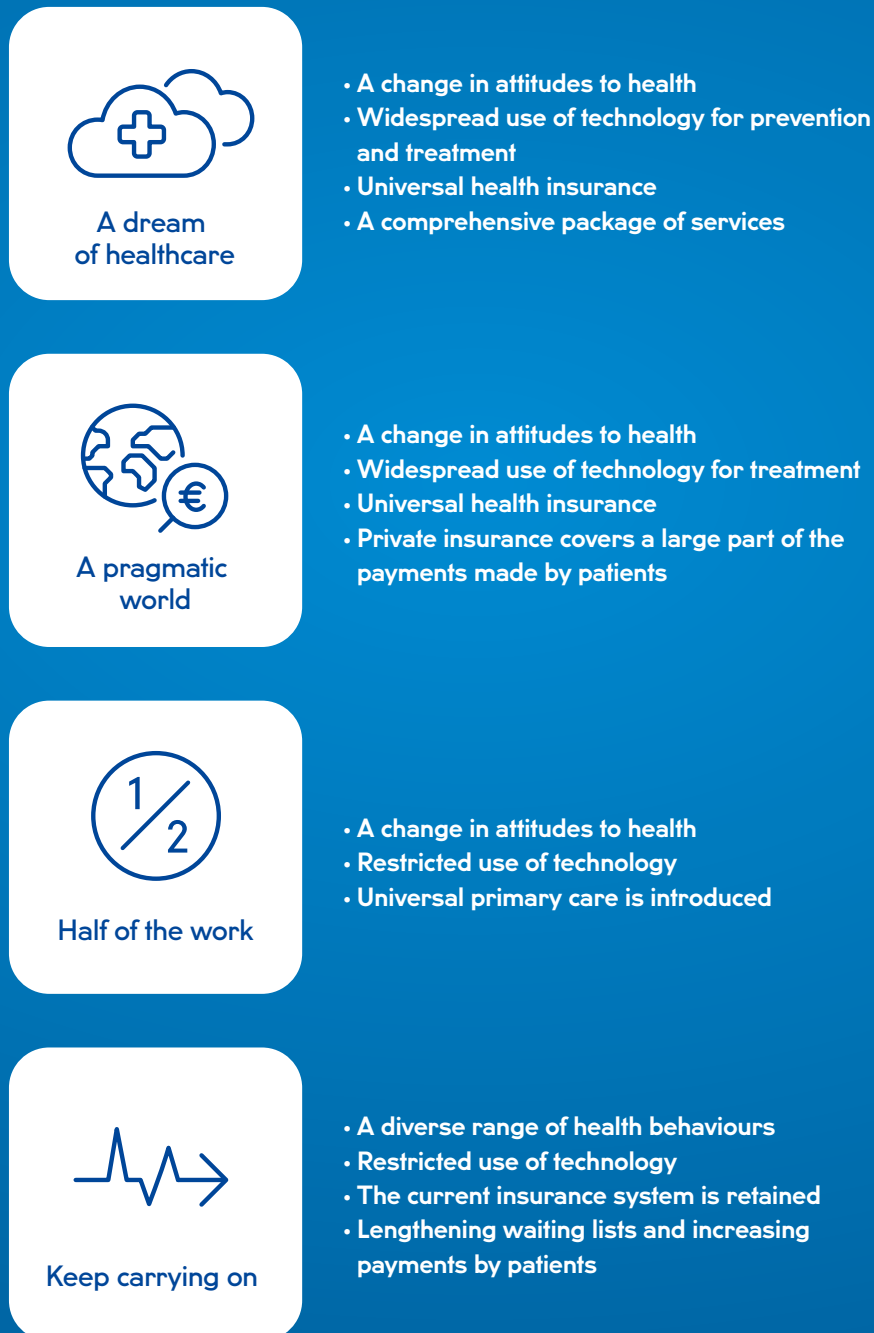


Figure 9. The framework of future scenarios in healthcare

Table 3. The essence of the scenarios

| The outlook for healthy behaviour and epidemics | | Development of healthcare technology and digital infrastructure and their use in prevention and treatment | |
|---|--|--|---|
| A change in attitudes to health | A diverse range of health behaviours | Widespread use of technology | Restricted use of technology |
| People take greater responsibility for their own health | Behaviour patterns on average remain the same as today | Digital technologies and equipment for healthcare are available to most people. They are indirectly available to everybody, for example through the interactive database of medicines | The technology exists, but solutions that cover all parts of society are not in use |
| Healthy behaviour is promoted by people who are focused on their health, but the increase in caution provoked by the coronavirus crisis also plays a part. People understand the connection between their own health and their behaviour better than before, and health literacy improves | Some people do sport, eat healthily and avoid lifestyle-related illnesses, while others live in the moment or cannot afford healthy choices and rely on the state | Technology and data analysis are used widely for prevention and treatment, in forms like telemedicine, personal medicine and better use of health data for prevention and treatment | The private sector offers services in any case, but only to those who are prepared to pay for those services |
| The state sets an example and works to promote healthy behaviour, by using nudges, investing in improving the living environment, and setting health as an overarching topic for all policy for example. Mental health becomes a systemically important issue | State funding goes on treatment services, and not enough is invested in prevention. Increasing problems with mental health are known about, but no great steps are taken | The state sets standards for data and other technology so that the systems are interoperable and allow data exchange, and people have an active role in creating and managing their own data in accordance with the principles of data protection. This requires the state to take the lead and work closely with the private sector | The use of technology may be restricted because the state does not have enough funds to bring together the technological bases of the public and private sectors, people do not want to share their health data with technologies for preventive medicine, or solutions that work well and securely are too expensive |



Scenario: A Dream of Healthcare



The attitudes of people to health and their behaviour and the epidemiological outlook improve significantly and new healthcare technologies are accessible to a substantial majority for prevention and treatment.

In the wake of the coronavirus crisis, health moves up to become the second most important issue after economic prosperity. A large number of highly health-conscious people emerge in the country, and they lead a broad movement that gets everybody in Estonia behaving more healthily. Health education is added to curricula in schools all the way through to the final year, and **health literacy improves** as a result. **How laws and development programmes will impact healthcare goals is considered when they are in preparation.** The government plays an active role in promoting healthiness, nudging the population to act more healthily, promoting environmental protection and maintaining an unspoiled natural environment, and it works faster to create open-air spaces for exercise and activity. Estonia's experience of the virus crisis and of what it is to be in a world without vaccines raises the vaccination rate through conscious decisions taken by the public and as a result of nudging by the government.

The state takes the lead in developing digital infrastructure and creating a new framework and standards for using digital healthcare technology, and ways for the private sector to connect easily to the main system. New healthcare technologies are introduced for prevention and for treatment. These changes also advance the Estonian e-state to a new level.

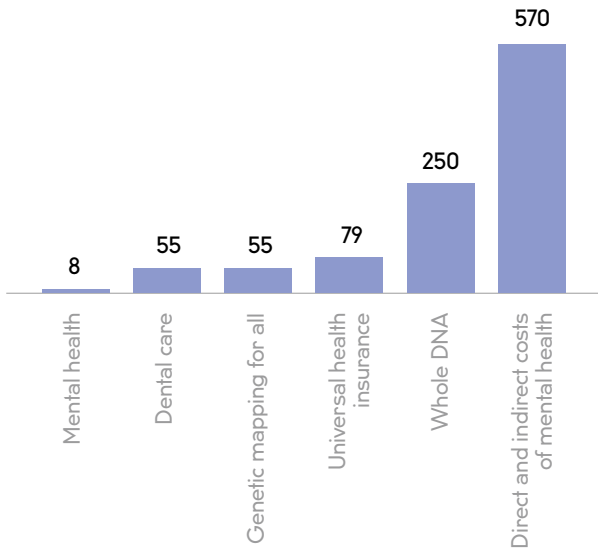
Leading examples of the technology used for prevention and treatment are found in personal medicine, data science and telemedicine. Everybody has their own gene map made and their microbiome researched. People in risk groups are given smart devices by the state to monitor their health indicators. **A single database contains**

each person's health account with all their personal data, genetic information, microbiome details and all other possible health information collected by devices and apps; these data are processed by an effective self-learning artificial intelligence that can provide health recommendations to people individually and to healthcare workers. This makes the healthcare system remotely managed, reactive and preventative.

Using genetic information and other sources of data assumes that the public and data protection allow data to be shared and linked. Blockchain technology is used to transfer data securely and avoid data leaks, and it ensures that data are used transparently and allows people to decide who will have access to their data.

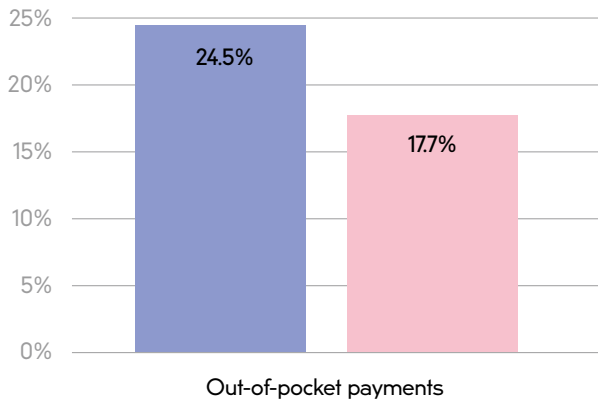
The new data and the use of them allows transition to population health management, which can optimise mental and physical health over the lifespan and over generations.

Insurance: there is universal health insurance and a comprehensive package of services. As the state wants to prevent disease or to treat it in the earliest phase possible, a transition is made to universal health insurance. The result is that the whole population is covered by health insurance. The range of services funded by the state is expanded to include dental care, mental health and genetic analysis. The funding model is also reviewed and a move is made towards financing outcomes from treatment and away from the earlier separate financing of individual treatment and analysis services. Both the state and the public want to see the effects of treatment and are prepared to pay for this above all.



Universal health insurance at 79 million euros would increase the costs of the Health Insurance Fund at 2021 prices by less than 5% a year

Figure 10. Growth in costs at 2021 prices, million euros



Reducing the out-of-pocket payments from patients for dental care to five euros would allow people to save 90 euros a year at 2019 prices

Figure 11. Reduced out-of-pocket payments from patients

Universal health insurance would mean a rise in costs for the Health Insurance Fund of 79 million euros a year at 2021 prices. Covering dental care for adults through insurance would cost an additional 55 million euros a year. With all of the changes, the budget for the Health Insurance Fund in 2035 would be in deficit by 1150 million euros using the current funding model; the deficit in the baseline scenario would be 900 million euros.

The mandatory contribution that people would have to make to healthcare costs would fall from 24.5% in 2018 to 17.7% because of state funding for dental care for adults. Expanding

coverage of dental health would make dental care more accessible to those on low incomes, who frequently choose not to go to the dentist at the moment.

Covering dental care would mean that the share of people who cannot afford dental care would shrink by around a third.

Funding gene mapping for the entire population would cost 55 million euros. Providing DNA sequencing for everybody in Estonia would cost between 250 and 500 million euros over the next 5-7 years depending on how the price of tests changes. In the future, genetic data

on 14,000 newborn babies would need to be collected each year.

The actual need for mental health services is unknown and the current information is fragmentary, and so the costs to the state of possible wider funding of mental health services are only estimates. If the mental health services currently provided were transferred to the

Health Insurance Fund, the minimum cost would be 7.7 million euros a year. The actual costs could turn out to be many times larger, as there are many cases of mental health concerns that have not been diagnosed. The green paper on mental health estimates that the direct and indirect costs of mental health in Estonia could be up to 570 million euros.

Opportunities



- + A large part of the need for treatment would disappear because of widespread and effective preventative healthcare
- + Estonia's e-advantages could be exported
- + Operations that are required only rarely could be carried out in Estonia using virtual reality
- + Various research has shown that effective prevention and better health boost GDP by around a tenth, as productivity increases, premature mortality declines and people can remain longer in the labour market
- + The expansion of health insurance could come with a requirement to visit a doctor at least once a year and to give permission for personal health data to be shared within the rules on data protection

Risks



- Personal health data may start to be used for other purposes, or quantum computers may be used to hack into the blockchain so that data could be used in unethical ways. People would be less trusting about sharing their data
- The artificial intelligence may not function as planned and could at some point start to issue inappropriate advice
- Active participation in data-based prevention is beyond the reach of those on the lowest incomes
- As access to health insurance does not depend on tax payments, people may become less scrupulous about paying their taxes



Scenario: A Pragmatic World



The attitudes of people to health and their behaviour and the epidemiological outlook improve and new healthcare technologies are used primarily for treatment.

Demographic changes, the repercussions of the coronavirus, and the length of time spent in retirement as life expectancy increases together force the state to focus on healthy life years in order to keep people able to work. The goal is to use healthcare technology more broadly by involving the private sector. As the state has only small and limited amounts of money, it directs what it has **towards treatment technology** where the problem is more acute, as long waiting lists for treatment need to be shortened, while the healthcare sector faces labour shortages. Technological solutions are in consequence aimed at cutting costs, by promoting virtual visits for example to save time.

Prevention campaigns continue to be in the form of mass campaigns. There is not the money nor the leadership for personalised and data-based preventative medicine. Those who can afford it use private sector solutions to look after their health, such as English-language mobile apps that are effective but are not free. Further obstacles to promoting prevention are public scepticism and lack of trust in the state, limits to data protection, and insufficient interoperability between systems.

Insurance: there is universal health insurance.

As little money is available, a substantial rise in the mandatory contribution is accepted, meaning that people have to bear more of the burden for paying for their own healthcare services. **Private healthcare insurance** is introduced to cover the high mandatory contribution, like in France or Slovenia. The insurance premiums of vulnerable groups in society, such as pensioners and people living in poverty, are paid by the state.

The whole population of Estonia is covered by universal healthcare insurance.

The rise in the out-of-pocket payments would be of 390 euros a year at 2019 prices. The amount that each patient has to pay would rise to 730 euros a year. Private insurance would be used to cover this.

If the state subsidises private insurance premiums for children and pensioners, the private health insurance premiums for people of working age would be 570–820 euros at 2019 prices.

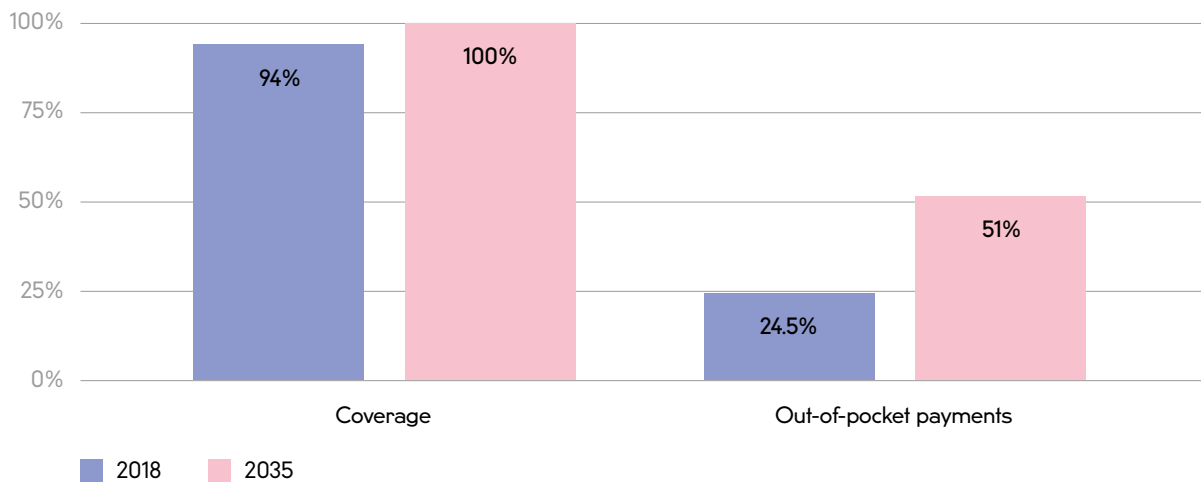


Figure 12. Coverage and the out-of-pocket payments in healthcare in 2018 and 2035

This scenario would see a transition to universal health insurance, as health insurance coverage extends from the current 94% of the population to 100%, or everybody in the country. If universal health insurance was introduced from 2021, the costs of treatment insurance would rise by 79 million euros a year, but other direct costs for new services would not be added in this scenario.

If the out-of-pocket payments from patients were not only kept at their current level but extended to cover the deficit that would arise, they would reach 51% of total costs. In monetary terms this means that an additional deficit of 1.05 billion euros in 2035 would have to be funded on top of the current out-of-pocket payments. As private insurance would continue

to cover this payment in future and the private insurance of pensioners and children will be subsidised by the state, the cost of private insurance premiums for people of working age, depending on the margins of the insurance companies, would range from 570 euros per person per year at 2019 prices with a 5% margin to 820 euros with a 50% margin.

Simulations show that the impact of the mandatory contribution raises the poverty rate or at-risk-of-poverty rate from 4.5% to 16%*. If private insurance premiums or the rise in the out-of-pocket payments are covered for pensioners from the state budget, the impact of the out-of-pocket payments on the poverty rate or at-risk-of-poverty rate falls to 9%*.

* The risk of poverty rises many times over because of a statistical quirk in the data. The amount that half of people pay as their own contribution to healthcare in a given year is currently zero, but that would no longer be the case with private insurance. Those who paid zero in one year will not necessarily pay zero again in the next year, but may make the full out-of-pocket payment. Insurance payments spread the cost over multiple years.

Opportunities



- + Technology companies are in a good position to provide preventative medical services
- + The introduction of new medical technologies improves the quality of treatment
- + Covering personal contributions to the cost of care through private insurance encourages people to behave healthily, as the amount they must pay for insurance depends on this
- + Market competition between hospitals helps to control costs
- + Health insurance could come with a requirement to visit a doctor at least once a year and to give permission for personal health data to be shared within the rules on data protection
- + Private insurance would spread the amount people pay for their care more evenly, as the insurance payments set a ceiling for the out-of-pocket payments for each person.

Risks



- Private insurance may not work with such small amounts. It may require a larger market area to operate properly
- If insurance works it may not meet expectations or ensure that people are treated equally
- Private insurance could leave some people at increased risk of poverty or cause large costs for local governments and the state to ensure that poorer people are covered by private insurance



Scenario: Half of the Work



The attitudes of people to health and their behaviour and the epidemiological outlook improve, but new healthcare technologies are only available to the wealthier part of the population.

.....

The public considers that the state did not handle the coronavirus crisis and other health issues well enough. The state has also used personal data inappropriately and insecurely, and so trust in it has been dealt a heavy blow and people are no longer prepared to trust it with their personal data. The development and supply of healthcare technology is led primarily by the private sector and is only accessible to the wealthier part of the population.

The general epidemiological picture improves, as primary healthcare becomes accessible to all. Some wealthier people have full access to new technologies that allow them to change things about themselves, such as sensory or mental enhancement or choosing characteristics for their unborn children. Others may show their interest in health through data-based preventative medicine by using various digital solutions to manage their health and welfare.

Innovative solutions being available to only part of the population means that inequality increases and ethical boundaries shift. Some of those who do not have access to this start to look for solutions from alternative, traditional and folk medicine. This raises awareness of health, but take people further away from standard medicine and could in the longer term lead to higher costs for treatment, as people do not contact the doctor in sufficient time when they have serious health problems.

Insurance: the current system is maintained and extended with primary care services for all through general practitioners or family doctors. Healthcare coverage comes at two levels, where primary care services are covered for everyone, while coverage of other services financed by the state remains at the earlier level, or even declines as employment under a traditional employment contract becomes less common. Primary healthcare services are also expanded with the addition of mental health nurses, physiotherapists, nutritionists and social workers for example.

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Primary healthcare available to all at 10 million euros together with 9 million euros for subsidies for medicines would together account for a quarter of the 79 million euros spent on universal health-care insurance.

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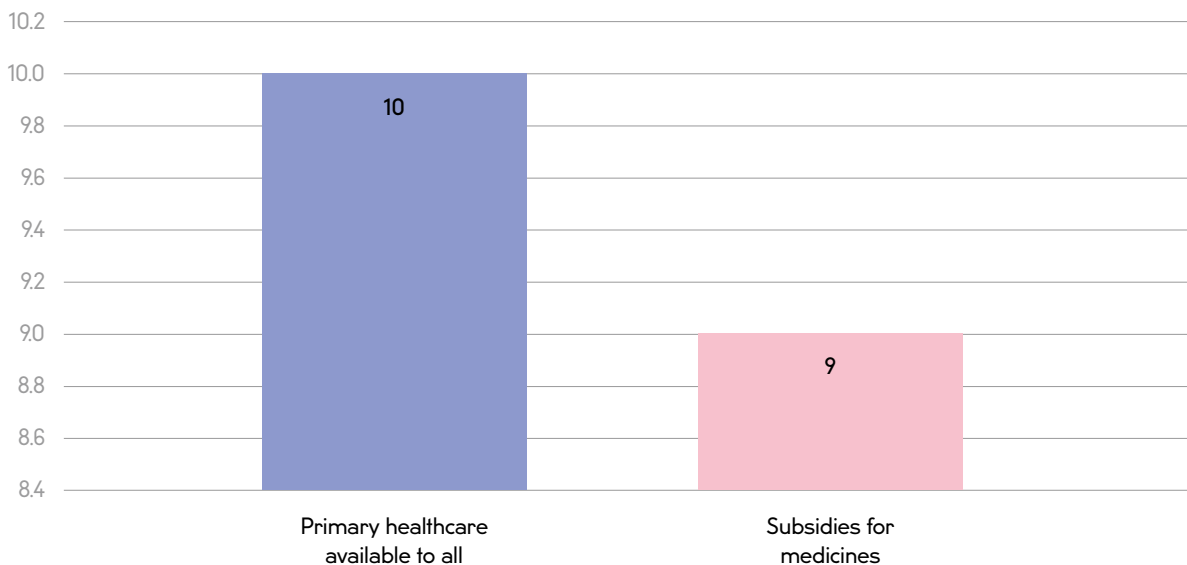


Figure 13. Additional costs at 2021 prices, million euros

Covering the whole population with family doctor services would raise treatment insurance costs at 2021 prices by around 10 million euros, of which 2 million euros would go on higher wage costs if the number of doctors increased by the same proportion as coverage. Covering the costs of subsidies for medicines as well would add a further 9 million euros in costs.

Most of those without insurance are of working age, and their consumption of healthcare services and so the out-of-pocket payments that they make to the costs are below the average. The out-of-pocket payment means that the rates of poverty or at-risk-of-poverty for those of working age are half of the average at around 2%, and this would be the maximum impact on reducing poverty in this scenario.

Opportunities



- + Universal primary care allows health problems to be prevented or monitored in an early phase
- + Better awareness of health leads to improvements in well-being

Risks

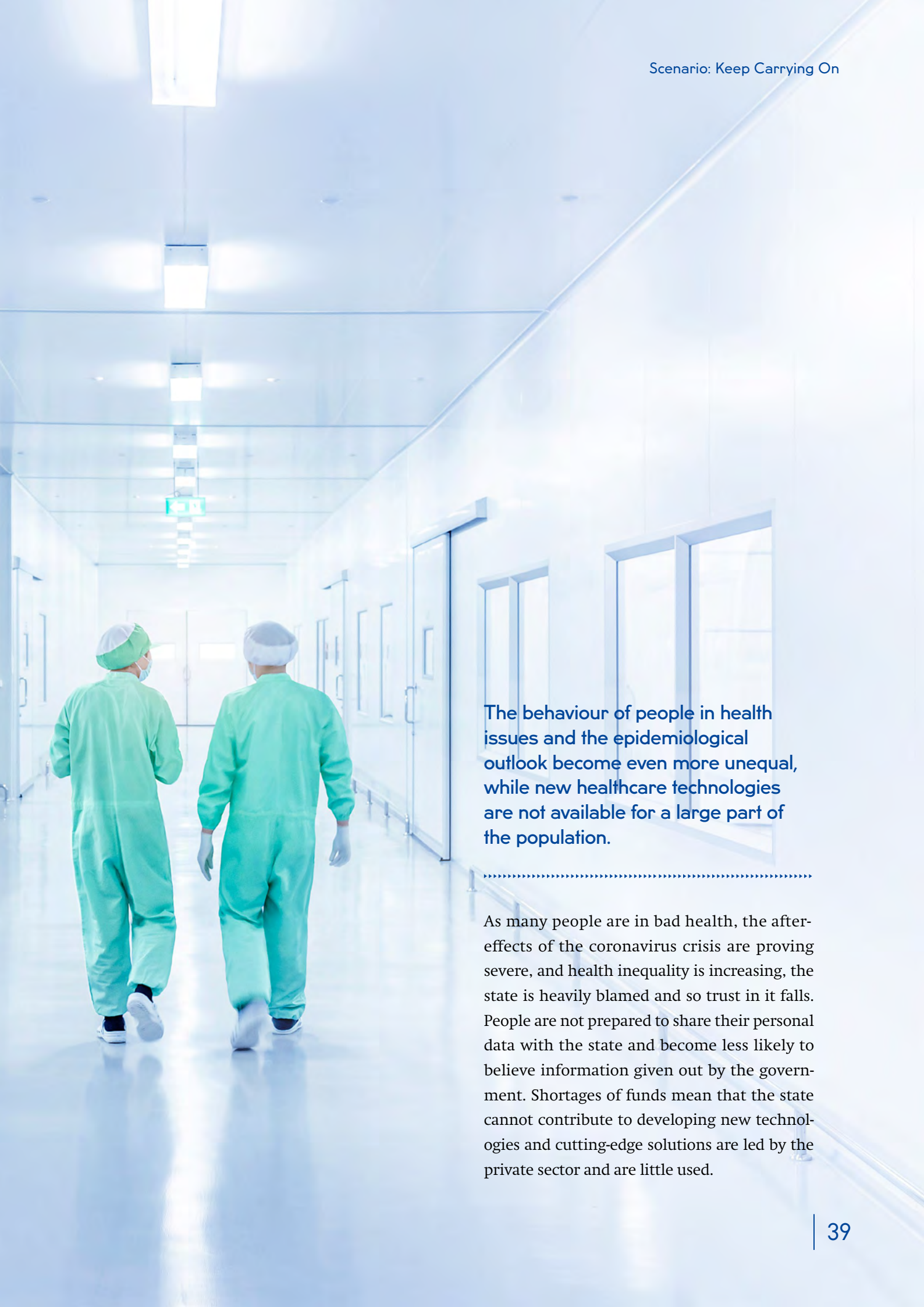


- As technologically intensive services are only available to the wealthy, health inequality increases
- Broader public interest in unregulated alternative medicines with little or no basis in evidence may later increase treatment costs



Scenario: Keep Carrying On





The behaviour of people in health issues and the epidemiological outlook become even more unequal, while new healthcare technologies are not available for a large part of the population.

As many people are in bad health, the after-effects of the coronavirus crisis are proving severe, and health inequality is increasing, the state is heavily blamed and so trust in it falls. People are not prepared to share their personal data with the state and become less likely to believe information given out by the government. Shortages of funds mean that the state cannot contribute to developing new technologies and cutting-edge solutions are led by the private sector and are little used.

As obesity is one of the largest risk factors, people who are concerned about their health try to maintain a balance in nutrition and exercise. Some people look increasingly towards plant-based diets, while others focus on defined and monitored exercise regimes. All this remains distant and unobtainable for the poorer and more passive parts of society.

Mental health becomes increasingly important in society and depression starts to be seen as an illness for which it is normal and necessary to seek help, but access to mental health services does not improve particularly for those with few financial resources. Campaigns are run to highlight the importance of mental health, but these are one-off projects that many people mistrust or ignore.

Insurance: the current system is maintained.

As there is little money available, waiting lists for services lengthen and the average out-of-pocket contribution doubles. Healthcare services continue to be funded on a piecemeal basis, which does not encourage improvement in systemic quality or health monitoring, but puts the financial focus on immediate firefighting with expensive specialist care.



As the population ages, the share of all health insurance spending going on specialist care will rise by 2035 to 53% from 50%.

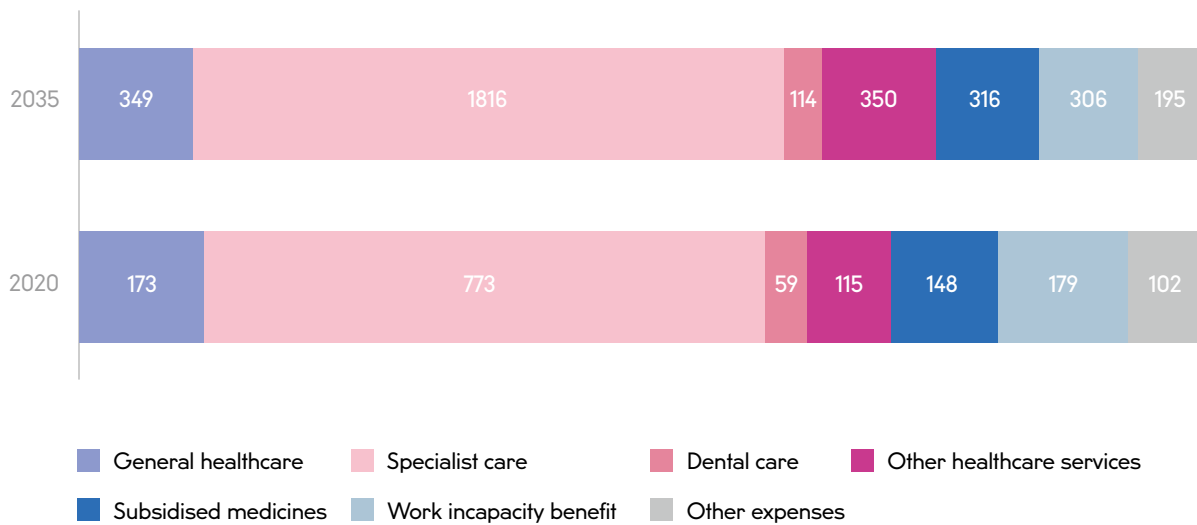


Figure 14. Different cost types as a share of health insurance spending in 2020 and 2035, million euros
 Source: Laurimäe et al. 2020

The health insurance system of 2020 remains in place up to 2035. No other services funded by the Health Insurance Fund are added, and nor does coverage of health insurance change from its 93.6% in 2019.

The health insurance budget runs into deficit. If the funding model does not change, the income for health insurance does not grow as fast as its costs. The budget deficit widens each year and reaches some 900 million euros by 2035. The out-of-pocket payment rate of 24% in 2019 rises even further. If the deficit is to be covered from payments by patients, the out-of-pocket payment rate will have to rise to 50%.

The out-of-pocket payment has not affected poverty as much of late in Estonia, as the share of households for which it has exacerbated poverty or which it has brought below or close to the

poverty line is 4.5%, and this can be explained by rising incomes together with compensation for the costs of dental treatment and additional coverage of the costs of prescription medicines.

If the out-of-pocket payment were to double and there were to be no change in how costs are divided between households, then **health-care costs would on average be up to a tenth of what people spend on consumption. The impact of the out-of-pocket contribution would almost double the poverty or at-risk-of-poverty rate from 4.5% to 8.3%**. Those most at risk would again be the elderly, whose consumption of healthcare services is large and whose incomes are small. However, one household in ten among families with many children may find they have to spend more than 40% of their disposable income on healthcare.

Opportunities



- + The private sector is able to provide healthcare services and technological solutions to those in society who are able to pay for them

Risks



- Society becomes polarised and health inequalities widen
- Addiction, unhealthy nutrition and mental health problems worsen in society as a whole, and there is no reduction in preventable disease
- The shortage of money means the quality of treatment suffers
- As the out-of-pocket payment doubles and depends on the need for treatment, the cost of treatment for some people becomes much higher than the average that people must pay



Comparison of the Scenarios



Table 4. Comparison of the scenarios

| | A dream of healthcare | A pragmatic world | Half of the work | Keep carrying on (baseline scenario) |
|--|---|--|---|---|
| Key features of the scenario | The attitudes of people to health and their behaviour and the epidemiological outlook improve significantly, and new healthcare technologies are accessible to many people for prevention and treatment | The attitudes of people to health and their behaviour and the epidemiological outlook improve significantly, and new healthcare technologies are accessible to many people primarily for treatment | The attitudes of people to health and their behaviour and the epidemiological outlook improve significantly, but new healthcare technologies are not accessible for many people | The attitudes of people to health and their behaviour and the epidemiological outlook become even more unequal, while new healthcare technologies are not available for a large part of the population |
| Health insurance | Covers everybody with a wide range of services | Covers everybody but the range of services does not increase | Primary care covers everybody, and the range of primary care services increases | The current system remains in place |
| Additional costs to the state over the baseline scenario at 2021 prices | 142 million euros | 79 million euros | 21 million euros | - |
| Out-of-pocket payment | Falls by 7% | Rises to 51%, which starts to be funded from private health insurance | Remains at 24% | Rises to 50% |
| Additional state funding | Additional funding needed to introduce universal health insurance, expand the range of services and reduce the out-of-pocket payment | Additional funding needed to cover the private insurance payments of pensioners and children | Additional funding needed to keep the out-of-pocket payment unchanged | None needed, but the out-of-pocket payment doubles |
| Waiting lists | Shorter | Shorter | The same | Longer |
| Coverage | 100% | 100% | 100% primary care, 94% specialist care | 94% |
| Risks | People's health data could be hacked and misused. The artificial intelligence may not function as planned and could at some point start to issue inappropriate advice. Tax compliance may deteriorate, reducing public finances | Private insurance may not work with such small amounts. It may require a larger market area to operate properly. Insurance may not ensure equal treatment. Private insurance could leave some people at increased risk of poverty or cause costs for local governments and the state if they are to ensure that poorer people are covered by private insurance | As technologically intensive services are only available to the wealthy, health inequality increases. Broader public interest in unregulated alternative medicines with little or no basis in evidence may later increase treatment costs | Society becomes polarised and health inequalities widen. Addiction, unhealthy nutrition and mental health problems worsen in society as a whole, and there is no reduction in preventable disease. The shortage of money means the quality of treatment suffers |



5. POSSIBLE SOLUTIONS



Better behaviour for health

The health insurance system is just one factor among many that can affect the number of healthy life years. It is very important that people themselves act more healthily and become more aware about their health. Healthy behaviour not only improves individual well-being, but also saves money. In 2016, some 51,300 years of life were lost in Estonia through premature

death and illness caused by alcohol for example. Cutting the number of years of life lost each year to 40,000 would improve the well-being of the population and benefit the state by **around 700 million euros a year**. The same number of years of life are lost at the same cost to diseases caused by smoking.

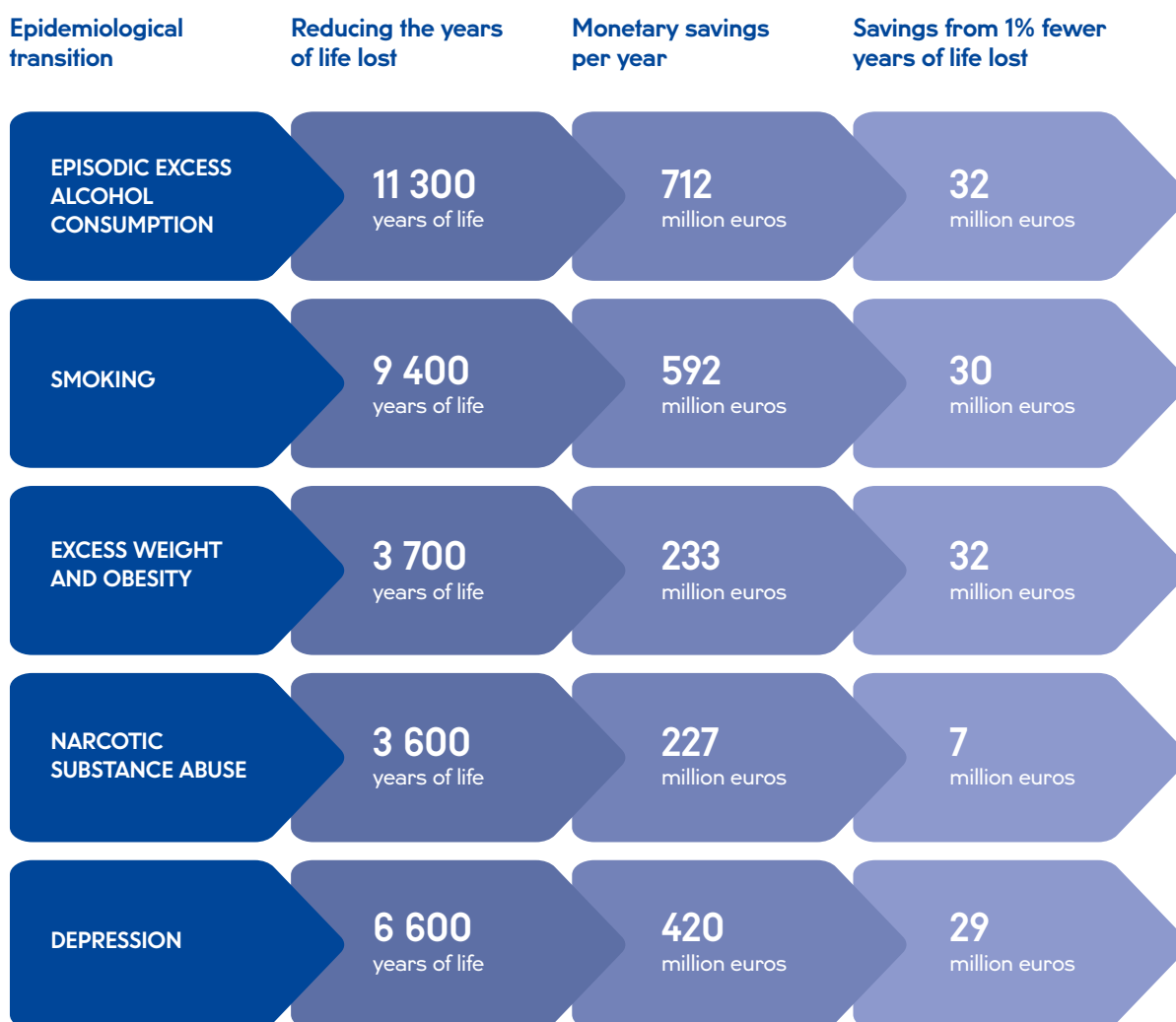


Figure 15. Changes in the number of life years lost and their cost following changes in health behaviour

Source: Laurimäe et al. 2020

Smaller changes can also have a substantial financial impact. Cutting the number of years of life lost to alcohol abuse by as little as 1% from the current number, from 51,300 to 50,787, would save 28 million euros a year, while a similar cut in smoking would save 30 million euros, a cut in narcotic substance abuse would save 7 million, and a reduction of 1% in mental health issues would save 29 million euros a year.

The number of deaths per 100,000 people that could be prevented through treatment is higher in Estonia by 50 than the figure for the whole European Union. If the figure for Estonia were to be improved to the level of the European Union, the gain would be about 23,900 additional years of life from better quality treatment, together with a direct improvement in well-being and a financial gain of 1.5 billion euros.

Ways of changing the sources of funding

The Estonian social protection system is similar to most other liberal social protection systems

and funding for health insurance has so far been based on a narrow tax base that taxes only wages. This means that the system is by design sensitive to downturns in the economy and to the population ageing.

Healthcare is mainly funded by the health insurance part of the social tax paid by employers, which is 13% of the gross wage, to which is added a small allocation for pensioners. This system will cease to be sustainable in the coming decade, because revenues will decline as the population ages and new forms of work emerge where social tax is not paid, and because costs will increase as people live for a longer time, but not in good health. Even doing nothing more than sustaining the current system without adding a single new state-funded service would cause the budget deficit in health insurance to widen rapidly in the coming years to reach 900 million euros by 2035. If further services were added or if health insurance coverage were extended to all the people in Estonia, the deficit would be even deeper. The current funding model needs to be reorganised or extended.

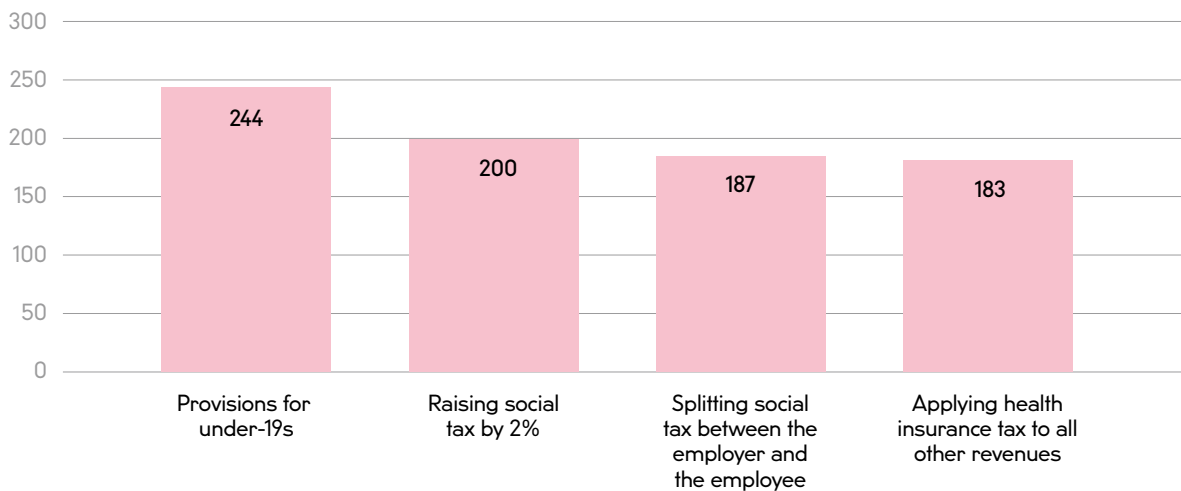


Figure 16. The amount added each year by changes to the funding sources for healthcare, million euros at 2021 prices

Source: Laurimäe et al. 2020

There are several ways of changing the sources of funding:

Divide liability for social tax payments between the employer and employee

- Adds 187 million euros a year calculated from the base in 2020
- At the cost level of the Health Insurance Fund in 2020, the health insurance part of social tax could be cut from 13% to 11.6%
- Income tax would need to be cut from 20% to 19.5% to keep net incomes the same

Apply the health insurance part of social tax to other revenues too, such as dividend income, benefits and rental income

- Adds 183 million euros a year calculated from the base in 2020
- At the cost level of the Health Insurance Fund in 2020, the health insurance part of social tax could be cut to 11.4%
- Income tax would need to be cut to 19% to keep net incomes the same

Make new provisions, for example for the under-19s

- Adds 244 million euros a year calculated from the base in 2020 and a total of 4.7 billion euros over 15 years
- At the cost level of the Health Insurance Fund in 2020, the health insurance part of social tax could be cut to 11.4%

Fund health insurance from the general revenues in the state budget

How does the range of sources of funding affect the inequality of funding of health care?



Figure 17. Inequality index for the funding of healthcare
 Source: Vörk and Piirits 2020

The current funding system is based on income earned from work and so the funding framework for healthcare has been redistributive, as people on higher incomes pay relatively more for the health service. The increase in the out-of-pocket contribution to the funding of healthcare in recent years and increased transfers from the

state budget, where consumption taxes provide a large part of revenue, mean that the funding of healthcare has become less progressive and the relative burden of it has moved from people on higher incomes towards those on lower incomes.

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