

Adult dental care benefit

*Has adult dental care benefit made dental care
more accessible?*

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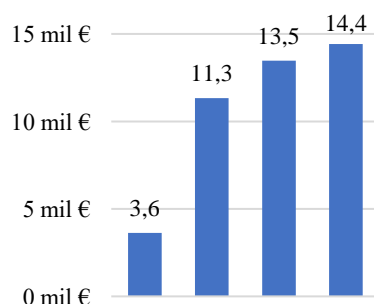
Summary of audit results

The dental care benefit for adults can be used by insured persons at least 19 years of age for 40 euros per year, out-of-pocket payment is 50% (on preferential terms up to 85 euros per year, out-of-pocket payment 15%).

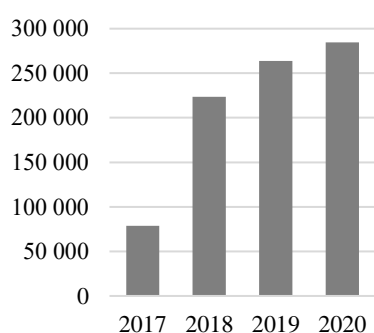
The benefit can be used in a medical institution that has contract with the Estonian Health Insurance Fund.

Source: [dental care benefit](#), Estonian Health Insurance Fund

Estonian Health Insurance Fund expenses for adult dental care benefits in 2017–2020



Number of users of the benefit in 2017–2020



Sources: Estonian Health Insurance Fund [2017](#), [2018](#), [2019](#) and [2020](#) annual reports

The adult dental benefit (benefit) has made dental care somewhat more accessible, but equal treatment has increased inequalities in dental care. After the benefit was made available in 2017, the number of people who visited the dentist for the first time and who visited the dentist more often increased. However, the benefit is used more by people with higher incomes who would be able to pay for dental care themselves. Many low-income earners have never been to a dentist in the last five years. The terms of the benefit do not consider the ability of adults to pay for treatment, so the benefit has not reached those who would need it most due to their lower income.

Main findings of the audit

The benefit has brought people to their first visit and more frequent visits to the dentist, but the benefit is used more by those who presumably do not need it according to their income. Two-fifths of adults, mostly low-income earners, have never been to a dentist in the last five years. Thus, the benefit has not reached enough people who need state support the most.

The terms of the benefit do not consider the ability of adults to pay for treatment. In addition, the total out-of-pocket payment for patients' dental costs may in fact be significantly higher than the cost-sharing described in the terms of the benefit.

The benefit covers essential dental care. At the same time, reimbursable services focus more on treating existing health problems, i.e., dealing with the consequences (e.g., filling), and do not pay enough attention to prevention. Greater emphasis on prevention in the list of reimbursable services would help to prevent or detect diseases at an early stage.

The activities of the Estonian Health Insurance Fund (EHIF) have favoured signing a contract with the EHIF by dental care institutions. Two thirds of the clinics have signed the contract. At the same time, benefit is not uniformly available throughout Estonia.

The EHIF has not fully complied with the guidelines for changing the maximum prices for healthcare services. The EHIF has not collected information on how much of the resources needed to provide some services are actually used. Also, the information collected from the reference institutions is not sufficiently representative for pricing. Therefore, the price list of reimbursable services may not be up to date or relevant. In addition, the EHIF's pricing process is not transparent for the Estonian Dental Association.

Key recommendations

Recommendations of the National Audit Office to the Minister of Health and Labour in co-operation with the Chairman of the Management Board of the Health Insurance Fund

To plan the following fundamental changes in the list of reimbursable services, the conditions of benefit and the pricing of dental services:

- to pay special attention to the prevention of oral problems among adults and add preventive services to the reimbursable services;
- to change the system of dental care benefits for adults so that in future the benefits reach primarily lower income earners; in doing so, amend the terms of the benefit to consider the ability of people on lower incomes to pay for dental care; and
- to look for other ways to collect data and calculate the dental care pricing.

Responses of the auditees: The Minister of Health and Labour and the Chairman of the Management Board of the Estonian Health Insurance Fund considered the recommendations made in the audit important and mostly agreed with them.

The Minister of Health and Labour agreed that, given the oral health situation of adults, more attention needs to be paid to them, including extending the focus of compensation to prevention activities.

According to the Minister, in cooperation with the Health Insurance Fund, they plan to develop a system for measuring the personal out-of-pocket expenditure burden in the coming years, which would help to better identify persons with a high need for treatment and high level of out-of-pocket expenditure. This is to allow them to receive increased benefits or to set a maximum annual out-of-pocket payments. The Minister added that they recommend that the EHIF carry out an audit of compliance with the pricing methodology and make appropriate proposals to improve the EHIF's internal work processes and, if necessary, specify the methodology in order to avoid shortcomings and errors in the future.

The Chairman of the Management Board of the Estonian Health Insurance Fund noted that the base price for a visit to the dentist also includes preventive activities but agreed that the respective provision needs to be clarified in terms of legal clarity. He also agreed with the recommendation to increase dental benefits for more vulnerable groups. According to the Chairman of the Management Board, they have started consultations with the Tax and Customs Board to find out whether income data can be considered when planning health care services that have too high out-of-pocket expenditure.

The Chairman of the Management Board of the EHIF admitted that during the audit they understood that the pricing guidelines needed to be clarified in order to reflect more clearly and precisely the pricing stages, activities, and their purpose, and in which cases it is justified to exclude certain activities. He also considers it necessary to specify the documentation requirements.

According to the Chairman of the Management Board, they have put on the agenda the specification of the general pricing methodology in order to find a better balance between the resource intensity of the data provision and the accuracy of the result.

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Dental care benefit for adults covers essential services, but the emphasis is on consequences rather than on prevention

The number of dental visits has increased somewhat since the introduction of the benefit

Dental care benefit for adults in the amount of up to 40 euros a year is available to everyone who is at least 19 years of age and has health insurance, and the patient's cost-sharing rate is 50%.

Pregnant women, mothers of children under 1 year old, people of retirement age, people with no work ability and people with higher need for dental care can use the benefit at favourable conditions (up to 85 euros a year, cost-sharing 15%).¹

The benefit can be used at a medical institution that has entered into a respective contract with the Health Insurance Fund. The benefit is in kind, i.e. the patient does not receive the money and it goes directly from the Health Insurance Fund to the service provider.²

For your information

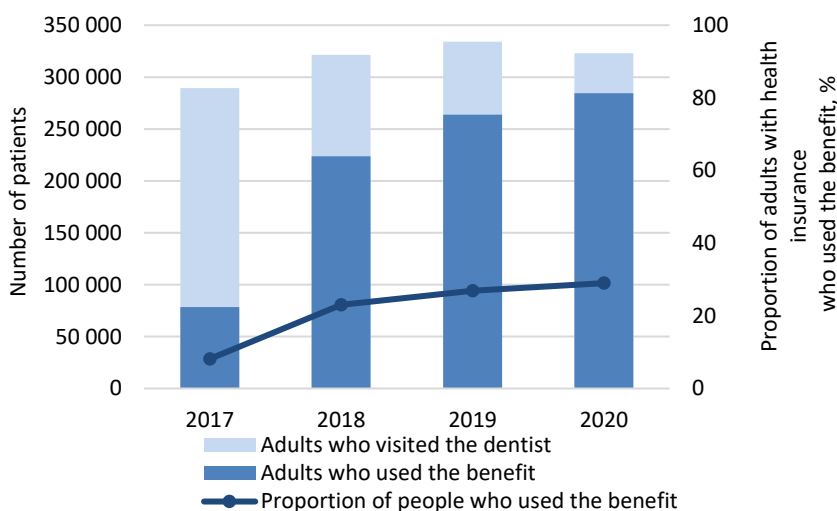
The Ministry of Social Affairs estimated that 45% of people of retirement age and 41% of other adults would use the benefit in 2017.⁴

In 2020, 27% of people of retirement age and 33% of other adults used the benefit according to the Health Insurance Fund.

In 2017–2020, the Health Insurance Fund spent approx. 42.8 million euros on the compensation of dental care for adults.

1. **Dental care benefit for adults** (benefit) is available from 1 July 2017 and it was aimed at increasing the availability of dental care by compensating the essential dental care costs of adults with health insurance. It was considered important for the provision of the benefit to increase the number of dental visits among adults.³ An overview of the use of the benefit is presented in Appendix A to the report.
2. The National Audit Office assumed that the benefit would cover essential dental services and that its terms and conditions encourage the use of the benefit and the number of dental visits would increase among adults.
3. The National Audit Office assessed whether the benefit covers essential dental services. The National Audit Office also examined the number of dental visits among adults and compared it to the use of the benefit.
4. In 2020, approx. 284,500 people used the benefit, which constitutes nearly one-third (29%) of the adult population with health insurance (see Figure 1) and approx. 88% of all adults who visited the dentist. Since 2018, the use of the benefit has increased by approx. 13% per year.

Figure 1. Number of adults who visited the dentist in 2017–2020



Source: National Audit Office based on the data of the Health and Welfare Information Systems Centre, Estonian Health Insurance Fund and Statistics Estonia

¹ The need for dental care is higher in the following cases: surgical and/or radiation treatment of tumours of the head and neck; surgical treatment of lip, alveolar process and cleft lip; treatment of genetic or metabolic diseases causing deformations of dental tissue or maxillary bones; surgical treatment of traumas and inflammation in the maxillary region; medical procedure (e.g. endoscopy) causing trauma to the maxillary bones; transplantation of or preparation for lung, liver, heart and/or kidney, blood stem cell transplantation; type 1 diabetes; Sjögren's syndrome.

² [Dental care benefit](#), Estonian Health Insurance Fund

³ Explanatory memorandum to the [Act Amending the Health Insurance Act and the Social Tax Act](#) (301 SE), pp 1 and 8

⁴ Memorandum for the meeting of the Cabinet of Ministers on 22 September 2016, p 7

For your information

Dental visits by adults can very broadly be divided into two based on the method of payment:

- Health Insurance Fund visits⁵ or visits partially or fully paid for by the Health Insurance Fund;
- visits based on the standard price list paid for by the person themselves.

Use of the benefit and services

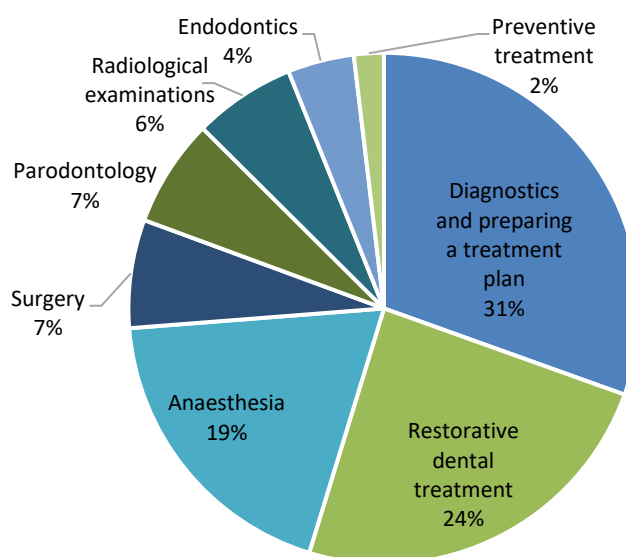
5. According to the Health and Welfare Information Systems Centre (HWISC), 323,150 adults visited the dentist in 2020. The number of people visiting the dentist has increased after the benefit came into force.⁸ However, compared to 2018, the number has not changed significantly.

6. Most oral diseases can be prevented⁹, and the provision of preventive services is important. In addition to teaching oral and dental hygiene, preventive activities also include regular preventive dental appointments. In Estonia, the proportion of preventive dental visits among 15-year-old and older residents is low (6% in 2019).¹⁰

7. There are a total of 30 services subject to compensation (the list is presented in Appendix B to the report). The largest group of services consists of restorative dental treatment (mostly fillings, seven services) and the smallest group consists of preventive treatment with only one service (cleaning biofilm from teeth).

8. The three main services used by patients who received the benefit are diagnostics and preparing a treatment plan (31%), restorative dental treatment (24%) and anaesthesia (19%). In 2017–2020, these services accounted for almost three-quarters of the compensated services (see Figure 2).

Figure 2. Compensated services used by patients in 2017–2020



Source: National Audit Office based on the data of the Estonian Health Insurance Fund

For your information

Oral cavity diseases have a strong link with general human health. Oral health is linked with cardiovascular diseases, diabetes, and pregnancy complications.⁶

Periodontitis patients are 4.6 times more likely to develop oral cancer.⁷

Oral cancer has one of the lowest survival rates among cancers, mainly due to late detection.

⁵ The second chapter distinguishes between compensated visits and emergency dental visits funded by the Health Insurance Fund.

⁶ Periodontics and general health

⁷ Tezal M *et al.* Is periodontitis associated with oral neoplasms? J Periodontol 2005; 76:406-410 NHANES III based study

⁸ From 1 July 2015, dentists are obligated to transmit electronic dental records to the health information system, but compliance with this obligation was initially poor and many doctors failed to provide the data. Provision of data has improved in the following years. Therefore, the comparison is based on the number of adults who visited the dentist in 2017. Explanations of the methodology are provided in the section 'Characteristics of the audit'.

⁹ [Oral Care: Prevention is better than cure](#). Council of European Dentists, 2019

¹⁰ [Dental visits and work by age group and county](#). National Institute for Health Development

For your information

The purpose of a preventive dental visit is check-up, and the doctor does so regardless of the symptoms of a disease to assess the general state of oral health and to prevent or detect a disease at an early stage.

In this report, **total cost-sharing** means the patient's co-payment in dental care. The term 'cost-sharing' refers to cost-sharing rates established by the terms of the benefit (either 50% or 15%, depending on the target group).

9. The results of the expert work carried out as part of the audit show that the benefit covers essential services but does not include enough preventive services. The statistics on the use of the benefit also indicates that focus is on compensating the treatment of existing health problems, i.e. consequences, and little attention is paid to prevention.
10. Dental care focused on consequences does not create habits that people need to maintain their oral health. Although the dentist may advise the patient on oral health during an appointment, it is not always enough. It is important to increase the proportion of visits for the purpose of dental check-up and cleaning.
11. In conclusion, the situation could be improved by paying special attention to preventive treatment, which would also reduce the need for long-term dental care and prevent the deterioration of general oral health. The preventive approach includes teaching dental hygiene, providing information about behavioural and medical risks, the use of fluoride supplements and regular preventive visits to check up on oral health.¹¹

The terms of the benefit may increase total cost-sharing in dental care

12. Cost-sharing rate in dental care is high: In 2019, patients' **total cost-sharing** rate in dental care was 70%, which is almost three times higher than in health services in general. In 2019, dental care accounted for 28% of cost-sharing for the Estonian population, which is the second highest after the cost of over-the-counter and prescription medicinal products.¹²
13. The National Audit Office assumed that the extent of cost-sharing and limit¹³ of the benefit would encourage people to visit the dentist. To test this assumption, the National Audit Office analysed which dental services can be used under the current limits and cost-sharing.
14. According to the experts involved in the audit, total cost-sharing for a patient with a high need for treatment (e.g. multi-root canal treatment) requiring repeat visits is 70–85%. Benefit at favourable conditions does not improve the availability of dental care either, because the protection of people with a high need for treatment against high health care costs is still low (see Appendix C for more detailed explanations).
15. The most common patient in Estonia is an adult who goes to the dentist with a complaint and has a small need for treatment. For such a patient, the benefit covers, on average, the cost of one visit. With a limit of 40 euros (i.e. the total invoice is 80 euros), a person can pay, for example, for the base cost of the visit, anaesthesia and two fillings.
16. According to surveys, the main reason for lack of dental visits before the introduction of the benefit was the high price of the service.¹⁴ The analysis carried out during the audit also shows that the benefit is used

¹¹ [Oral Care: Prevention is better than cure](#), p 5. CED White Paper, 2019

¹² [Current health expenditure by health care function and financing scheme](#). National Institute for Health Development

¹³ The limit for the benefit is generally 40 euros per year (85 euros for certain groups) and cost-sharing rate is 50% (15% for certain groups).

¹⁴ [Eesti elanike hinnangud tervisele ja arstiabile \(Opinions of Estonian residents of health and health care\), 2016](#). Kantar Emor as commissioned by the Estonian Health Insurance Fund, pp 117 and 123

more by patients with higher incomes (see section ‘People with lower incomes use the benefit the least’). Thus, patients who are able to pay for the service even after the benefit has been used up can visit the dentist.

17. The World Health Organization has pointed out that implementing a limit and compulsory cost-sharing on a benefit places an excessive financial burden on people.¹⁵ The high cost-sharing (50%) and low upper limit (40 euros per year) of the benefit have increased the expenditure on cost-sharing and reduced the financial protection of lower income earners.

18. Therefore, when amending the terms of the benefit, it must be taken into account that the simultaneous application of cost-sharing and the limit puts people with lower incomes at a disadvantage.

The benefit is offered by two-thirds of dental care institutions, but the availability of the benefit across Estonia is uneven

19. The use of the benefit is conditional on the dental care institutions entering into a respective contract with the Health Insurance Fund. The National Audit Office assumed that the activities of the Health Insurance Fund would encourage dental care institutions to become contractual partners of the Health Insurance Fund. This would ensure that the benefit is available throughout Estonia.

20. In 2020, there were 326 institutions that had entered into a contract with the Health Insurance Fund, which is one-third more than in 2018 (see Figure 3).

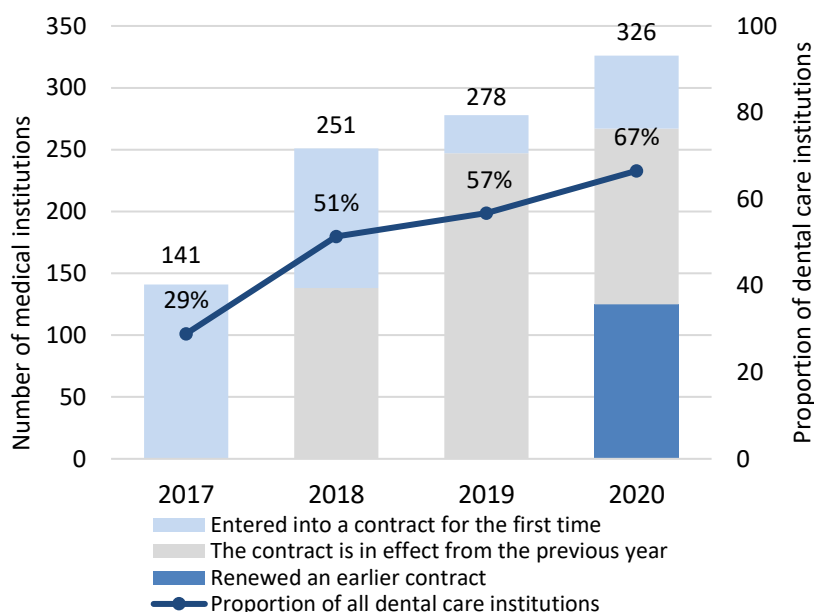
Number of medical institutions providing the benefit

For your information

For the provision of dental services for adults, the Health Insurance Fund enters into a contract for financing treatment without a selection procedure with all service providers who are authorised by the Health Board to provide dental services.

Following the entry into the contract with the Health Insurance Fund, the dental care institution is obligated to apply the limit prices established in the list of health services when applying the benefit.

Figure 3. Number of institutions providing the benefit during the period from 1 July 2017 to 31 December 2020

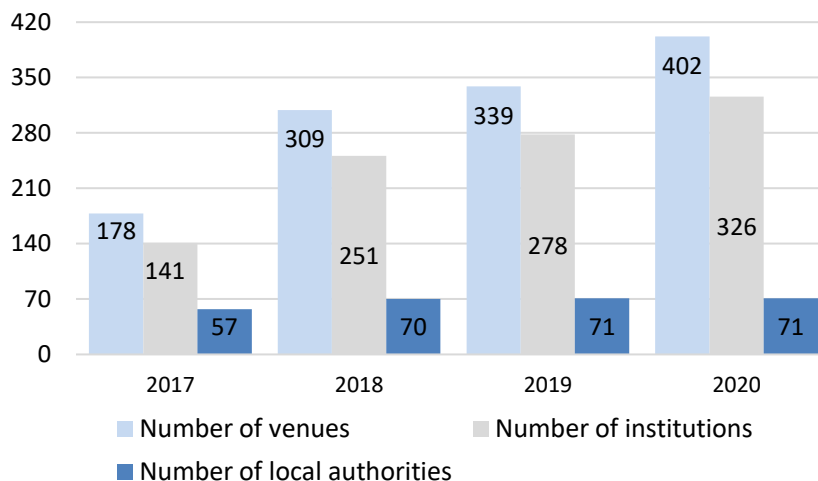


Source: National Audit Office based on the data of the Estonian Health Insurance Fund

¹⁵ Võrk, A and Habicht, T. (2019). [Kas inimesed saavad endale tervishoiu eest tasumist lubada?](#) Uued tõendid finantskaitse kohta Eestis (Can people afford to pay for health care? New evidence on financial protection in Estonia), p 50. World Health Organization Regional Office for Europe

21. The number of venues where the benefit can be used has also increased. In 2020, the benefit could be used in 402 venues, which is one-third more than in 2018 (see Figure 4).

Figure 4. Number of institutions and venues providing the benefit in 2017–2020¹⁶



Source: National Audit Office based on the data of the Estonian Health Insurance Fund

22. At the beginning of the introduction of the benefit, finding contract partners was a problem for the Health Insurance Fund, because the entry into the contract required service providers to not only implement the price list but also to carry out additional IT developments that would allow the updated benefit to be calculated automatically.¹⁷

23. At the end of 2017, there were no medical institutions that had entered into a benefit contract with the Health Insurance Fund in 22 local authorities. At the end of 2020, however, there were eight such local authorities.¹⁸ Thus, the number of local authorities where dental care institutions that have entered into a contract with the Health Insurance Fund operate has increased.

24. In addition to the availability of the benefit in as many local authorities as possible, the number of dentists working for the contractual partners of the Health Insurance Fund is important. The availability of the benefit is characterised foremost by the ratio of dentists offering the benefit to the number of adult residents in the local authority.

25. In 2020, according to the National Institute for Health Development, a total of an estimated 1,000 dentists worked at positions in medical institutions¹⁹ that had entered into a contract with the Health Insurance Fund. At the same time, up to one dentist per 1,200 adult residents worked for a contractual partner of the Health Insurance Fund in nearly three-fourths of local authorities²⁰ (see Figure 5).

Regional availability of the benefit

For your information

In Harku Rural Municipality (10,800 adult residents), contractual partners of the Health Insurance Fund employ 0.1 dentists per 1,200 adult residents, and 0.2 dentists in Saue Rural Municipality (16,700 adult residents). For comparison, in the city of Võru (9,500 adult residents) and Elva Rural Municipality (11,500 adult residents), contractual partners of the Health Insurance Fund employ 3 dentists per 1,200 residents.

Sources: National Audit Office on the basis of the data of the Estonian Health Insurance, National Institute for Health Development, and Statistics Estonia

¹⁶ The figure shows the number of local authorities with at least one contract partner of the Health Insurance Fund.

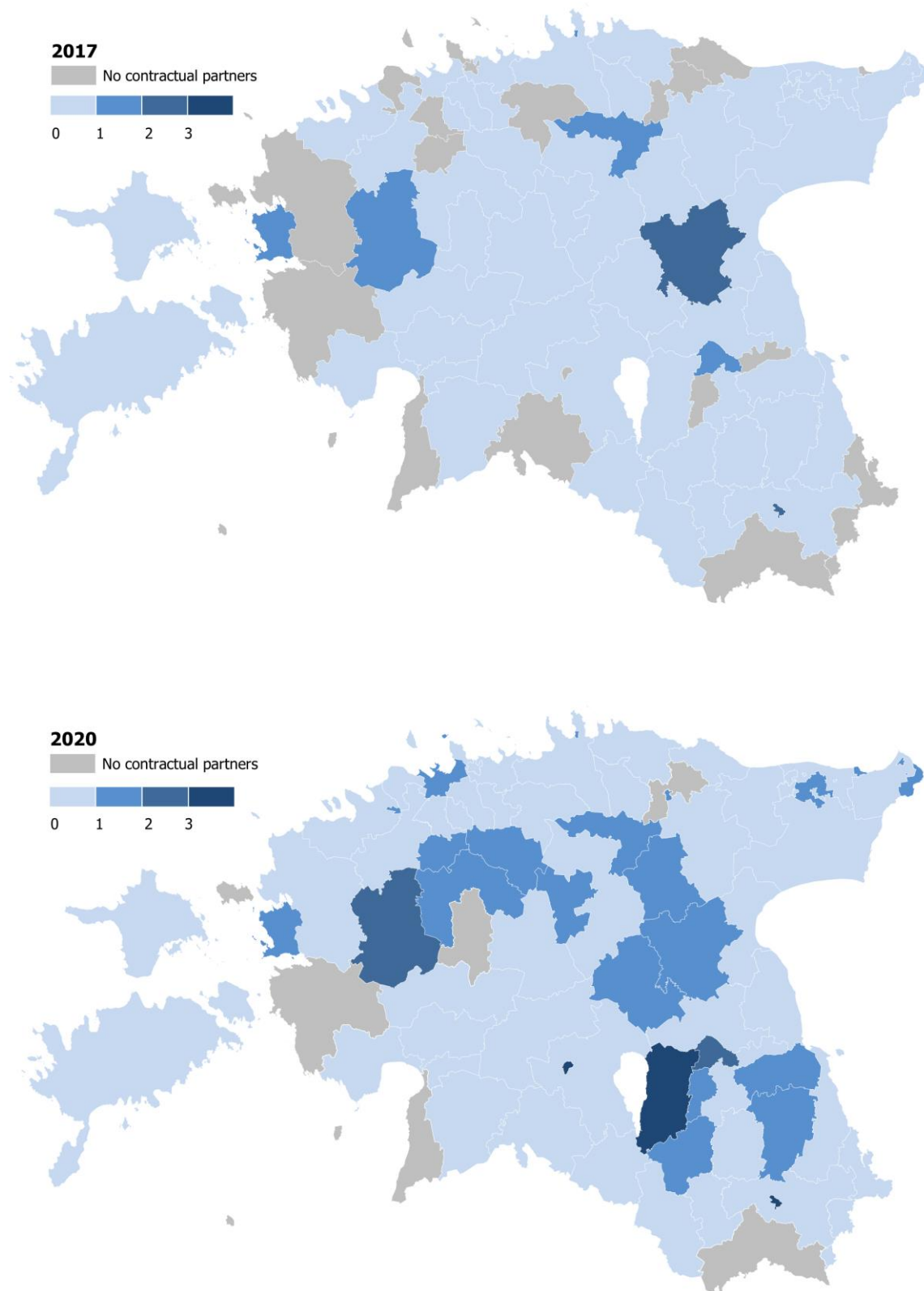
¹⁷ [Analüüs hambaravihüvitise täiendamiseks \(Analysis to supplement dental care benefit\)](#), 2019, p 30. Ministry of Social Affairs, Estonian Health Insurance Fund

¹⁸ These local authorities are: Häädemeeste, Kehtna, Kihnu, Lääneranna, Ruhnu, Rõuge, Vormsi and Rakvere Rural Municipality.

¹⁹ Dentists who worked in more than one venue have been accounted for repeatedly.

²⁰ Annual report of dental care enterprises 2020, p 6. Äripäev Infopank

Figure 5. Number of dentists employed at medical institutions providing the benefit per 1,200 adult residents by counties as at the end of the year



Source: National Audit Office on the basis of the data of the National Institute for Health Development and Statistics Estonia

26. The results of the audit show that although the benefit can be used in the majority of local authorities, the availability of the benefit is uneven, given the ratio of the number of dentists in the institutions that have entered into a contract with the Health Insurance Fund and the population of the local authority. This ratio is lower than recommended by the World Health Organization in two-thirds of the local authorities (one done per 1,200 residents).²¹

27. In 2020, medical institutions providing the benefit in 25 local authorities employed 1–2 dentists per 1,200 adults residents, incl. 2–3 dentists in seven local authorities (Viljandi, Võru, Rakvere and Tartu cities, and Elva, Jõgeva and Märjamaa rural municipalities). Thus, the activities of the Health Insurance Fund have facilitated the entry into a contract, but the availability of the benefit is not uniform across Estonia.

28. According to the explanation of the Ministry of Social Affairs and the Health Insurance Fund, they do not collect data on dentists working at medical institutions that have entered into a contract. As the contract is entered into with a medical institution, availability is assessed based on the number of medical institutions that have entered into a contract. This approach does not allow assessing the availability of the benefit, given the size of the local authority.

29. In the course of the audit, the National Audit Office asked the medical institutions about the main reasons for entering into or backing out of entering into a benefit contract with the Health Insurance Fund.

30. According to medical institutions providing the benefit, the main reason for entering into a contract is the patients' limited opportunities to pay for treatment. The main reason for institutions who have backed out of entering into the contract is the price list of the benefit, which does not cover the actual costs and reduces the salaries of dentists.

31. Other reasons for not entering into a contract is the desire of dentists to specialise and provide services that go beyond essential services. In larger cities, patients who are economically better off are also willing to pay a higher price for dental care, which is why there is no reason for medical institutions to enter into a contract with the Health Insurance Fund.

32. **According to the National Audit Office**, the benefit covers essential dental services, and the number of dental visits has increased somewhat since the introduction of the benefit. At the same time, the benefit focuses on existing health problems, i.e. consequences, and does not pay enough attention to prevention.

33. The current benefit limit does not take into account the ability of adults to pay for treatment, and the total cost-sharing of patients' dental care expenditure may, in fact, be significantly higher than described in the terms of the benefit.

34. The activities of the Health Insurance Fund have encouraged medical institutions providing dental care to enter into a benefit contract with the

Conclusions and recommendations of the National Audit Office

²¹ Annual report of dental care enterprises 2020, p 6. Äripäev Infopank

Health Insurance Fund, but the availability of the benefit is not uniform across Estonia.

35. Recommendations of the National Audit Office to the Minister of Health and Labour in cooperation with the Chairman of the Board of the Estonian Health Insurance Fund:

- Pay special attention to the prevention of oral problems in adults and add preventive services among services subject to compensation.
- Look for ways to reduce the total cost-sharing of dental care for benefit users (see recommendation together with recommendations in chapter 2).

Response of the Minister of Health and Labour: So far, the Health Insurance Fund has more so funded prevention projects aimed at improving children's oral health. We agree that the data reflecting the oral health situation of the adult population show that more attention needs to be paid to them, including extending the focus of the benefit to prevention. We have taken steps in this direction and agreed to cooperate with the Estonian Dental Association to improve oral health and dental care prevention activities aimed at the adult population. We are also prepared to review the list of financed services under the leadership of the Health Insurance Fund and submit respective amendment proposals for supplementing the list of health services in 2022.

Response of the Chairman of the Board of the Estonian Health Insurance Board: During the audit, the Health Insurance Board repeatedly pointed out that the base price of a dental visit also includes preventive activities such as advising people on oral health. However, we agree that this provision needs to be clarified in terms of wording for legal clarity. As of today, we have submitted the respective proposal to the supervisory board. We consider prevention to be very important, which is why we have for years, in cooperation with the Estonian Dental Association and with funding from the Health Insurance Fund, been carrying out prevention projects aimed at improving children's oral health, for example suukool.ee. Data reflecting the oral health situation of the adult population show that more resources are needed for prevention. We are working on putting the focus on oral health and dental care prevention activities aimed at the adult population in cooperation with the Estonian Dental Association. However, it cannot be ignored that every contact of a person with health insurance has a preventive purpose. For example, the removal of tartar prevents gum diseases and treatment of caries prevents inflammatory diseases. The Health Insurance Fund has focused on the prevention of children's dental diseases because hygiene and behavioural habits are established in early childhood.

Comment of the National Audit Office: The work of the Health Insurance Fund in improving children's oral health and prevention is commendable. However, we note that this audit focused on adult dental care and the effectiveness of dental care benefit for adults. In addition to prevention activities aimed at children, it is also important to pay special attention to the prevention of oral problems in adults. The advice included in the base price of a dental visit does not cover all the necessary

prevention activities. It is important to include more preventive services among services subject to compensation.

The benefit has led people to their first visit and more frequent dental visits, but more so among people with higher incomes

One-fifth of adults have gone to the compensated first visit, while two-fifths never visited the dentist

First visits

First visit is the person's first visit to the dentist in the period from 1 January 2016 to 31 October 2020. Depending on the method of paying for the visit, it can be: **first visit based on the standard price list** – the total cost of the visit is paid for by the person; **compensated first visit** – the cost of the visit is shared between the Health Insurance Fund and the person according to the terms of the benefit; or **emergency dental care²³ first visit** – the total cost of the visit is paid for by the Health Insurance Fund.

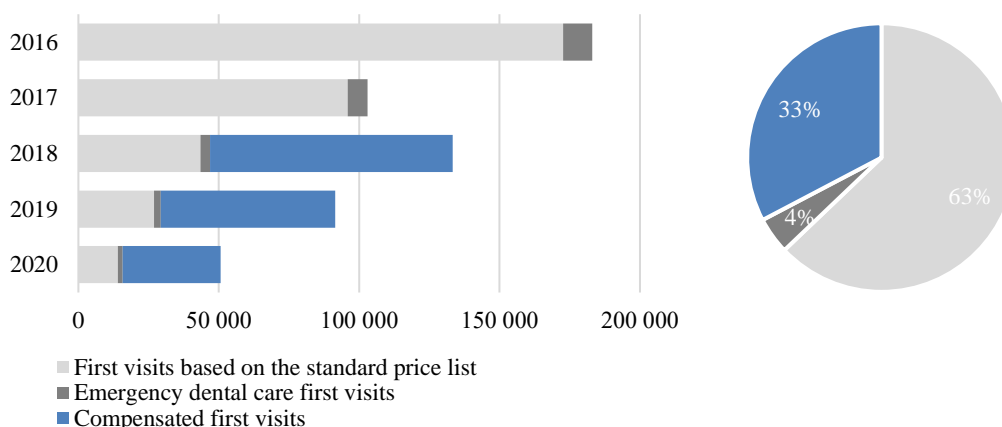
36. In establishing the benefit, the government considered it important to encourage people to go to the first visit.²²

37. The National Audit Office assumed that the benefit would bring adults to the **first visit**. The National Audit Office based its calculations on the facts that the visit had to be the person's first dental visit during the period from 1 January 2016²⁴ to 31 October 2020, and during the visit, the person had to use the benefit, i.e. the visit was a compensated first visit.²⁵

38. In order to determine how many adults the benefit has brought to their first visit, the National Audit Office submitted a query to the Health Insurance Fund and the HWISC.

39. The analysis of the first visits of 19-year-old and older Estonian residents who visited the dentist in 2016–2020 shows that one-third of them saw a dentist in that period due to the compensated first visit (see Figure 6).

Figure 6. The number of first visits of 19-year-old and older Estonian residents who visited the dentist in 2016–2020²⁶ by method of payment (left) and proportions thereof (right)



Source: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

²² Explanatory memorandum to the [Act Amending the Health Insurance Act and the Social Tax Act](#) (301 SE), p 8

²³ [Free emergency dental care](#), Estonian Health Insurance Fund

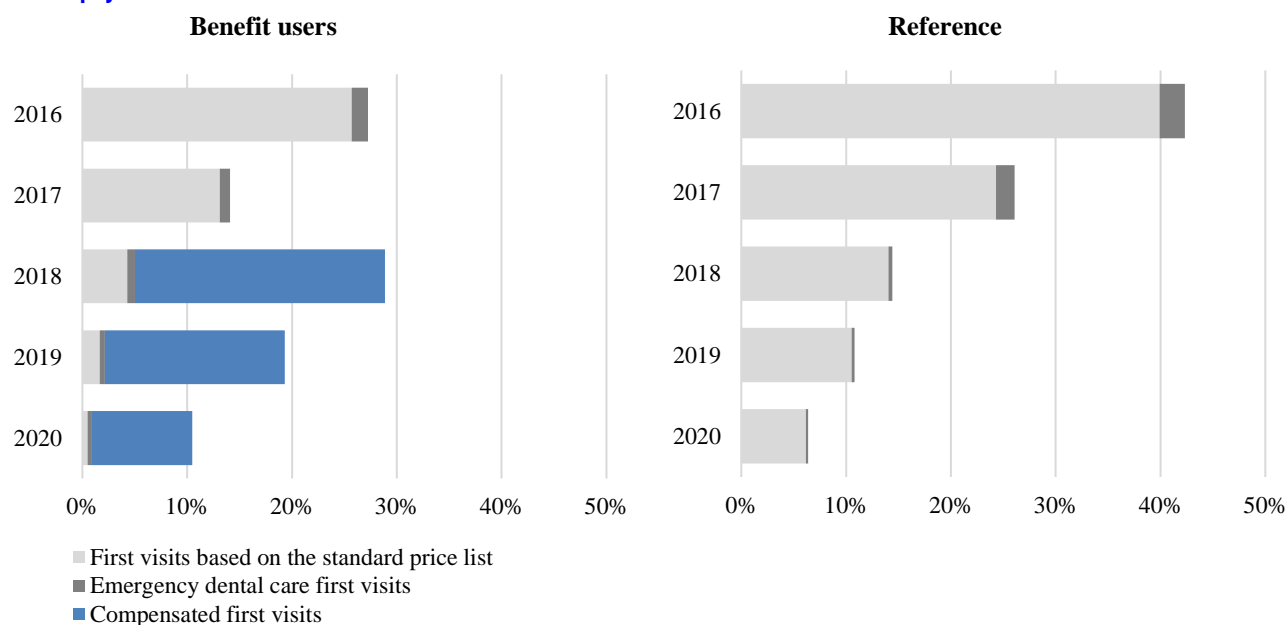
²⁴ The reference period begins one and a half years before the introduction of the benefit to establish whether the person has gone to the first visit due to the benefit.

²⁵ See the methodology in the 'Characteristics of audit' for more details.

²⁶ Exact time period: 1 January 2016 – 31 October 2020. People who used the benefit from 1 July 2017 to 31 December 2017 are excluded from the analysis. See the methodology in the 'Characteristics of audit' for more details.

40. By dividing the adults who visited the dentist into two groups based on using and not using the benefit, it appears that the implementation of the benefit has led to a significant change among the people who used the benefit (see Figure 7). A comparison of the two groups confirms that the number of people who went to the first visit increased among people who used the benefit following the introduction of the benefit (figure on the left). At the same time, this was not the case among people who did not use the benefit (figure on the right).

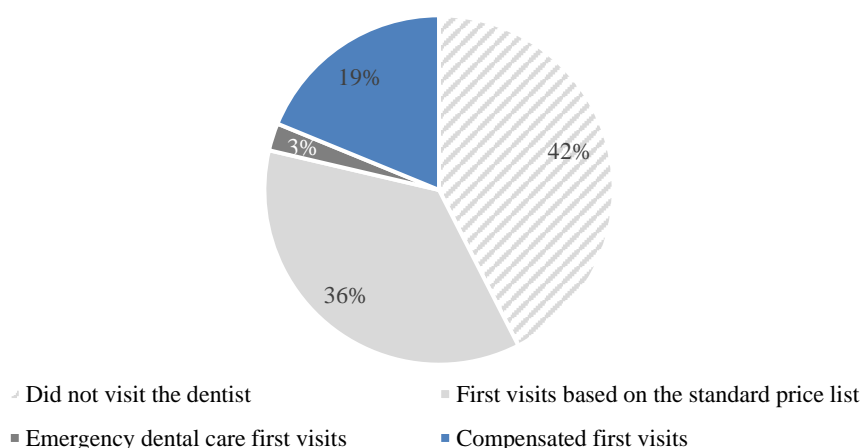
Figure 7. Distribution of first visits during the period from 1 January 2016 to 31 October 2020 by people who used the benefit (left) and people who did not use the benefit but visited the dentist (reference group, right) according to the method of payment



Source: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

41. Adding up Estonian residents who visited the dentist and people who did not visit the dentists allows concluding that approximately one-fifth of 19-year-old and older Estonian residents went to a compensated first visit (see Figure 8). Two-fifths went to a first visit based on the standard price list or emergency dental care first visit, and the remaining two-fifths did not visit the dentist in 2016–2020.

Figure 8. Distribution of first dental visits of 19-year-old and older Estonian residents by the method of paying for the visit in 2016–2020



Sources: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

Most people who used the benefit started to see the dentist more frequently after the first compensated visit

Frequency of seeing a dentist

According to the [method of paying for the visit](#), the dental visits of Estonian residents can be divided into three:

visit based on the standard price list – the total cost of the visit is paid for by the person;

compensated visit – the cost of the visit is shared between the Health Insurance Fund and the person according to the terms of the benefit; and

emergency dental care – the total cost of the visit is paid for by the Health Insurance Fund.

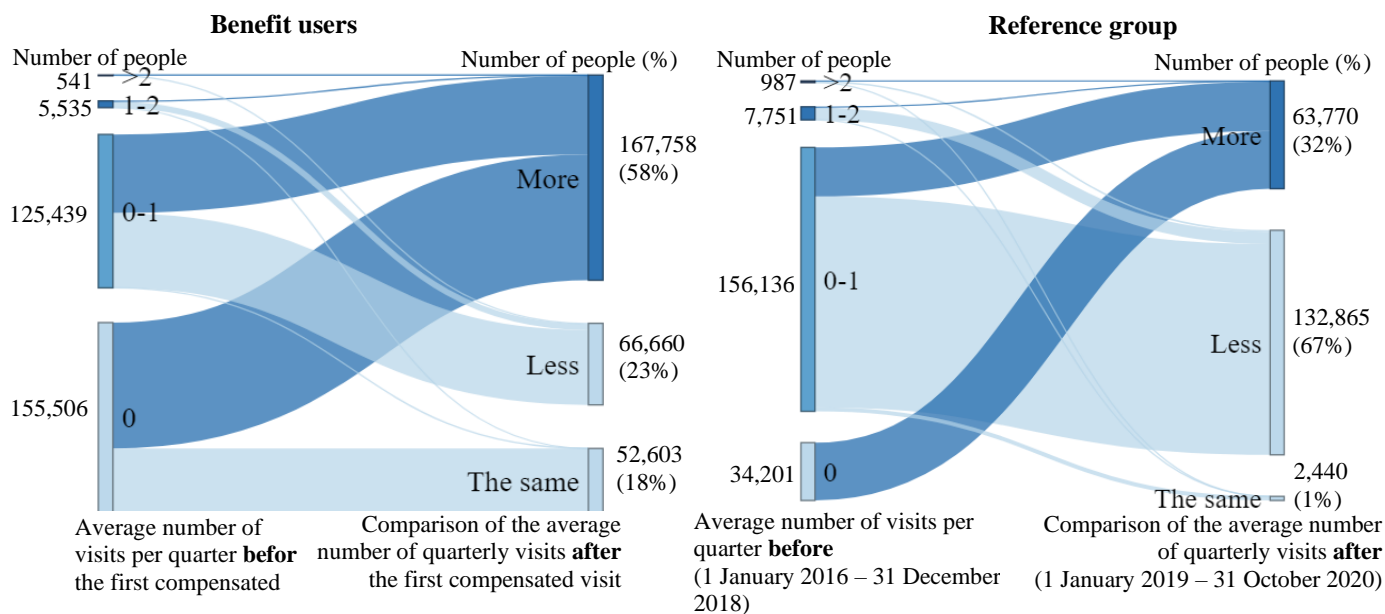
42. In addition to encouraging the first visit, the government considered it important in establishing the benefit that the benefit would motivate people to take adequate care of their oral health.²⁷

43. The National Audit Office assumed that people would start seeing the dentist at least as frequently or more frequently following the first compensated visit, regardless of the [method of paying for the visit](#).²⁸

44. The results of the analysis based on the data of the Health Insurance Fund and the HWISC showed that nearly three-fifths of people who used the benefit started seeing the dentist more frequently following the first compensated visit (58%, see Figure 9). Slightly more than one-fifth (23%) started seeing the dentist less frequently. The frequency of dental visits of the remaining nearly one-fifth (18%) did not change. Of the last one-fifth, most did not see a dentist before the compensated visit and did not start to do so afterwards.

45. At the same time, the frequency of dental visits of those who did not use the benefit, i.e. reference group, decreased. Of these, two-thirds (67%) started seeing the dentist less and nearly one-third (32%) started seeing the dentist more. For the rest (1%), the frequency remained the same. Thus, the frequency of dental visits of those who used the benefit significantly differs from the rest of the people who visited the dentist and did not use the benefit.

Figure 9. Frequency of dental visits²⁹ by people who used the benefit³⁰ (left) and people who did not use the benefit but went to see a dentist (reference group, right) in 2016–2020³¹



Source: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

²⁷ Explanatory memorandum to [Act Amending the Health Insurance Act and the Social Tax Act](#) (301 SE), p 8.

²⁸ See the methodology in the ‘Characteristics of audit’ for more details.

²⁹ Exact breakdown of the average number of quarterly visits: 0; 0.00001–1; 1.00001–2; ≥ 2.00001.

³⁰ People who used the benefit during the period from 1 July 2017 to 31 December 2017 and those who used the benefit for the first time from 1 January 2020 have been excluded from the analysis. See the methodology in the ‘Characteristics of audit’ for more details.

³¹ Exact time period: 1 January 2016 – 31 October 2020.

Income of benefit users

For your information

In 2016, 6.6% of Estonian residents of 16–64 years of age brushed their teeth less than once a day or did not brush their teeth at all. Among people with lower income (<390 euros a month per family member), 12.2% of people brush their teeth less than once a day or do not brush their teeth at all, i.e. the proportion was significantly higher than among people with the highest income (4.2% in the group whose income was \geq 1,010 euros a month per family member).

23.7% of Estonian residents of 16–64 years of age did not have six or more teeth. 35.1% of people with lower income had six or more missing teeth, i.e. significantly more than among people with the highest income (10.8%).

Source: Mare Tekkel, Tatjana Veideman. [Health Behavior among Estonian Adult Population, 2016](#). National Institute for Health Development, 2017, pp. 98 and 123

People with lower incomes use the benefit the least

46. As mentioned above, the purpose of the benefit was to improve access to dental care, and the government considered it important for the benefit to encourage people to go to their first visit and motivate people to adequately care for their oral health.

47. Immediately before the implementation of the benefit, i.e. in 2016, 61% of Estonian residents of 15–74 years of age had not visited the dentist in the last 12 months, a little under half (45%) of whom highlighted the high price of the service as the reason.³² Economic reasons were the most common reasons for not seeing a dentist.

48. The main oral health indicators of people with lower incomes are significantly worse than those of people with higher incomes.

49. The National Audit Office assumed that the benefit would lead to the first visit and encourage more frequent dental visits after the first compensated visit among people with lower incomes for whom this has been an obstacle in the past.

50. In order to determine how benefit users are distributed by income, the National Audit Office also submitted a query to the Tax and Customs Board (TCB) along with the Health Insurance Fund and the HWISC.

51. Dividing the Estonian adult population in five by income, where the first quintile includes one-fifth of the people with the lowest income and the fifth quintile includes one-fifth of the people with the highest income, shows that the benefit was used the most during this period by people in the fourth quintile, on average 27% of people in the quintile (see Figure 10, top figure). However, people in the first quintile, i.e. with the lowest income, have used the benefit the least, on average 11%.

52. The main difference with the income data of the reference group, i.e. people who did not use the benefit but received dental care, is that dental visits are the highest among people with the highest income, i.e. people in the fifth quintile, on average 10% (see Figure 10, bottom figure).

53. In addition, the analyses carried out during the audit showed that the distribution of income quintiles of people who went to the first visit due to the benefit and continued to see the dentist more frequently following the first compensated visit is similar to the distribution of income quintiles of all benefit users (see Appendix D for more details). In other words, during the reference period, the proportion of people who went to the first visit due to the benefit and started to see the dentist more frequently is the highest among people in the fourth quintile and lowest among people in the first quintile.

³² [Eesti elanike hinnangud tervisele ja arstiabile \(Opinions of Estonian residents of health and health care\), 2016](#). Kantar Emor as commissioned by the Estonian Health Insurance Fund, pp 117 and 123

Figure 10. Distribution of people who used the benefit (top) and people who did not use the benefit but visited the dentist (reference group, bottom) by income quintiles as a proportion of the quintile in 2018–2020³³

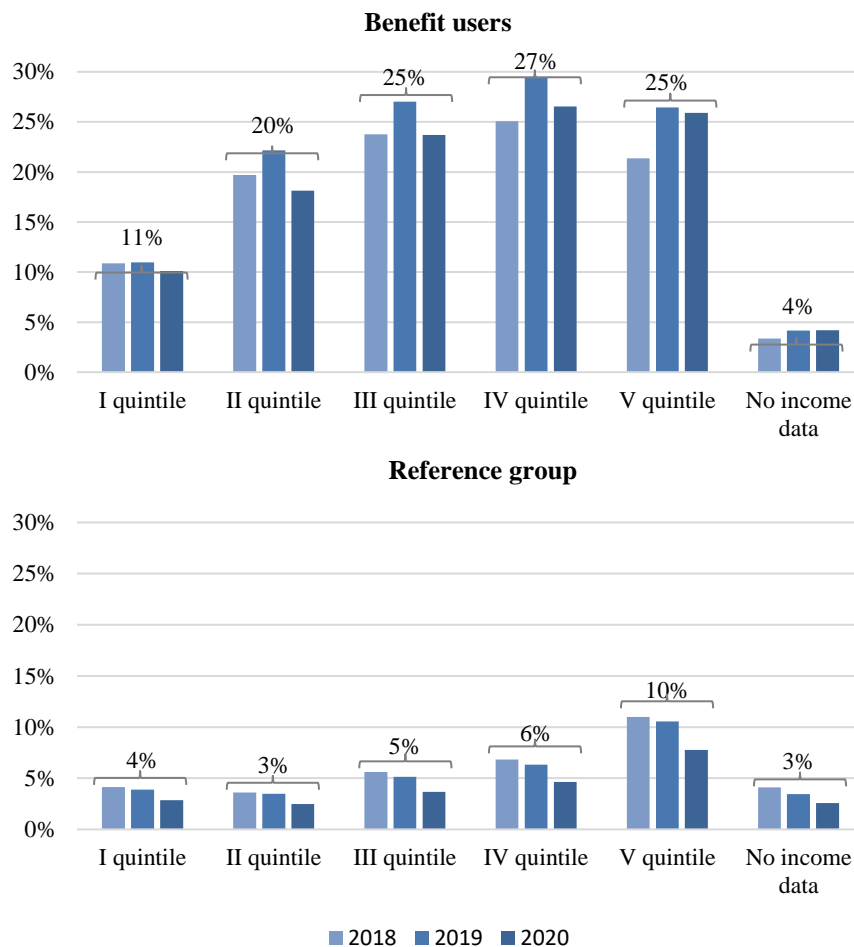
For your information

The limits of income quintiles in 2018 (gross income for the whole year) are as follows:

- I quintile – up to €4,020.07;
- II quintile – up to €5,774.91;
- III quintile – up to €9,706.73;
- IV quintile – up to €16,524.78;
- V quintile – from €16,524.79.

In 2019 and 2020:

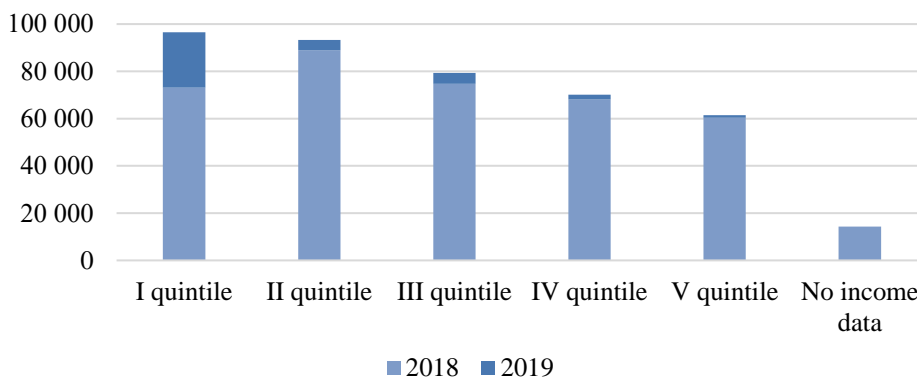
- I quintile – up to €4,140.47;
- II quintile – up to €6,201.04;
- III quintile – up to €10,454.61;
- IV quintile – up to €17,863.6;
- V quintile – from €17,863.61.



Source: National Audit Office based on the data of the Estonian Health Insurance Fund, Health and Welfare Information Systems Centre, and the Tax and Customs Board

54. In the same period, however, the proportion of people who have not seen a dentist at all is the highest among people with the lowest income (see Figure 11), and each subsequent quintile has a lower number of people who did not visit a dentist.

Figure 11. Adults who did not receive dental care in 2016–2020³³ by income quintiles of 2018–2019



Source: National Audit Office based on the data of the Estonian Health Insurance Fund, Health and Welfare Information Systems Centre, and the Tax and Customs Board

³³ Data on dental care in 2020 as of 31 October

Recipients of subsistence benefit who use the benefit

Subsistence benefit – financial state aid for people in need, which is paid only if all other measures to alleviate poverty and deprivation have proven to be insufficient, and the necessity thereof is verified by the local governments.

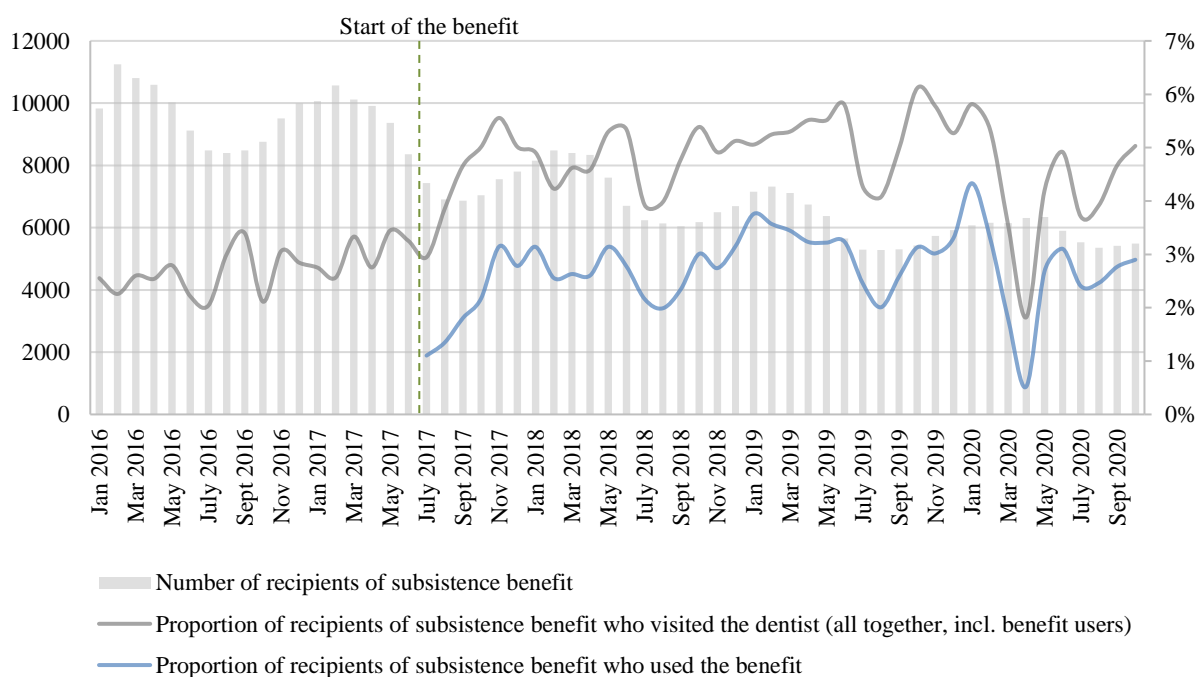
Source: [Subsistence benefit](#), Ministry of Social Affairs

55. The National Audit Office also submitted a query regarding the recipients of **subsistence benefit** to the Social Insurance Board. The income of the recipients of subsistence benefit is the lowest in society. Unlike the income data of the Tax and Customs Board, which may not provide a complete overview of people’s income due to concealed income (e.g. envelope wages), local governments have also verified the low or lacking income of recipients of subsistence benefit.

56. The proportion of recipients of subsistence benefit who visited the dentist reveals that it has increased somewhat following the implementation of the benefit (see Figure 12). The average proportion of people who visited the dentist before the implementation of the benefit was 2.8% and following the implementation, the proportion was 4.8%.³⁴

57. It can also be seen that the proportion of recipients of subsistence benefit who visited the dentist has increased in the same pace as the proportion of recipients of subsistence benefit who used the benefit.

Figure 12. Recipients of subsistence benefit who visited the dentist³⁵ and recipients of subsistence benefit who used the benefit as proportions in 2016–2020³⁶



Source: National Audit Office based on the data of the Estonian Health Insurance Fund, Health and Welfare Information Systems Centre, and the Social Insurance Board

58. Thus, the proportion of recipients of subsistence benefit who visit the dentist has increased since the introduction of the benefit, and the reason for this is clearly the benefit. At the same time, the change has been small, and the majority, i.e. on average 95%, of recipients of subsistence benefit did not visit the dentist during the time of receiving the subsistence benefit.

59. The National Audit Office also examined whether the benefit has reduced the need for emergency dental care. The audit showed that the

³⁴ See the methodology in the ‘Characteristics of audit’ for more details.

³⁵ Includes both people who used the benefit and people who did not use the benefit.

³⁶ Exact time period: 1 January 2016 – 31 October 2020.

need has not decreased significantly or permanently since the benefit came into force. However, people who used the benefit received more emergency dental care than before the benefit and more than people who did not use the benefit. Read more in Appendix E.

60. In summary, the National Audit Office's assumption that the benefit would lead to the first visit and encourage more frequent dental visits after the first compensated visit among people with lower incomes for whom this has been an obstacle in the past due to the high price of service was not confirmed. The results showed the opposite. The benefit has more so changed the dental behaviour in the desired direction among people earning higher income.

61. Under the current system, the benefit is available to everyone, but it is used more by those who would be able to pay for treatment themselves based on their income. Thus, the benefit system that treats everyone equally has, in fact, exacerbated inequality in dental care. The situation could be improved if the target group of the benefit is either limited or the size and terms thereof are changed, so that it takes the people's needs and opportunities into account.

62. **According to the National Audit Office**, the benefit has not sufficiently reached people with lower income, i.e. the target group most in need of the state's support. The benefit has achieved two of the main objectives, i.e. brought people to the first visit and made them take more care of their oral health, but has done so more among people with higher income.

63. **Recommendation of the National Audit Office to the Minister of Health and Labour in cooperation with the Chairman of the Board of the Health Insurance Fund:** Change the dental care benefit system for adults so that the benefit would reach foremost people earning lower incomes in the future. At the same time, change the terms of the benefit to take into account the opportunities of people earning lower incomes to pay for the dental visit.

64. The benefit system could be changed on the example of the supplementary benefit for pharmaceuticals of the Health Insurance Fund, according to which people who spend more money than average on medicinal products automatically receive a supplementary discount from the Health Insurance Fund³⁷. An example for changing the system could also be the needs-based study allowance for students, according to which the amount of allowance is calculated automatically based on the student's age according to the monthly income of one family member of the student's family or the student itself.³⁸

Response of the Minister of Health and Labour: We agree with the recommendation to increase the dental care benefit for more vulnerable population groups. In 2009–2017, dental care for adults was compensated

³⁷ From 2018, the Health Insurance Fund is paying supplementary benefit for pharmaceuticals for medicinal products purchased with a discount prescription as follows: if a person spends 100–300 euros per year on prescription drugs, 50% of the share exceeding 100 euros is compensated, and if the amount exceeds 300 euros per year, 90% of the share exceeding 300 euros is compensated. [Supplementary benefit for pharmaceuticals](#), Estonian Health Insurance Fund

³⁸ [Needs-based study allowance](#), Ministry of Education and Research

to a very limited extent, which resulted in a very high unmet need for treatment by 2015.³⁹ Therefore, since the benefit was introduced, it has been used foremost to obtain the necessary treatment. The results of population surveys and data of service providers suggest that the dental service has become somewhat more accessible and has also contributed to reducing income-based inequality.

The analysis of the personal cost-sharing burden carried out this year in cooperation with the Health Insurance Fund also confirmed that people with lower income would rather spend on medicinal products than cost-sharing for dental services. In the coming years, we are, in cooperation with the Health Insurance Fund, planning to develop a system for measuring personal cost-sharing burden to help better identify persons with a high need for treatment and cost-sharing. The aim is for them to receive increased benefits or to set a maximum annual limit for cost-sharing. In the long-term, the plan is to include all the services financed by the Health Insurance Fund, incl. medicinal products, dental care as well as visit fee and in-patient fee, in this system. As the first step, the plan is to measure personal cost-sharing burden on medicinal products and dental services, which can then be extended to visit fee and in-patient fee. We believe that measuring personal cost-sharing burden and needs-based reduction thereof is the most effective way to achieve the objectives set out in the Public Health Development Plan⁴⁰, incl. reduce the cost-sharing burden.

In June 2021, we submitted proposals to the Government of the Republic for changing the benefit system. According to the decision made at the meeting of the Cabinet of Ministers on 17 June 2021, from 2022, the number of people receiving the increased benefit will be extended to the registered unemployed and persons receiving subsistence benefit. The respective draft was submitted to the Government of the Republic session of 7 October where it was approved. This is another step towards improving access to dental services for the most vulnerable population group.

Response of the Chairman of the Board of the Estonian Health Insurance Board: We agree with the recommendation to increase the dental care benefit for more vulnerable population groups. The precondition for the implementation of the change is that the Health Insurance Fund has access to people's income data, which is unfortunately not possible at the moment. However, a solution similar to pharmaceutical benefit is possible, supporting those with higher expenditure on dental care. The Health Insurance Fund has already taken over the burden of paying the fee for children and disabled people, and starting with the next year, dental care options will be extended to haematology and oncology patients. The Minister of Health and Labour has also submitted the proposal to amend the Health Insurance Act and include the registered unemployed and recipients of subsistence benefit among recipients of increased benefit.

³⁹ [Analüüs hambaravihüvitise täiendamiseks \(Analysis to supplement dental care benefit\)](#), 2019 Ministry of Social Affairs, Estonian Health Insurance Fund

⁴⁰ [Public Health Development Plan 2020–2030](#)

The Health Insurance Board has started consultations with the Tax and Customs Board to find out whether income data can be taken into account when planning health care services, the cost-sharing of which is too high.

The Health Insurance Fund has not fully complied with the guidelines for changing the limit prices of health services, so the dental care price list may not correspond to the actual costs

65. The task of the Health Insurance Fund is to ensure the purposeful and effective use of health insurance funds.⁴¹

66. According to the regulation on methods for calculation of the payments to be made to health care providers, the pricing of health services is based on **activity-based costing**.⁴³ Activity-based costing is based on the causal link between the activities needed to provide health services and the resources needed for the activities. The same pricing model is applied to all specialised medical services.

67. The National Audit Office assumed that the Health Insurance Fund has based the pricing of services subject to compensation on the principles of activity-based costing and complied with the guidelines for changing the limit prices of health services.

68. In order to determine how dental care prices arise, the National Audit Office mapped step by step how the Health Insurance Fund prices health services. The National Audit Office compared the provisions of the regulation on pricing health services and the Health Insurance Fund's guidelines for changing the limit prices of health services with the explanations given by the Health Insurance Fund.

69. The National Audit Office examined whether the Health Insurance Fund has:

- identified the essential services related to dental care;
- identified based on evidence all the cost components necessary for the provision of services;
- assessed based on evidence the amount and cost of resources necessary for the provision of services;
- collected based on evidence information on the actual resources necessary for the provision of services; and
- calculated the unit cost of all resources and (total) costs of each service.

⁴¹ [Estonian Health Insurance Fund Act](#), subsection 2 (2)

⁴² Mogyorosy, Z., Smith, P. (2005). The Main Methodological Issues in Costing Health Care Services: A Literature Review, pp 67–68. CHE Research Paper 7

⁴³ [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsection 26 (1)

Definition of services subject to compensation

The **Estonian Dental Association** is a voluntary professional association of dentists, the aim of which is to represent and protect the employment, service and professional, economic and social rights and interests of dentists. The Association is also working to promote the dental profession and improve the quality of dental care.

Source: [Statutes of the Estonian Dental Association](#)

Definition of cost components of services subject to compensation

The Health Insurance Fund has complied with the requirement to coordinate with a professional association in adjusting the structure of services subject to compensation

70. The amendment of the list of health services can be initiated by a professional association, association of health care providers, Ministry of Social Affairs, or the Health Insurance Fund.⁴⁴ The proposal to compensate dental care for adults was made by the Minister of Health and Labour⁴⁵, and financing of the services covered by the benefit from the budget of the Health Insurance Fund was added to the list of health services on 1 July 2017⁴⁶.

71. The services covered by the benefit were priced according to the Health Insurance Fund's 'Guidelines for hearing proposals for amending the limit prices of services included in the list of health services' (the guidelines).

72. According to the guidelines, the Health Insurance Fund prepares a usage analysis for the health services and coordinates the changes in the structure of services with a professional association.

73. In 2016, the list of dental services was amended, and the documents presented for the audit show that the Health Insurance Fund discussed these changes with the **Estonian Dental Association** (EDA) in 2015 and 2016. The documents show that the Health Insurance Fund has asked the EDA for suggestions on which services the benefit should cover and has coordinated the final list of services covered by the benefit with the EDA.

74. Thus, the Health Insurance Fund identified the services required for the benefit and complied with the requirement set out in the guidelines to coordinate the changes with a professional association.

The Health Insurance Fund has not collected information about the amount and cost of resources needed for the provision of all dental services in updating the benefit

75. The categories of resources necessary for the provision of health services are determined by the regulation 'Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers' (regulation on methods).⁴⁷ These are:

- labour force;
- medical devices with a service life of more than one year;
- premises;
- disposable and reusable materials and medicinal products; and
- support services.

⁴⁴ [Health Insurance Act](#), subsection 31 (5)

⁴⁵ [Minutes of the extraordinary session of the Government of the Republic](#), 27 September 2016

⁴⁶ [Health Insurance Act](#), section 33¹

⁴⁷ [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsection 26 (2)

Identification of the amount and cost of resources necessary for the provision of services

The **usage analysis** compares how much resources the service provider actually spent on the provision of the specific services and how much resources the service provider would have spent if the service provider had provided these services at the optimal resource use rate provided in the service descriptions of the Health Insurance Fund.

76. This distribution model applies to all specialised medical services. The Health Insurance Fund used this distribution in determining the prices of dental services, i.e. it identified all the cost components necessary for the provision of services based on evidence.

77. According to the costing methods of the Health Insurance Fund, overheads are distributed among services through the use of key resources. For example, office, training, accounting and personnel records costs are included in labour costs. Utilities and the costs of the total area of buildings are included in the cost of using the premises.⁴⁸ Overheads are calculated in the same way for all specialised medical services.

78. The estimation of the amount of resources necessary for the provision of health services is based on the **usage analysis**. According to the guidelines, the professional association reviews the list of resources included in services previously described in the cost model, their acquisition costs, optimal use, and depreciation period.

79. The documents presented for the audit show that the Health Insurance Fund has not asked the reference institutions for information on the year of acquisition of equipment. Therefore, the Health Insurance Fund could not assess how long the equipment has actually been in use. This means that it is not clear on the basis of what the Health Insurance Fund determined the actual service life (incl. optimal depreciation period) of equipment.

80. If the activities that make up the service descriptions change, new activities and related resources will be agreed upon with the professional association in accordance with the guidelines. In 2017, new services were added to the list of dental services and the descriptions of frequently used services were amended, but the Health Insurance Fund did not perform a new usage analysis of key resources.

81. Based on the volume of dental services and descriptions of services of 2017, the Health Insurance Fund presented an additional analysis of how much working time of the medical staff and how much money on materials was spent. However, the Health Insurance Fund did not perform a usage analysis.

82. According to the Health Insurance Fund, the changes consisted of reallocating resources within the same costs and a usage analysis was not necessary to implement such a change. The guidelines do not preclude such an approach, but usage analysis would have been necessary. In 2017, the optimal use of key resources was changed, which can be considered a large-scale change. Failure to perform a usage analysis may lead to discrepancies between (adjusted) service descriptions and actual costs.

⁴⁸ [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsections 28 (2) and 30 (2)

Reference institution is a medical institution whose resource use and cost information is used by the Health Insurance Fund to prepare service descriptions and, based on these, calculate standard prices for services included in the list of health services.

Collecting information on the costs of providing dental services

For your information

Two-thirds of the cost of dental services account for labour costs. The total cost of premises and equipment amount to 7% of the cost of dental services.

83. Therefore, the National Audit Office was unable to verify that the descriptions obtained as a result of the changes made reflected the actual situation at **reference institutions** and that the Health Insurance Fund has estimated the resources necessary for the provision of services on the basis of evidence.

84. The Health Insurance Fund did not present to the National Audit Office the final descriptions of dental services or materials on the discussion thereof with the EDA. The Health Insurance Fund also did not present documents on whether they made further changes to costing based on the proposals of the professional association.

The Health Insurance Fund did not collect information on the use of resources necessary for the provision of some of the services

85. According to the guidelines, the Health Insurance Fund uses the usage analysis of key resources to check whether the data presented by the professional association correspond to the amount of key resources used by reference institutions.

86. The cost of some key resources is calculated in the same way for all specialised medical services. For example, labour cost, which is based on the collective agreement of health care professionals, and cost of using the premises⁴⁹, which is based on the average cost per square metre of hospitals.

87. This means that a professional association cannot have a say in, for example, the hourly wage of an employee or the cost per square metre of a leased space of a medical institution. A professional association can explain how much working time is spent on a specific job and service and how to furnish the room (with what equipment).

88. Specialty-specific resources are equipment, fittings, tools, reusable and disposable materials. Disposable materials and reusable materials both accounted for 13% (i.e. 26% in total) and support services accounted for 1% of the costs.

89. According to the guidelines, the Health Insurance Fund must carry out, inter alia, the usage analysis of the costs of disposable and reusable medical devices. Based on the results of the usage analysis, the Health Insurance Fund adjusts the costs of materials, coordinating the changes with services providers and the professional association.

90. The audit activities show that the Health Insurance Fund has performed a usage analysis of disposable supplies, but not a usage analysis of reusable materials. However, reference institutions provided the Health Insurance Fund with a description of the acquisition cost and unit operating costs for both as well as data on the total accounting cost of materials. Nevertheless, the Health Insurance Fund failed to perform a usage analysis of reusable supplies.

⁴⁹ [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsection 28 (4) and section 30

For your information

According to the calculations by the Health Insurance Fund, the cost of reusable materials in dental services amounted to approx. 4.1 million euros in 2017.

91. According to the Health Insurance Fund, they did not perform an analysis of reusable materials because some materials can be used for thousands of times and the acquisition thereof may not fall in the year under analysis. The Health Insurance Fund further explained that the line between disposable and reusable materials is not always clear. According to the guidelines, the usage analysis of reusable materials is required and must be not omitted.

92. Based on the above, the National Audit Office is unable to assess whether the Health Insurance Fund has properly performed the usage analysis of disposable materials. The reason is that the dental care service providers' accounts of materials differ from what the Health Insurance Fund needs for costing services.

93. Therefore, there is no information on to what extent the accounting costs of service providers included in the usage analysis of disposable materials performed by the Health Insurance Fund included the costs of reusable materials. It is also not clear how much of the expenditure of disposable materials was left unaccounted for because they were included in other costs accounts of materials.

94. According to the guidelines, the Health Insurance Fund adjusts, inter alia, the usage and cost of support services and coordinates the changes with health care providers and professional associations.

95. The audit revealed that the descriptions of services on dental examinations and procedures presented to the National Audit Office did not include, for example, the component of patient management. The Health Insurance Fund also did not provide materials on calculation of support services or coordination with health care providers and professional associations.

Calculation of the unit cost of all resources and (total) costs of each service

96. The Health Insurance Fund did not collect information on the frequency and cost of using all the necessary resources in updating the benefit. For example, the Health Insurance Fund has changed the optimal service life of 3D X-ray in 2018. The documents presented for the audit do not show whether a usage analysis was performed for this or how optimal usage was determined.

97. In such a situation, it is not possible to assess whether the Health Insurance Fund's information on the optimal use of equipment corresponds to the actual practice of Estonian service providers.

98. The documents presented for the audit also did not show based on what the Health Insurance Fund has calculated the costs. Thus, the Health Insurance Fund has not complied with the guidelines for changing the limit prices of health services and has not collected evidence-based information on how much necessary resources are actually required for the provision of services.

Information collected from reference institutions is not representative enough for pricing

99. The Health Insurance Fund calculates limit prices of health services based on the costs of reference institutions. Information needed for costing is obtained from medical institutions who know based on their

experience exactly which resources are used for the provision of health services.

Use of reference institutions

100. The regulation on methods in force at the time of updating the prices of services subject to compensation provided for requesting data from at least three hospitals in the hospital network development plan when changing the limit price of service.⁵⁰ The regulation did not address data requests from service providers outside the hospital network. According to the analysis of pricing methods for specialised medical care, the Health Insurance Fund included five reference institutions in explaining the costs of health services.⁵¹

101. In order to explain the costs of services subject to compensation, the Health Insurance Fund mostly used the data of three reference institutions. However, not all reference institutions use all the types of resources necessary for calculating limit prices. For this reason, the Health Insurance Fund calculated the costs of some resources based on the data of two institutions.

102. For example, the X-ray room where only standard panoramic X-ray is taken was available in only two reference institutions. It is difficult to draw representative conclusions about the actual use of the X-ray room on the basis of data from only two institutions.

103. Thus, if a reference institution failed to provide data on all the necessary resources or refused to provide data, the Health Insurance Fund only used the data of some reference institutions. At the same time, neither the guidelines nor the regulation on methods impose an obligation on the Health Insurance Fund to request additional data from other medical institutions and the Health Insurance Fund has also not done so.

104. The Health Insurance Fund acknowledges that if an institution withdraws from the status of a reference institution, a new one should be found to replace them. The Health Insurance Fund did not request data on dental care from additional institutions due to lack of time.

105. Such partial data collection is not evidence-based nor sufficiently representative. The Health Insurance Fund relied on the data of two or three medical institutions in calculating the limit price, but there are about 490 dental care institutions in total in Estonia.

106. The activity-based costing of the Health Insurance Fund is complicated by the fact that the Health Insurance Fund does not have internal knowledge of which resources are being used for the provision of services and what are the resource needs of medical institutions. Therefore, costing must be carried out on the basis of the data submitted by medical institutions and professional organisations.

⁵⁰ [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsection 36 (2)

⁵¹ [Eriarstiabi tervishoiuteenuste hinnakujundusmetoodika analüüs – võrdlusmeetodite ja automaatsete muutujate rakendamise variandid \(Analysis of pricing methods of health services in specialised medical care – options for applying reference methods and automatic variables\)](#) (2015), p 30. PricewaterhouseCoopers Advisors

107. The sample pool of reference institutions and the quality of information they provide is important because activity-based costing can function well only if the calculation of unit cost is accurate and there is a clear understanding of the structure of the costs of services. However, the implementation of detailed activity-based costing is difficult both for the Health Insurance Fund and the medical institution. It requires large-scale data collection, which is both costly and time-consuming.

108. The documents presented for the audit show that medical institutions have withdrawn from being a reference institution because it is burdensome for them. Collecting detailed data on resources takes a long time and requires special skills. The workload of people with the necessary skills can be an obstacle to the high-quality aggregation of data necessary for the Health Insurance Fund.

109. Medical institutions also often have to recalculate data because the costing of resources is not in a form suitable for activity-based costing in the accounts of reference institutions.

110. The Health Insurance Fund uses the same pricing model for pricing all health services. It is important to note that the starting point of the model is primarily the costing of services in hospitals included in the hospital network development plan. Medical institutions that have entered into a contract with the Health Insurance Fund are not limited to hospitals included in the hospital network development plan, which is why the sample pool of reference institutions may not be sufficiently representative.

111. Following the implementation of the benefit, the regulation of methods has been amended. Guidelines for requesting information from health care providers outside the hospital network development plan has been included in the regulation. The regulation stipulates that reference institutions can be only those institutions whose financial volume of services accounts for 70% of the total financial volume of services, or the data of four health care providers with the highest financial volume is used.⁵²

112. Although the suitability of pricing methods was not the main focus of the audit, the audit activities showed that the implementation of the methods is burdensome and the result is not representative due to the lack of reference institutions. It is therefore necessary to assess whether the universal method of collecting data for the implementation of the pricing model for specialised medical services is also suitable for calculating the prices of dental services.

Pricing is not transparent or understandable for medical institutions

113. The Health Insurance Fund has set a goal that the pricing of health services and payment for services is clear and transparent. In addition, the core value of the Health Insurance Fund is caring, which includes

Participation of the Estonian Dental Association in the pricing of services subject to compensation in adult dental care

⁵² [Procedure for the assumption of a payment obligation of an insured person by the Estonian Health Insurance Fund and the methods for calculation of the payments to be made to health care providers](#), subsection 36 (3)

openness, friendliness and decision-making in an inclusive and transparent manner.⁵³

114. The National Audit Office assumed that the Health Insurance Fund has explained to the EDA the principles of activity-based costing and requested feedback from EDA in preparing and amending the price list of dental services and justified its position if the proposals were not taken into account.

115. The obligation to involve a professional association in the pricing of health services arises from the Health Insurance Act⁵⁴, and according to the guidelines, the Health Insurance Fund is obligated to coordinate changes related to the structure of services and the cost of resources with the professional association.

116. To determine if and how the Health Insurance Fund has explained the principles of pricing to the EDA and requested feedback from the EDA in preparing the price list of services subject to compensation, the National Audit Office asked the Health Insurance Fund to submit a description of the process of pricing in dental care.

In addition, the National Audit Office asked the Health Insurance Fund to submit the correspondence between the Health Insurance Fund and the EDA on pricing in dental care.

117. The documents presented to the National Audit Office show that the Health Insurance Fund has explained to the EDA the principles of pricing health services and has made the methods of costing available to the EDA. For its part, the EDA has confirmed that the Health Insurance Fund has explained the principles of activity-based costing to dentists.

118. However, according to the EDA, they do not understand which data submitted by reference institutions and to what extent was used and how service prices were calculated based on these. This is mainly because the limit prices calculated by the Health Insurance Fund differ significantly from the prices quoted by the reference institutions. The EDA's main complaint to the Health Insurance Fund is that the price list does not cover all the costs of a medical institution related to the provision of service, i.e. is not cost-based.

119. According to the Health Insurance Fund, the aim of pricing is not to cover all the actual costs of service providers. The aim of the Health Insurance Fund is to ensure the purposeful⁵⁵ use of health insurance funds. There is also a widespread opinion in professional literature that pricing should use the average resource expenditure of service providers, which does not reward inefficient service providers but motivates providing services even more efficiently, i.e. below the average cost.⁵⁶

120. The Health Insurance Fund further explained that they do not coordinate with professional associations the prices, i.e. the end result,

⁵³ Estonian Health Insurance Fund development plans [2017–2020](#), [2018–2021](#), [2019–2022](#), [2020–2023](#)

⁵⁴ [Health Insurance Act](#), subsection 31 (5)

⁵⁵ Medically evidence-based and cost-effective

⁵⁶ Acheampong, O. B., *et al* (2014, p 10). Costing of health services for provider payment: Practical manual based on country costing challenges, trade-offs, and solutions. Joint Learning Network

but rather service descriptions with volumes and costs, while also taking into account the results of usage analysis. The Health Insurance Fund has notified the EDA of changes, but they did not present any documents to the National Audit Office with regard to taking or not taking the EDA's feedback into account.

121. In conclusion, the opinions of the Health Insurance Fund and the EDA differ both in terms of the process of the pricing of dental services and the results. One of the reasons for the differences of opinion is the lack of transparency of decisions in pricing dental services.

Conclusions and recommendations of the National Audit Office

122. **In the opinion of the National Audit Office**, the Health Insurance Fund follows the principles of activity-based costing but has not fully complied with the provisions of the guidelines in pricing dental services. The shortcomings presented above do not provide complete assurance that the price list of services subject to compensation is up-to-date and appropriate. The information gathered from reference institutions is also not representative enough.

123. In addition, the Health Insurance Fund has not documented the explanations of taking or not taking the feedback of the EDA into account. This reduces the clarity and comprehensibility of the pricing process and is not in line with the core values of the Health Insurance Fund, which, inter alia, include inclusive and transparent decision-making.

124. The aforementioned circumstances hinder the development of a trusting relationship between the professional association and dental care institutions and the entry into fair agreements. However, it is important that more institutions would be willing to enter into a contract with the Health Insurance Fund and that the benefit would be even better accessible to patients.

125. **Recommendations of the National Audit Office to the Minister of Health and Labour in co-operation with the Chairman of the Board of the Health Insurance Fund:**

- Ensure that the procedure set out in the guidelines is complied with when updating and supplementing dental services, and pay more attention to documenting the steps of pricing and coordinating the changes with the professional association.
- Look for other ways to collect data and calculate the cost of dental services in pricing specialised medical services.

Response of the Minister of Health and Labour: In the pricing process, the Health Insurance Fund must comply with the prescribed guidelines and the established methods. Medical institutions must be involved according to the established guidelines, and feedback must be given on which costs and on which principles have been included in the price, so that medical institutions can provide the service in the agreed manner. We recommend the Health Insurance Fund to carry out an audit on compliance with pricing methods and submitting respective proposals to supplement the Health Insurance Fund's internal work processes and, if necessary, specify the methods to avoid shortcomings and errors in the future.

We support the Health Insurance Fund in improving and developing the methods of calculating the limit prices of health services. In doing so, care must be taken to ensure that the improved methods take better account of differences in calculating overheads when the majority of health care providers are not included among the hospitals of the hospital network development network and improve pricing.

Response of the Chairman of the Board of the Estonian Health

Insurance Board: In order to implement the benefit in kind with relevant prices, it was necessary to update dental services that had not been reviewed for a long time and had so far only been used in children's dental care. The update was carried out until the end of 2016. Because at the end of 2016, the EDA stated that some components in the descriptions needed to be reviewed but we did not have enough data to do so, we commenced with making adjustments to the established prices in 2017. It is important to emphasise that the Health Insurance Fund needs data from medical institutions to set service prices, but we received little data. We updated the prices on the basis of currently applicable methods (the Health Insurance Fund's specification of specific points are presented below⁵⁷) and, where necessary, we made exceptions so that prices could be updated. For example, when all reference institutions did not submit data by the end of the pricing process in 2017, we used the data of these reference institutions who did submit them. It is important to emphasise that the guidelines do not set out all the nuances of pricing (e.g. in which cases is omitting a usage analysis of reusable materials justified, how are support services distributed). In the course of the audit process, we have come to understand that the guidelines for pricing must be clarified so that they reflect more clearly and accurately the steps of pricing, activities, purpose of activities and in which cases is omitting certain activities justified. This would help to avoid divergent interpretations of the guidelines by parties less exposed to pricing methods. It is also necessary to specify the requirements for documentation. We have put on the agenda the specification of the general pricing methods in order to find a better balance between the resource intensity of data provision and the accuracy of the result. As a separate issue, we consider if there should be differences in methods in areas with many contractual partners (e.g. larger number of reference institutions).

/signed digitally/

Ines Metsalu-Nurminen
Director of Audit at the Audit Department

⁵⁷ Specifications are presented in the table of recommendations on pp 29–30.

Recommendations of the National Audit Office and responses of the audited

Based on the audit, the National Audit Office made several recommendations to the Ministry of Social Affairs and the Estonian Health Insurance Fund. The Minister of Health and Labour sent their response to the recommendations of the National Audit Office on 14 October 2021 and the Chairman of the Board of the Health Insurance Fund sent their response on 1 November 2021.

General comments regarding the audit report

Response of the Chairman of the Board of the Estonian Health Insurance Board: General observation concerns the completeness of the audit report. On this occasion, children's dental care, emergency dental care, prosthesis benefit and dental care without cost-sharing, i.e. dental care covered fully by the Health Insurance Fund, for disabled people were excluded from the audit. In other words, the target groups who have not used the dental care benefit for adults but take advantage of the aforementioned opportunities to care for their oral health were excluded from the audit.

The Health Insurance Fund pays for the service in full for children and adolescents up to the age of 19 and people with poor oral hygiene who are unable to care for their oral hygiene themselves. As of the new year, we will expand the opportunities of free dental care to haematology and oncology patients who have an increased need for dental care due to their medical condition.

The Health Insurance Fund works closely with the Estonian Dental Association in the area of both prevention and pricing, which is an important basis for the development of the area in Estonia.

Comment of the National Audit Office: The National Audit Office did indeed focus only on adult dental care and more precisely on the dental care benefit for adults in the audit, because enough time has passed since the establishment of the measure to assess its effectiveness. The National Audit Office addressed children's health, incl. children's dental care, in the audit report 'State's activity in maintaining the health of children and treating children' published in 2016. In health care, it is common for children and adults to be approached separately in prevention, treatment and financing of treatment alike. The Health Insurance Fund also finances dental care of children and adults on different bases, i.e. children cannot use dental care benefit for adults and vice versa. However, it is important to note – as the National Audit Office explained to the Health Insurance Fund during the audit – that all dental visits of adults were taken into account in the analyses. Emergency dental visits, prosthesis benefit, visits by disabled people as well as visits based on the standard price list alike. Therefore, it is incorrect that some adult target groups were excluded from the audit.

Further clarifications of the Health Insurance Fund regarding the pricing section

Clarification on clause 78: According to the guidelines, the links between services, activities and resources and the volumes of resources in services (how many minutes, pieces, etc. per service) are obtained from the professional association. According to the guidelines, the usage analysis checks whether the need for key resources described in the service (i.e. resource minutes and use of supplies described in each service) by the professional association corresponds to the amount of key resources used by the health care provider.

Comment of the National Audit Office: Clause 78 describes the principles of calculating the resources necessary for the provision of health services, and the definition of usage analysis is presented next to clause 79 in the left margin. We have also clarified the wording.

Clarification on clause 79: Neither the regulation nor the guidelines provide that the Health Insurance Fund should ask for information about the year of acquisition. According to the guidelines, the Health Insurance Fund must ask for information about the actual depreciation period, i.e. the estimated service life. The year of acquisition provides information on how many years the equipment is used for, not the actual depreciation period (e.g. by asking in 2021 for information on about equipment acquired in 2020, it cannot be concluded that the actual service life of the equipment is one year). The yearly service life or the optimal service life of the equipment is agreed with a professional association or reference institution. According to the guidelines, the professional association reviews the list of resources included in services previously described by the professional association in the cost model, their acquisition costs, optimal use, and depreciation period. The Health Insurance Fund will correct the list of resources in the cost model, incl. names of resources, depreciation period, optimal use volumes and the cost, given the data submitted by health care providers and, if necessary, commissioned expert assessments.

Comment of the National Audit Office: According to appendix 4 to the guidelines for hearing proposals for amending the limit prices of services included in the list of health services, data on the service provider's medical devices (incl. fittings) with a service life of more than one year is collected, among others, regarding the acquisition cost, year of acquisition and depreciation period.

Clarification on clauses 82 and 83: In 2017, the optimal service time of radiological equipment per year was reduced, because according to the feedback from the professional association, the equipment was not occupied for eight hours per working day in all the institutions (as was originally included in the descriptions with the association). The new optimal service time per year was based on the data of reference institutions – how many minutes the equipment is actually used for per year in total and how many devices are available in each institution. As mentioned in the clarifications of clause 78, the usage analysis is necessary for determining the need for resources (minutes in services), not the optimal service time per year.

Comment of the National Audit Office: In 2017, new services were added to the list of dental services and the descriptions of frequently used services were amended, but the Health Insurance Fund did not perform a new usage analysis of key resources. Usage analysis is necessary in making large-scale changes. Failure to perform a usage analysis may lead to discrepancies between (adjusted) service descriptions and actual costs.

Clarification on clause 84: The Health Insurance Fund submitted to the National Audit Office the final descriptions prepared in 2016 (letter no. 3-23/7752-2 of the Health Insurance Fund to the EDA in March 2017). Further, additional information was also sent (to the National Audit Office on 26 August 2021 and 19 August 2021) in the form of i) coordination letters with the association from the end of 2015, ii) coordination letter of descriptions with the EDA in October 2016, iii) correspondence with a

member of the EDA, which took place following a meeting with the EDA at the end of 2016, showing that the EDA presented further feedback at the meeting and the member of the EDA sent additional information to specify the descriptions and the Health Insurance Fund responded with regard to taking thereof into account. The Health Insurance Fund submitted to the National Audit Office the specified final descriptions of 2017 (letter no. 3-15/39181 of the Health Insurance Fund to the EDA in December 2017). Detailed descriptions were sent together with additional information (sent to the National Audit Office on 11 January 2021). The descriptions specified in 2017 were not coordinated with the association but with reference institutions, because the EDA's letter (no. 17-10-25, October 2017) shows that EDA was unable to participate in the process of reviewing the prices due to unrealistic deadlines.

Comment of the National Audit Office: The Health Insurance Fund submitted to the National Audit Office the correspondence between the Health Insurance Fund and the EDA on pricing but did not present the final descriptions of dental services. According to the guidelines for hearing proposals for amending the limit prices of services included in the list of health services, prices are reviewed in cooperation with professional associations, and setting realistic deadlines plays an important role in approval.

Clarification on clauses 90–93: Reference institutions are responsible for submitting correct data, so the accuracy of the analysis carried out by the Health Insurance Fund cannot be said to be in doubt. As far as we know, the structure of the accounts may vary from institution to institution, but even if there is no distinction between disposable and reusable supplies, it is still possible to mark reusable and disposable supplies 'manually' when doing the inventory report.

Comment of the National Audit Office: According to the guidelines for hearing proposals for amending the limit prices of services included in the list of health services, the Health Insurance Fund must perform a usage analysis on the expenditure of disposable and reusable medical devices. The audit activities showed that the Health Insurance Fund has performed a usage analysis of disposable supplies, but not a usage analysis of reusable materials.

The Health Insurance Fund is obligated to collect data from reference institutions on all the categories of resources necessary for the provision of dental care, irrespective of the differences in the structure of the accounts of health care providers.

Clarification on clause 95: The patient management component is included in the appointment price or base price, which is coded for each visit (applicable coefficient 2). This is in line with the general logic of allocating patient management, according to which the service is allocated to appointments with a coefficient of 2. Prior to the upgrade, the dental appointment service did not include the patient component and it was coded in all the services with a coefficient of 0.1.

Coordination is specified by the response of the Health Insurance Fund with regard to clause 84.

Comment of the National Audit Office: The service descriptions provided by the Health Insurance Fund for dental examinations and procedures did not include the patient management component.

Clarification on clause 96: The descriptions sent show which reference institution's data and which discussion logic has been used. This is also explained separately when giving feedback on the draft (comments in the text of the draft).

Comment of the National Audit Office: The service descriptions provided by the Health Insurance Fund for dental examinations and procedures did not include the patient management component nor materials on calculating support services.

Clarification on clause 120: Coordination is specified by the response of the Health Insurance Fund with regard to clause 84.

Recommendations of the National Audit Office	Responses of the audited
<p>Paying more attention to prevention and reducing total cost-sharing</p> <p>35. Recommendations to the Minister of Health and Labour in co-operation with the Chairman of the Board of the Health Insurance Fund:</p> <ul style="list-style-type: none"> ▪ Pay special attention to the prevention of oral problems in adults and add preventive services among services subject to compensation. ▪ Look for ways to reduce the total cost-sharing of dental care for benefit users (see recommendation together with recommendations in chapter 2). <p>(cl 10–11, 16–17)</p>	<p>Response of the Minister of Health and Labour: So far, the Health Insurance Fund has more so funded prevention projects aimed at improving children's oral health. We agree that the data reflecting the oral health situation of the adult population show that more attention needs to be paid to them, including extending the focus of the benefit to prevention. We have taken steps in this direction and agreed to cooperate with the Estonian Dental Association to improve oral health and dental care prevention activities aimed at the adult population. We are also prepared to review the list of financed services under the leadership of the Health Insurance Fund and submit respective amendment proposals for supplementing the list of health services in 2022.</p> <p>Response of the Chairman of the Board of the Estonian Health Insurance Board: During the audit, the Health Insurance Board repeatedly pointed out that the base price of a dental visit also includes preventive activities such as advising people on oral health. However, we agree that this provision needs to be clarified in terms of wording for legal clarity. As of today, we have submitted the respective proposal to the supervisory board. We consider prevention to be very important, which is why we have for years, in cooperation with the Estonian Dental Association and with funding from the Health Insurance Fund, been carrying out prevention projects aimed at improving children's oral health, for example suukool.ee. Data reflecting the oral health situation of the adult population show that more resources are needed for prevention. We are working on putting the focus on oral health</p>

Recommendations of the National Audit Office	Responses of the audited
	<p>and dental care prevention activities aimed at the adult population in cooperation with the Estonian Dental Association. However, it cannot be ignored that every contact of a person with health insurance has a preventive purpose. For example, the removal of tartar prevents gum diseases and treatment of caries prevents inflammatory diseases. The Health Insurance Fund has focused on the prevention of children's dental diseases because hygiene and behavioural habits are established in early childhood.</p> <p>Comment of the National Audit Office: The work of the Health Insurance Fund in improving children's oral health and prevention is commendable. However, we note that this audit focused on adult dental care and the effectiveness of dental care benefit for adults. In addition to prevention activities aimed at children, it is also important to pay special attention to the prevention of oral problems in adults. The advice included in the base price of a dental visit does not cover all the necessary prevention activities. It is important to include more preventive services among services subject to compensation.</p>
<p>Taking income into account in paying for dental care</p> <p>63. Recommendation to the Minister of Health and Labour in cooperation with the Chairman of the Board of the Health Insurance Fund: Change the dental care benefit system for adults so that it would reach foremost people earning lower incomes in the future. At the same time, change the terms of the benefit to take into account the opportunities of people earning lower incomes to pay for the dental visit.</p> <p>The benefit system could be changed on the example of the supplementary benefit for pharmaceuticals of the Health Insurance Fund, according to which people who spend more money than average on medicinal products automatically receive a supplementary discount from the Health Insurance Fund. An example for changing the system could also be the needs-based study allowance for students, according to which the amount of allowance is calculated automatically based on the student's age according to the monthly income of one family member of the student's family or the student itself.</p> <p>(cl 51, 60)</p>	<p>Response of the Minister of Health and Labour: We agree with the recommendation to increase the dental care benefit for more vulnerable population groups. In 2009–2017, dental care for adults was compensated to a very limited extent, which resulted in a very high unmet need for treatment by 2015.⁵⁸ Therefore, since the benefit was introduced, it has been used foremost to obtain the necessary treatment. The results of population surveys and data of service providers suggest that the dental service has become somewhat more accessible and has also contributed to reducing income-based inequality.</p> <p>The analysis of the personal cost-sharing burden carried out this year in cooperation with the Health Insurance Fund also confirmed that people with lower income would rather spend on medicinal products than cost-sharing for dental services. In the coming years, we are, in cooperation with the Health Insurance Fund, planning to develop a system for measuring personal cost-sharing burden to help better identify persons with a high need for treatment and cost-sharing. The aim is for them to receive increased benefits or to set a maximum annual limit for cost-sharing. In the long-term, the plan is to include all the services financed by the Health Insurance Fund, incl. medicinal products, dental care as well as visit fee and in-patient fee, in this system. As the first step, the plan is to measure personal cost-sharing burden on medicinal products and dental services, which can then be extended to visit fee and in-patient fee. We believe that measuring personal cost-sharing burden and needs-based reduction thereof is the most effective way to achieve the objectives set out in the Public Health Development Plan⁵⁹, incl. reduce cost-sharing burden.</p> <p>In June 2021, we submitted proposals to the Government of the Republic for changing the benefit system. According to the decision made at the meeting of the Cabinet of Ministers on 17 June 2021, from 2022, the number of people receiving the increased benefit will be extended to the registered unemployed and persons receiving subsistence benefit. The respective draft was submitted to the Government of the Republic session of 7 October where it was approved. This is another step towards improving access to dental services for the most vulnerable population group.</p> <p>Response of the chairman of the board of the Estonian Health Insurance Fund: We agree with the recommendation to increase the dental care benefit for more vulnerable population groups. The precondition for the implementation of the change is that the Health Insurance Fund has access to people's income data, which is unfortunately not possible at the moment. However, a solution similar to pharmaceutical benefit is possible, supporting those with higher expenditure on dental care. The Health Insurance Fund has already taken over the burden of paying the fee for children and disabled people, and starting with the next year, dental care options will be extended to haematology and oncology patients. The Minister of Health and Labour has also submitted the proposal to amend the Health Insurance Act and</p>

⁵⁸ [Analüüs hambaravihüvitise täiendamiseks \(Analysis to supplement dental care benefit\)](#), 2019 Ministry of Social Affairs, Estonian Health Insurance Fund

⁵⁹ [Public Health Development Plan 2020–2030](#)

Recommendations of the National Audit Office	Responses of the audited
	<p>include the registered unemployed and recipients of subsistence benefit among recipients of increased benefit.</p> <p>The Health Insurance Board has started consultations with the Tax and Customs Board to find out whether income data can be taken into account when planning health care services, the cost-sharing of which is too high.</p>
<p>Compliance with the guidelines for hearing proposals for amending the limit prices of services included in the list of health services</p> <p>125. Recommendations to the Minister of Health and Labour in co-operation with the Chairman of the Board of the Health Insurance Fund:</p> <ul style="list-style-type: none"> ▪ Ensure that the procedure set out in the guidelines is complied with when updating and supplementing dental services, and pay more attention to documenting the steps of pricing and coordinating the changes with the professional association. ▪ Look for other ways to collect data and calculate the cost of dental services in pricing specialised medical services. <p>(cl 122–124)</p>	<p>Response of the Minister of Health and Labour: In the pricing process, the Health Insurance Fund must comply with the prescribed guidelines and the established methods. Medical institutions must be involved according to the established guidelines, and feedback must be given on which costs and on which principles have been included in the price, so that medical institutions can provide the service in the agreed manner. We recommend the Health Insurance Fund to carry out an audit on compliance with pricing methods and submitting respective proposals to supplement the Health Insurance Fund's internal work processes and, if necessary, specify the methods to avoid shortcomings and errors in the future.</p> <p>We support the Health Insurance Fund in improving and developing the methods of calculating the limit prices of health services. In doing so, care must be taken to ensure that the improved methods take better account of differences in calculating overheads when the majority of health care providers are not included among the hospitals of the hospital network development network and improve pricing.</p> <p>Response of the chairman of the board of the Estonian Health Insurance Fund: In order to implement the benefit in kind with relevant prices, it was necessary to update dental services that had not been reviewed for a long time and had so far only been used in children's dental care. The update was carried out until the end of 2016. Because at the end of 2016, the EDA stated that some components in the descriptions needed to be reviewed but we did not have enough data to do so, we commenced with making adjustments to the established prices in 2017. It is important to emphasise that the Health Insurance Fund needs data from medical institutions to set service prices, but we received little data. We updated the prices on the basis of currently applicable methods (the Health Insurance Fund's specification of specific points are presented in the table 'General comments regarding the audit report') and, where necessary, we made exceptions so that prices could be updated. For example, when all reference institutions did not submit data by the end of the pricing process in 2017, we used the data of these reference institutions who did submit them. It is important to emphasise that the guidelines do not set out all the nuances of pricing (e.g. in which cases is omitting a usage analysis of reusable materials justified, how are support services distributed). In the course of the audit process, we have come to understand that the guidelines for pricing must be clarified so that they reflect more clearly and accurately the steps of pricing, activities, purpose of activities and in which cases is omitting certain activities justified. This would help to avoid divergent interpretations of the guidelines by parties less exposed to pricing methods. It is also necessary to specify the requirements for documentation. We have put on the agenda the specification of the general pricing methods in order to find a better balance between the resource intensity of data provision and the accuracy of the result. As a separate issue, we consider if there should be differences in methods in areas with many contractual partners (e.g. larger number of reference institutions).</p> <p>Comment of the National Audit Office: The guidelines for hearing proposals for amending the limit prices of services included in the list of health services do not prescribe the specifications (e.g. omitting the usage analysis of the expenditure of reusable materials) that the Health Insurance Fund used in pricing dental services. In the opinion of the National Audit Office, it is also difficult to draw representative conclusions on the actual use of a device based on the data of only two institutions.</p>

Audit description

Audit objective

The purpose of the audit was to assess whether the dental care benefit for adults has made dental care more accessible.

Criteria for giving an assessment

- The cost-sharing and limit of a compensated visit encourage people to visit the dentist.
- The benefit ensured essential dental services.
- The activities of the Health Insurance Fund encourage dental care institutions to enter into a relevant contract with the Health Insurance Fund, which ensures the availability of the benefit across Estonia.
- The benefit has increased the number of dental visits.
- The benefit has brought people to their first dental visit.
- The benefit encourages adults to also visit the dentist after the compensated visit.
- The benefit reduces the need for emergency dental care.⁶⁰
- The terms of the benefit take the ability of adults to pay for treatment into account.
- The Health Insurance Fund has complied with the following principles of costing:
 - identified services related to essential dental care;
 - identified based on evidence all the cost components necessary for the provision of services;
 - assessed based on evidence the amount and cost of resources necessary for the provision of services;
 - collected based on evidence information on the actual resources necessary for the provision of services; and
 - calculated the unit cost of all resources and (total) costs of each service.
- The Health Insurance Fund has explained to the Estonian Dental Association (EDA) the principles of activity-based costing and made costing methods available to the EDA.
- The Health Insurance Fund has asked for the EDA's feedback when compiling and amending the price list of services and has then it into account or has clearly justified not taking thereof into account.

Scope and approach of the audit

The audited institutions were the Ministry of Social Affairs and the Estonian Health Insurance Fund. The audited period was from 1 January 2016 to 31 October 2020.

Audit methodology

The audit analysed the data of visits by people who used the dental care benefit for adults, visits based on the standard price list by all adults and emergency dental visits; the income data of people who used the

⁶⁰ See Appendix E for details.

benefit and people who did not use the benefit but saw a dentist as well as people who did not use the benefit and did not see the dentist; data of recipients of subsistence benefit; data of contractual partners of the Health Insurance Fund; surveys and statistics; laws, regulations, documents and correspondence concerning the benefit and pricing by the Health Insurance Fund; materials of the Government of the Republic.

The analyses used data from the Estonian Health Insurance Fund, the Health and Welfare Information Systems Centre, the National Institute for Health Development, the Social Insurance Board, and the Tax and Customs Board. In addition, the audit team interviewed various parties (see Table 1 for details).

The analyses performed during the audit are addressed in the following.

First visits

In order to find out how many adults the provision of the benefit brought to their first visit, the National Audit Office submitted a query to the Estonian Health Insurance Fund (Health Insurance Fund) and the Health and Welfare Information Systems Centre (HWISC). The National Audit Office asked the Health Insurance Fund for personalised data (patient's personal identification code and the times of all compensated dental visits) of visits by people who used the dental care benefit for adults during the period from 1 July 2017 to 31 October 2020 and the data (patient's personal identification code and the times of all dental visits) of emergency dental visits by all adults during the period from 1 January 2016 to 31 October 2020.

The National Audit Office also submitted a personalised query to the HWISC regarding all the dental visits by people who used the benefit (incl. also the majority of, but not all compensated and emergency dental visits, and these data are indistinguishable in the data of the HWISC) during the period from 1 January 2016 to 31 October 2020. In addition, the National Audit Office asked the HWISC to issue pseudonymised data on the times of all dental care visits by adults⁶¹ who did not use the benefit, i.e. the reference group.

The sample pool consists of all adults with at least one of the following vital signs. The person had either:

- used the benefit at least once;
- gone to one dental visit based on the standard price list during the reference period;
- gone to an emergency dental visit at least once during the reference period; or
- earned income for at least one year during the period 2017–2019 according to the data of the Tax and Customs Board.

The data of both the people who used the benefit and of the reference group was processed in a pseudonymised form.

Submission of dental care data

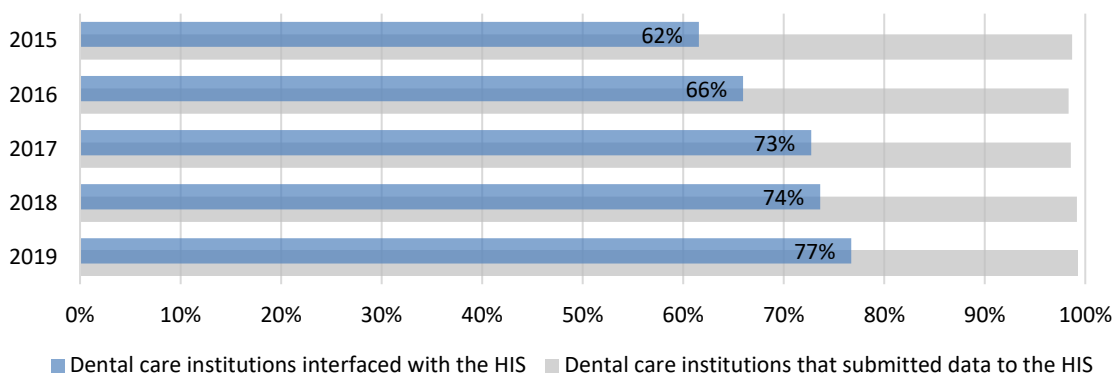
Dentists are obligated to submit dental records to the health information system (HIS) from 1 July 2015.⁶² In the beginning, dentists complied with this obligation to a smaller degree. In 2016, the HIS contained data on dental visits with regard to institutions who had submitted the data to both the HIS as well as to

⁶¹ At least 19-year-olds as of 1 January 2018 and all living Estonian residents with a personal identification code as of 31 October 2020

⁶² [Amendment to the Minister of Social Affairs Regulation No. 56 'Conditions and procedure for maintaining and preservation of records concerning provision of health services' of 18 September 2008](#), adopted on 3 November 2014

the National Institute for Health Development (NIHD), 64%.⁶³ At the same time, the proportion of dental institutions submitting dental records to the HIS has increased year by year (see Figure 1).

Figure 1. Proportion of dental care institutions that have interfaced with the health information system (HIS) and submitted data (at least one document) in the system of all dental care institutions operating in Estonia in 2015–2019⁶⁴



Source: National Audit Office based on the data of the National Institute for Health Development

The proportion of dental care institutions that submit data to the HIS remains incomplete and on the basis of this proportion alone, data coverage could be considered insufficient for a reliable analysis. However, it is important to note that the numbers of dentists working at dental care institutions varies greatly. For example, based on sales revenue, ten of the largest dental care institutions⁶⁵ in Estonia employ a total of 357 dentists according to the [Health Board's register of activity licences](#), i.e. a little over one-fourth (27%) of the total number (1,303 in 2019) of dentists (incl. dentists, resident dentists, orthodontists, dental mechanics, and maxillofacial surgeons) working in Estonia⁶⁶. Larger clinics serve a larger number of patients and their practice of submitting dental records to the HIS is better, as the interviewed clinics have, according to their own words, started to regularly check the submission of data internally since the obligation arose. In contrast, smaller clinics with one or two dental chairs do not have similar control mechanisms. Thus, it can be concluded that the proportion of clinics submitting data to the HIS is not proportional to the proportion of data submitted on visits. Instead, it is higher than the proportion of clinics and has improved during the reference period to the extent that the analyses to be performed based on these are sufficiently reliable.

At the same time, the National Audit Office was unable to assess in the course of the audit how much data on dental care is submitted and how this has changed by adults during the reference period, because the HIS collects and publishes the [data on dental visits](#) in two age groups: 0 to 14 and 15 and older. However, the benefit under review is available to those at least 19 years of age and older. Therefore, the data requested from the HWISC and the Health Insurance Fund are not comparable with the data of the NIHD for the purposes of the audit. Incomparability is also exacerbated by the fact that children's dental care is free of charge. Therefore, it can be presumed that people in the age group 15 and a few years older, i.e. people aged 15–18 years of age, visit the dentist more often and thus disproportionately misrepresent the number of visits for the whole age group.

The fact that data on compensated and emergency dental visits come from the Health Insurance Fund and are comprehensive helped to improve the coverage of data used for data analysis by the National Audit

⁶³ [Hambaravi andmed tervise infosüsteemis \(Dental care data in the health information system\)](#), National Institute for Health Development, 2018, p 14

⁶⁴ [E-health interfacing and reporting by legal form, type of health care provider and owner](#), National Audit Office based on the data of the National Institute for Health Development

⁶⁵ The ten largest dental companies by sales revenue: Unimed kliinikud OÜ, Kaarli hambapolikliinik OÜ, SA Tallinna hambapolikliinik SA, Maxilla AS, Läänemere hambakliinik OÜ, Kliinik32 OÜ, Bluegate OÜ, Merimetsa hambakliinik OÜ, Narva hambakliinik OÜ, Ode AS. Dental companies, annual report of the area. Äripäev Infopank, 2020

⁶⁶ [Employed health care personnel by occupation and full-time equivalent employment](#), National Institute for Health Development

Office. In other words, the National Audit Office used the most comprehensive data on adult dental visits available to the state in its audit.

Data cleansing, definition of first visit and difference of the reference group

In the interests of comparability of data and reliability of the conclusions drawn based on these, the National Audit Office excluded from adults all those who had died during the reference period (1 January 2016 to 31 October 2020) or whose date of birth was 1 January 1999 or later. The definition of the last criterion was determined by the approach to the first visit and the reliability of its identification.

The audit considers the first visit to be the first visit during the reference period, and it is divided into three based on the method of paying for the visit:

- first visit based on the standard price list;
- compensated adult dental care first visit; and
- emergency dental care first visit.

Thus, it is not the person's first ever visit to the dentist but rather their first visit during the period from 1 January 2016 to 31 October 2020. As explained above, dentists initially submitted fewer dental records to the HIS after the obligation to do so arose (64%). Therefore, in order to ensure better reliability of identifying the compensated first visit, the National Audit Office excluded from the analysis the people who had used the benefit in the first half-year, i.e. during the period from 1 July 2017 to 31 December 2017. As the data of compensated visits are comprehensive and data of visits based on the standard price list are partial (especially at the beginning of the reference period), the analysis could otherwise have provided results, which erroneously include people who had gone to a dental visit based on the standard price list prior to the benefit, but the data of whose visit was not included in the HIS. This would have shown the impact of the benefit on the first visits to be greater than it actually is.

Excluding people who used the benefit in 2017 from the analysis means that the analysis includes dental visit data for two years before the first possible compensated visit (1 January 2018). At the same time, the number of institutions that submitted dental records in 2017 increased the most during the reference period (by 6.7%). As the first possible compensated visit shifted to 1 January 2018 in the analysis, the analysis includes people with the date of birth on 31 December 1998 at the latest. This allowed analysing the data of only these people who were at least 19 years of age at the time of the first possible compensated visit, i.e. who were entitled to the benefit. During the reference period, the benefit was used by 451,367 unique individuals of whom 362,343 were included in the analysis of the first visit after the cleansing of the aforementioned data.

As the National Audit Office received the times of dental visits of the reference group in a pseudonymised form from the HWISC, it was not possible to match the emergency dental care data with the personalised data of the Health Insurance Fund in the reference group. Therefore, the National Audit Office determined the emergency dental care first visits of the reference group by calculation, taking the proportion of emergency dental care first visits of people who used the benefit of the annual number of first visits as a basis.

Frequency of seeing a dentist

Dental visits of adult Estonian residents with health insurance can be divided into three according to the method of paying for the visit:

- visit based on the standard price list;
- compensated adult dental care (hereinafter shortened to compensated) visit; and
- emergency dental visit.

The following analyses distinguish compensated first visits, which are set as a reference point for benefit users. Subsequent compensated visits, emergency dental visits and visits based on the standard price list are not distinguished.

In order to find out how seeing the dentist has changed for benefit users following the implementation of the benefit, the National Audit Office used data collected through previously specified data requests (see subsection 'First visits').

Data cleansing and calculating the frequency of visits preceding and following the first compensated visit

In the interests of comparability of data and reliability of the conclusions drawn based on these, the National Audit Office excluded from adults all those who had died during the reference period (1 January 2016 to 31 October 2020) or whose date of birth was 1 January 1999 or later.

As explained above, dentists initially submitted fewer dental records to the HIS after the obligation to do so arose (64%). Therefore, in order to ensure better reliability of the analysis, the National Audit Office excluded from the analysis the people who had used the benefit in the first half-year, i.e. during the period from 1 July 2017 to 31 December 2017. As the data of compensated visits are comprehensive and data of visits based on the standard price list are partial (especially at the beginning of the reference period), the results of the analysis could have been erroneous by the number of people who had gone to a dental visit based on the standard price list prior to the implementation of the benefit, but the data of whose visit was not included in the HIS. This would have erroneously shown the frequency of visiting the dentist before the first compensated visit as smaller or non-existent.

The National Audit Office also excluded from the audit people who had attended a compensated dental visit for the first time in 2020, i.e. whose first compensated visit was between 1 January 2020 and 31 October 2020. Otherwise, the results of the analysis could have been erroneous, because people who attended the compensated visit for the first time in 2020 would not have had reasonable time left for the next compensated visit (or next visits). This would have erroneously shown the frequency of visiting the dentist after the first compensated visit as smaller or non-existent. During the reference period, 451,367 unique individuals used the benefit, of whom nearly two-thirds, i.e. 287,021 people, were included in the comparative analysis after the cleansing of the aforementioned data.

There was no reason to exclude any people from the analysis of the people who did not use the benefit but did visit the dentist at least once during the reference period, i.e. reference group, as in this group there was no need to differentiate between visits by method of compensation or to identify a different reference point for each person. The analysis of the reference group used the data of dental visits of 199,075 people.

The visits of people included in the analysis were grouped according to the time of the visit by quarters. The reference point for the frequency of dental visits by each person who used the benefit was the quarter in which they first went to the compensated visit. The average number of dental visits per quarter was calculated for the preceding and the following period. In the reference group, the reference point was the midpoint of the period (1 January 2018 – 31 December 2019) for the possible use of the benefit by the benefit users included in the analysis, i.e. the preceding period was 1 January 2016 – 31 December 2018 and the following period was 1 January 2019 – 31 October 2020.

Income of benefit users

In addition to data collected previously, the National Audit Office submitted a query to the Tax and Customs Board, asking for the income quintiles of people who used the benefit (personalised query), people who did not use the benefit but did visit the dentist (pseudonymised query) and people who did not use the benefit and did not visit the dentist (pseudonymised query) for 2017–2019, which are based on both the tax return TSD and the natural person's income tax return. The period of income data differs from the reference period by nearly a year because the data of a natural person's income tax return for

2020 was not yet available at the time of submitting data queries for the audit. Therefore, the National Audit Office used the data of 2019 as the income quintiles for 2020.

The National Audit Office also submitted a query to the Social Insurance Board with regard to recipients of subsistence benefit during the period from 1 January 2016 to 31 October 2020.

Data cleansing and linking and forming reference groups

In the interests of comparability of data and reliability of the conclusions drawn based on these, the National Audit Office excluded from adults all those who had died during the reference period (1 January 2016 to 31 October 2020) or whose date of birth was 1 January 1999 or later. Income data is presented for the years 2018–2020. This means that the data of the start of the implementation of the benefit, i.e. the second half-year of 2017, have been excluded for better comparability between different years and with the reference group.

In addition to the division of the income data of people who used the benefit and people who did not use the benefit, the division of income data of people who went to dentist due to the compensated first visit and started to visit the dentist more frequently after the first compensated visit was presented during the audit (see details in Appendix D).

The dental data of people who went to the first visit due to the benefit was linked to income data according to the year of the compensated first visit. Additionally, the division of income data of people who did not visit the dentist during the reference period is also presented for comparison.

The analysis of compensated first visits was carried out for the period from 1 January 2018 to 31 October 2020 and these were linked to the income quintiles of 2018 and 2019. Compensated first visits were divided so that the largest number of compensated first visits took place in 2018 and the number decreased in the following years. Therefore, for the sake of comparability, in presenting the income data of people who did not visit the dentist, the principle that for those people whose income data for 2018 was available, the data of 2018 was used. For those people whose income data for 2018 was not available but data for 2019 was, the income data of 2019 was used.

The dental data of people who started seeing a dentist more frequently after the first compensated visit were linked with income data according to the year of the first compensated visit. People who did not use the benefit but did visit the dentist who started to see the dentist more frequently during the later period (1 January 2019 – 31 October 2020) compared to the earlier period (1 January 2016 – 31 December 2018) were used for comparison. The income data of these people were presented according to the same principle as the income data of people who did not visit the dentist.

Recipients of subsistence benefit were accounted for according to the principle that if the person had received the benefit for at least one month during the half-year, they were considered to be a recipient of subsistence benefit for the entirety of that same half-year. The dental data of people who received subsistence benefit and used dental care benefit were compared with the dental data of people who received subsistence benefit and did not use dental care benefit but did visit the dentist.

Expert work

The aim of expert work was to analyse:

- whether the Health Insurance Fund has identified essential dental services in the establishment of the benefit;
- whether the Health Insurance Fund has complied with the following principles of costing in the establishment and implementation of the benefit:
 - identified services related to essential dental care;

- identified based on evidence all the cost components necessary for the provision of services;
- assessed based on evidence the amount and cost of resources necessary for the provision of services;
- collected based on evidence information on the actual resources necessary for the provision of services and calculated the unit cost of all resources and (total) costs of each service;
- which sets of services are covered by the benefit to the extent of the limit thereof and assess whether the limit of the benefit is sufficient to motivate people to visit the dentist.

Two experts participated in the audit. One of them is a dentist with long experience. The other expert has long-term experience in health care financing and pricing.

Table 1. Persons interviewed in the course of the audit

Institution	Date	Name and position
Estonian Health Insurance Fund	14 May 2020 15 September 2020	Küllli Friedemann – Head of Primary Care Department Tiia Zeigo – Medical Expert at the Partnership Communications Department Mari Kalbin – Chief Specialist at the Primary Care Department Tiina Sats – Head of the Specialised Medical Care Department
Ministry of Social Affairs	20 May 2020	Kersti Esnar – Head of Health Care Resources, Health System Development Department Kaija Kasekamp – Adviser at the Health System Development Department
Estonian Dental Association	22 May 2020 14 May 2021	Piret Väli – President Katri Arge – Member of the Board Katrin Metstak – Member of the Board Marek Vink – Member of the Council Mare Saag – Vice President, professor of oral and dental diseases, University of Tartu, Dental Adviser at the Ministry of Social Affairs Taavo Seedre – Member of the Board, Head of the Stomatology Clinic of Tartu University Hospital, Dental Adviser at the Ministry of Social Affairs Marjo Sinijärv – Member of the Board Helen Lang – CEO Ülo Pintson – Member of the Council, participated in the work of the Health Insurance Fund's price list working group, representative of the reference institution
Health and Welfare Information Systems Centre (HWISC) and National Institute for Health Development (NIHD)	23 September 2020	Laine Mokrik – Lawyer, HWISC Terje Lasn – Head of Analytics, HWISC Jane Idavain – Head of the Department of Health Statistics, NIHD Gettrin Kivisild – Analyst at the Department of Health Statistics, NIHD
Unimed Grupp OÜ	26 January 2021	Marja-Liisa Alop – CEO, Member of the Board
Magdaleena Hambakliinik OÜ	27 January 2021	Helika Küüt – Member of the Board
Haldja Hambaravi OÜ	2 March 2021	Madis Tafenau – Member of the Board

Time of completing the audit:

The audit activities were completed in June 2021.

Audit team:

The audit team consisted of audit managers Mart Vain and Rauno Vinni and auditors Eva-Maria Asari and Otti Eylandt.

Contact details

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An electronic copy (pdf) of the audit report is available on the website www.riigikontroll.ee.

Summary of the audit report is also available in Estonian.

The number of the audit report in the internal records system of the National Audit Office is 80067.

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Previous audits of the National Audit Office in the field of health

4 June 2020 – **Control by the Health Insurance Fund over the funding of health services**

23 October 2018 – **Emergency medical care**

20 May 2015 – **Activities of the state in organising healthcare supervision and quality assessment**

17 January 2014 – **Activity of the state in implementing eHealth**

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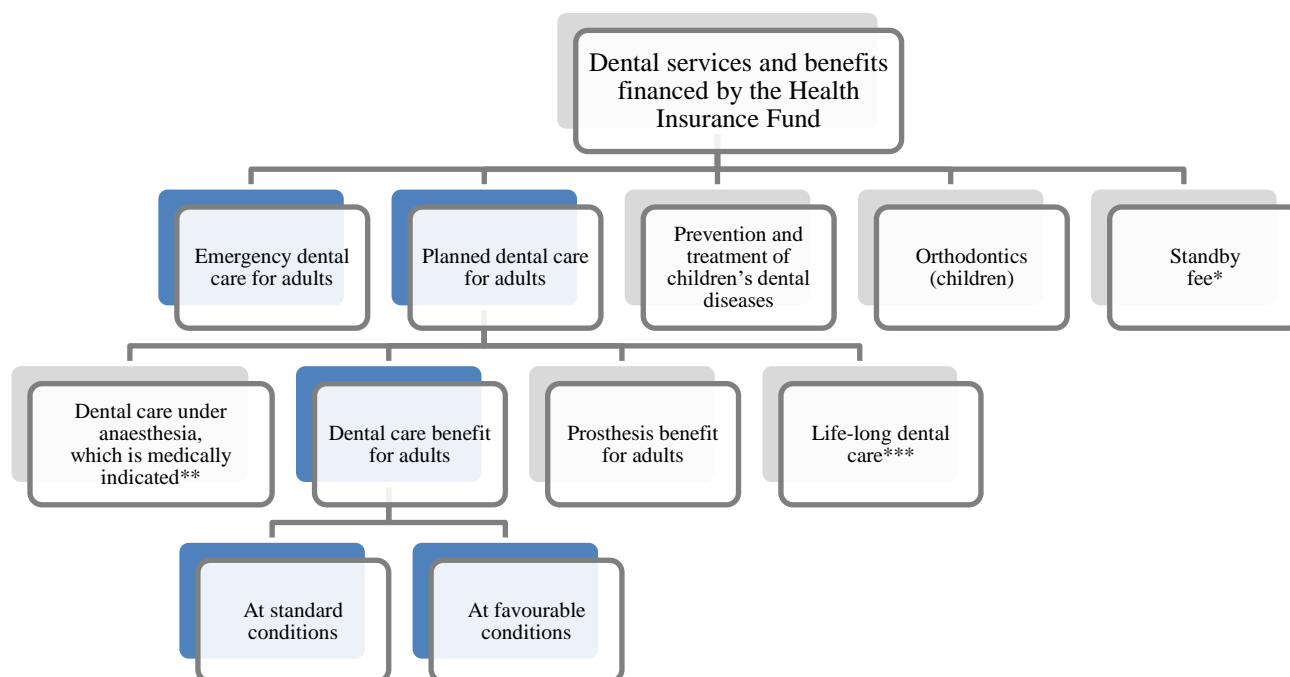
Appendix A. Overview of dental care benefit for adults and use thereof

Appendix A provides an overview of the Health Insurance Fund's dental services and the use of dental care benefit for adults.

Oral health is important because diseases in the oral cavity have a strong link to overall human health. Oral health can have a direct effect on a person's overall health, contribute to the development of certain diseases or worsen the course of already existing general diseases. Oral health also means the ability to speak, smile, smell, taste, touch, chew, swallow and show facial expressions with confidence without feeling discomfort or pain.⁶⁷

The Health Insurance Fund finances five dental services⁶⁸ and all services can be provided by hospitals of the hospital network development plan and select partners (see Figure 1). The audit covers the dental care benefit for adults (marked in blue in the figure), which is available to adults with health insurance from 1 July 2017. Until 1 July 2017, financial benefit⁶⁹ was available to person receiving pension for incapacity for work and old-age pensioners as well as to people over the age of 63 with health insurance (approx. 19 euros). An increased rate of benefit (approx. 29 euros) was paid to pregnant women, mothers of children under 1 year old, and people with an increased need for dental care.

Figure 1. Dental services financed by the Health Insurance Fund



* To ensure that the dental care institution is open for business for at least four hours on all weekdays and public holidays.

** The target group consists of people who are unable to receive dental care under normal conditions for some medical indication.

*** Dental care for disabled people.

Source: Estonian Health Insurance Fund

⁶⁷ [Haiguste ennetamine muutub aina olulisemaks \(Disease Prevention Is Becoming Increasingly Important\)](#). (2019). Estonian Dental Association

⁶⁸ [Explanatory memorandum to the Estonian Health Insurance Fund's budget for 2021](#), p 10, Estonian Health Insurance Fund

⁶⁹ This means that the Health Insurance Fund compensated the patient for the costs of dental care according to the services provided to them up to a fixed amount.

The balance of benefit users and average cost of the medical invoice

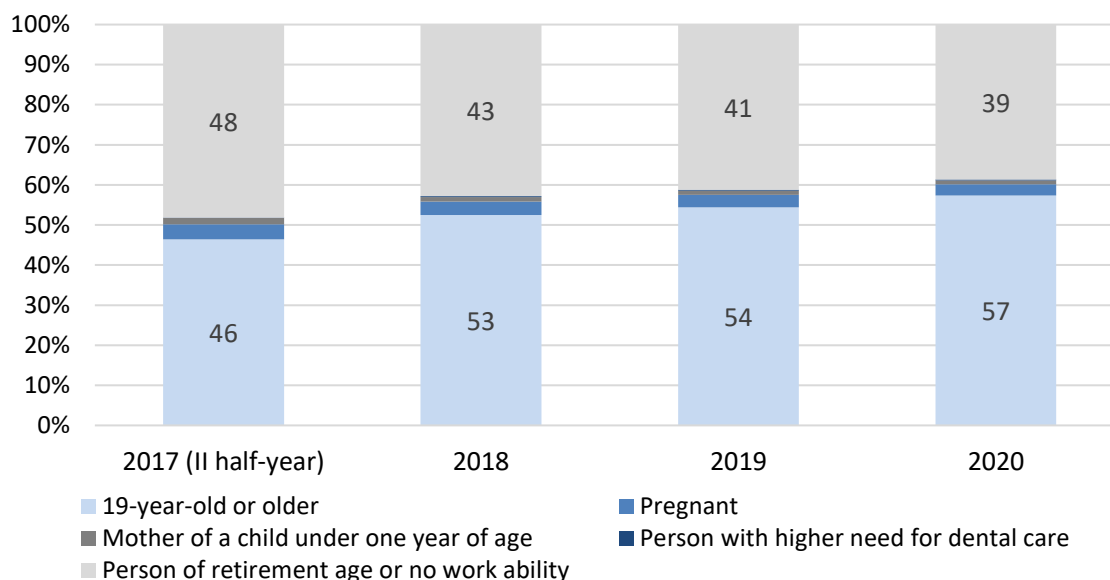
There are two conditions for using the benefit:

- 1) the benefit is available to insured people who are at least 19 years of age at a contractual partner of the Health Insurance Fund, and
- 2) when the benefit is used, the services provided are paid for on the basis of the Health Insurance Fund's price list of health services.⁷⁰

For the provision of dental services, a contact for financing treatment is entered into with all dental care institutions who hold an activity licence issued by the Health Board and who apply for the entry into the contract. The Health Insurance Fund does not use the selection procedure to find contractual partners for adult dental care. The Health Insurance Fund enters into a contract with a new (first-time) applicant for one year, which is later extended. According to the Health Insurance Fund, abandoning the selection competition was meant to increase the availability of the service and, at the same time, reduce the likelihood that patients have to switch their existing dentist.⁷¹

At standard conditions, the limit of the benefit is 40 euros per calendar year, and the cost-sharing for the patient is 50%. Pregnant women, mothers of children under 1 year old, people of retirement age, people with no work ability and people with higher need for dental care can use the benefit at favourable conditions (up to 85 euros a year, cost-sharing 15%).⁷² People who use the benefit at standard conditions make up the majority (57% in 2020) of benefit users, and their proportion has increased compared to 2018 (see Figure 2). The second largest group consists of people of retirement age or people with no work ability (39% in 2020), and their proportion has decreased somewhat compared to 2018. Pregnant women make up 3%, mothers of children under 1 year old approx. 1% and people with higher need for treatment less than 1% of benefit users.

Figure 2. Users of dental care benefit for adults from 2017 (II half-year) to 2020



Source: Estonian Health Insurance Fund

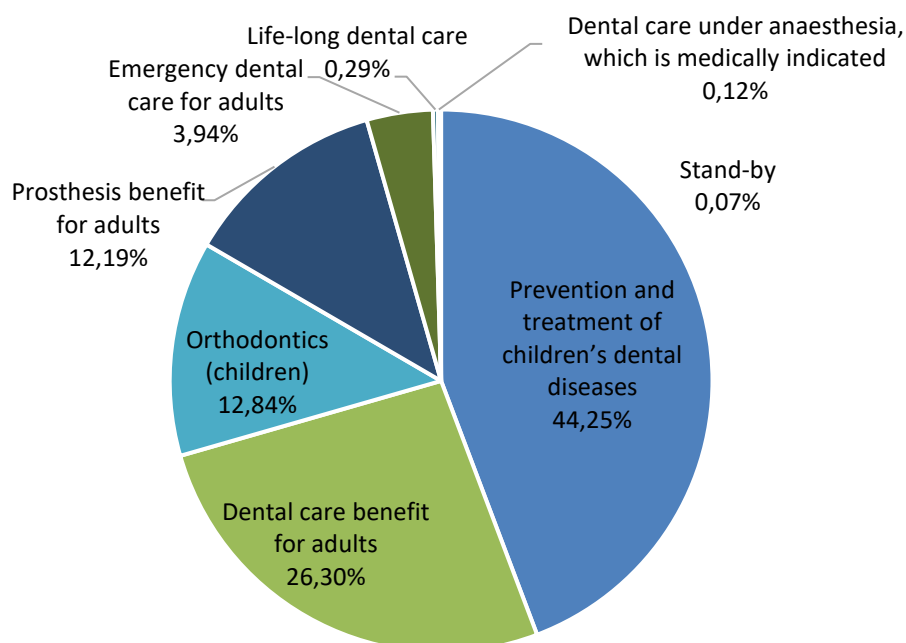
⁷⁰ [Dental care benefit for adults](#), Estonian Health Insurance Fund

⁷¹ [Explanatory memorandum to the draft act amending the Health Insurance Act and other acts](#), p 1

⁷² Surgical and/or radiation treatment of tumours of the head and neck; surgical treatment of lip, alveolar process and cleft lip; treatment of genetic or metabolic diseases causing deformations of dental tissue or maxillary bones; surgical treatment of traumas and inflammation in the maxillary region; medical procedure (e.g. endoscopy) causing trauma to the maxillary bones; transplantation of or preparation for lung, liver, heart and/or kidney, blood stem cell transplantation; type 1 diabetes; Sjögren's syndrome

In 2020, the Health Insurance Fund paid 14.4 million euros for the benefit which is a little over one-fourth (see Figure 3) of all dental costs, all totalling 54 million euros.⁷³ The benefit accounted for 0.9% of the total health care expenditure in 2020.

Figure 3. Distribution of dental care expenditure of the Health Insurance Fund in 2020



Source: Estonian Health Insurance Fund

In 2020, 41% (118,000 people) of people who used the benefit (see Table 1) did not use the benefit in full, to the extent of 2.4 million euros in full. Pregnant women (47%) have not used the benefit in full the most and benefit users of 19 years of age (39%) the least.

Table 1. Balance of users of the dental care benefit for adults in 2020

Target group of the benefit	Number of people who did not use the benefit in full	Proportion of the target group who did not use the benefit in full	Balance of the benefit (in euros)
19-year-old or older	63,700	39%	813,092
Pregnant	3,781	47%	117,853
Mother of a child under 1 year of age	1,109	43%	32,704
Person with higher need for dental care	313	41%	9,195
Person of retirement age or person receiving pension for incapacity for work	49,099	45%	1,447,876
Total	118,002	41%	2,420,721

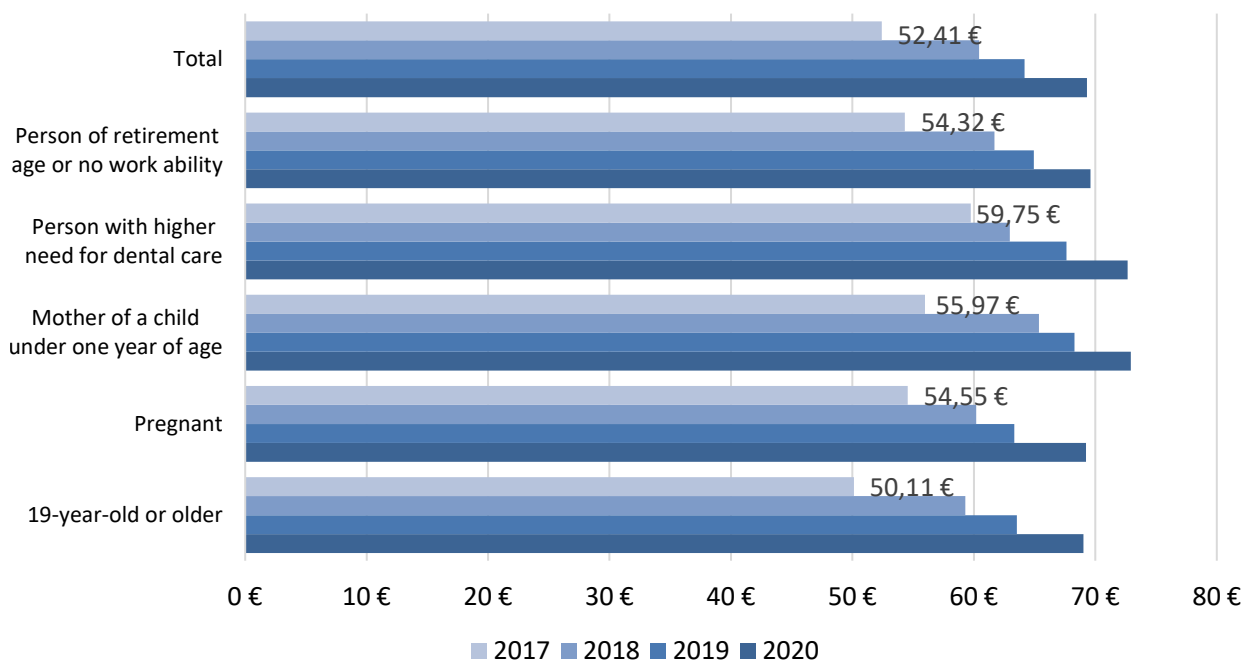
Source: Estonian Health Insurance Fund

⁷³ [Estonian Health Insurance Fund Annual Report 2020](#)

Leaving the benefit unused in full has decreased compared to 2018 (48% of all adults who used the benefit). In 2017, more than half of the benefit users (58%) did not use the benefit in full, but the benefit was available only in the second half of the year.

The average cost of one medical invoice per person in 2020 was approx. 69 euros, which is nearly 13% higher than in 2018 (see Figure 4). The average cost of medical invoices of people who used the benefit at standard conditions was 69 euros per person and of people who used the benefit at favourable conditions 71 euros per person.

Figure 4. Average cost of one medical invoice per person in 2017–2020 (euros)



Source: Estonian Health Insurance Fund

Compensated services of dental care for adults and main diagnoses of benefit users

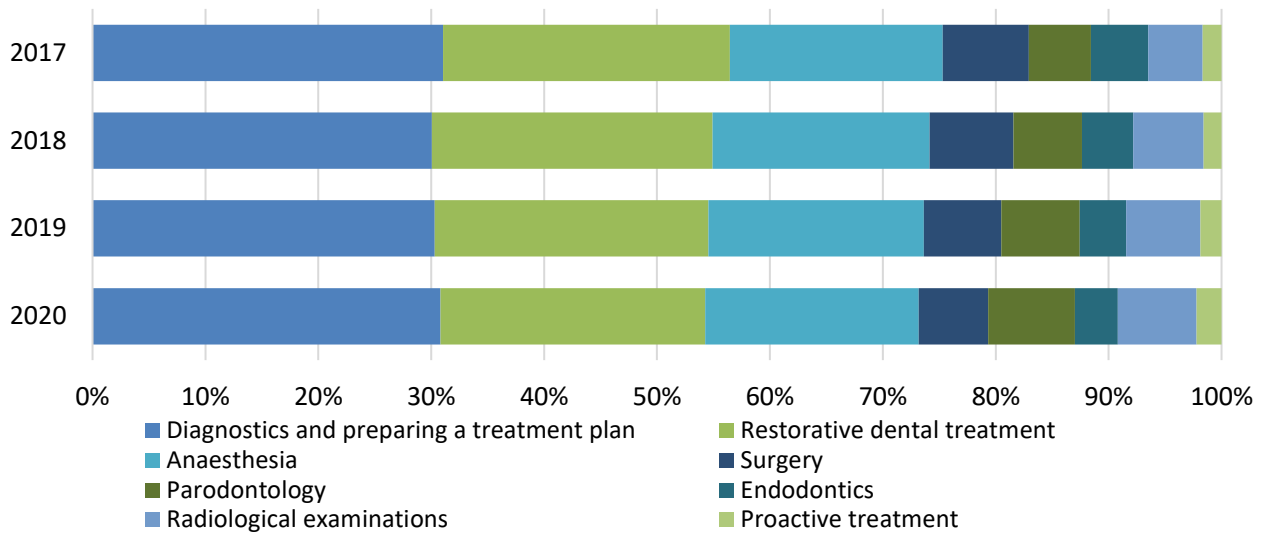
The service includes a total of 30 essential services (see Appendix B). The largest group of services consists of restorative dental treatment (mostly fillings, seven services) and the smallest group consists of proactive, i.e. preventive treatment with only one service. The three main services used by people who received the benefit are diagnostics and preparing a treatment plan⁷⁴ (31%), restorative dental treatment⁷⁵ (23%) and anaesthesia⁷⁶ (19%). In 2020, these services accounted for almost three-quarters of the compensated services (see Figure 5).

⁷⁴ Includes dental appointment, preparing a photo status of the bite, and the base price of the visit.

⁷⁵ Includes filling material and installation of the filling, installation of a temporary crown, and preparation of a temporary bridge.

⁷⁶ Includes application anaesthesia and anaesthetic injection.

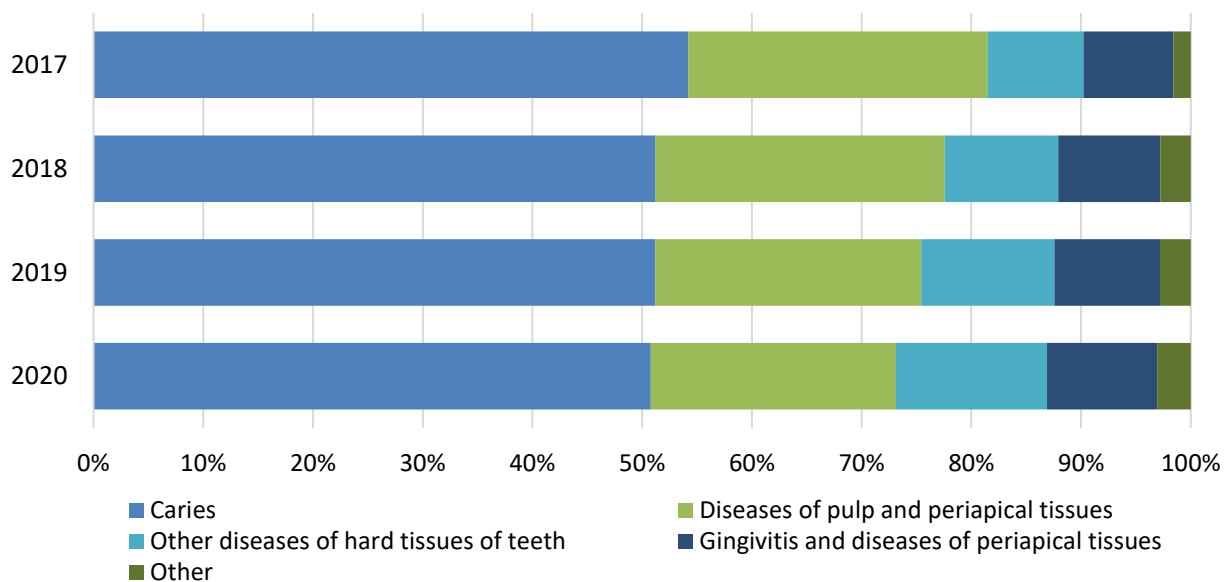
Figure 5. Services compensated to people who used dental care benefit for adults in 2017–2020



Source: Estonian Health Insurance Fund

Half (51%) of the benefit users were diagnosed with caries in 2020. Diseases of pulp and periapical tissues⁷⁷, which occur mainly as complication of caries, are in the second place (22%, see Figure 6). Other diseases of hard tissues of teeth⁷⁸ are in the third place (14%). Gum-related diseases are in the fourth place (10%). Other diseases account for a total of 3%. There are no differences between the diagnoses of people who used the benefit at standard and at favourable conditions.

Figure 6. Main diagnoses of people who used dental care benefit for adults in 2017–2020



Source: Estonian Health Insurance Fund

⁷⁷ Includes mainly infections related to the dental root.

⁷⁸ Includes excessive abrasion of teeth, wear, dental plaque, discoloration of teeth.

Dental visits and diagnoses of Estonian adult residents

In 2020, Estonian adults made a total of nearly 934,400 dental visits (see Table 2), which is somewhat more than in 2017. The number of compensated visits in 2020 was over 410,300, which accounts for 44% of adult visits. The proportion of compensated visits has increased compared to 2018.

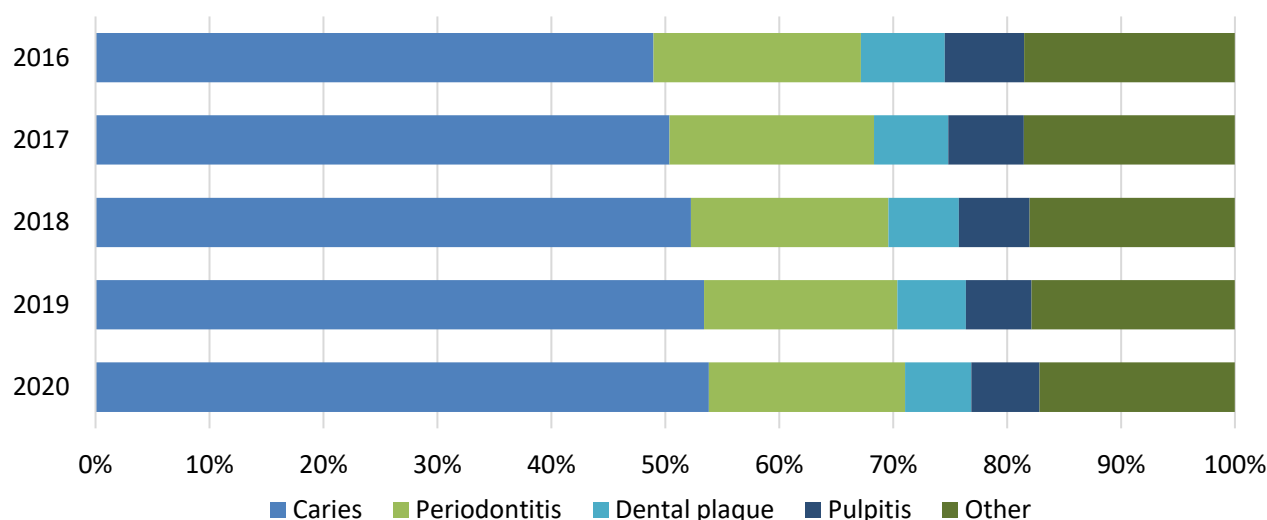
Table 2. Adult dental visits

Number of visits	2017	2018	2019	2020
Total visits by benefit users	110,125	345,925	399,008	410,310
Total visits by Estonian adults	887,049	983,137	1,018,593	934,427
Proportion of compensated visits of all visits by the adult population	12%	35%	39%	44%

Source: Estonian Health Insurance Fund, Health and Welfare Information Systems Centre

Similarly to those who used the benefit, Estonian residents who visited the dentist in 2020 were diagnosed mainly with caries (54%, see Figure 7). Diseases of pulp and periapical tissues (periodontitis and pulpitis) are in the second and fourth place. Diseases of hard tissues of teeth (dental plaque) are in the third place.

Figure 7. The main dental diagnoses of the Estonian adult population in 2016–2020



Source: Health and Welfare Information Systems Centre

Appendix B. List of essential dental services

Appendix B provides an overview of the services that the Health Insurance Fund compensates to adults. The services are presented in the list of health services, which includes 71 dental services, of which 30 are covered by dental care benefit for adults (see Table 1).

Table 1. Essential dental services covered by dental benefit for adults

Name of the service	
Diagnostics and preparing a treatment plan	Proactive, i.e. preventive treatment
Dental visit	Professional cleaning of teeth of biofilm
Preparing a photo status of the bite	Endodontics
Base price of a visit (dental care)	Dental pulp amputation and base filling
Radiological examinations	Applying medicinal product in the pulp chamber or tooth devitalisation
Intraoral dental imaging (digital or on film)	Opening and cleaning one root canal (incl. establishing access and applying medicinal product)
Orthopantomogram (digital or on film)	Opening and cleaning each subsequent root canal (incl. applying medicinal product)
Anaesthesia	Filling one root canal
Application anaesthesia	Filling each subsequent root canal
Anaesthetic injection	Parodontology
Restorative dental treatment	Gingival curettage on one tooth
Filling for one surface	Supragingival calculus removal on four teeth
Filling for two surfaces	Subgingival calculus removal on four teeth
Filling for three surfaces	Surgery
Installing a temporary filling for one tooth	Removal of a single tooth with a root
Closing the perforated pulp chamber ceiling of a remaining tooth and base filling	Removal of several teeth with roots
Installation of a temporary crown made on site	Removal of a deeply broken tooth or removal of a crumbled tooth
Making a temporary bridge from filling material	Removal of a tooth or implant by osteotomy
	Opening an abscess and treatment procedures

Source: List of Health Services, section 77

Appendix C. Overview of dental services that can be used within the current limit and cost-sharing

Appendix C provides an overview of six examples of using the benefit together with the patient's cost-sharing. In four examples, the patient's cost-sharing is higher than provided in the conditions of the benefit.

Example 1: An adult with no complaints or need for treatment. Cost-sharing 50% and maximum amount of benefit per calendar year 40 euros.

Code	Service	Cost ⁷⁹ , €	Cost-sharing
52400	Dental visit	32.18	€16.09
52412	Professional cleaning of teeth of biofilm	19.89	€19.89
	Total amount	52.07	€35.98
	Total cost-sharing		69%
	Balance of unused benefit		€23.91

Source: National Audit Office

Service 52412 (professional cleaning of teeth of biofilm) is a service subject to compensation, but it cannot be included in the same invoice of the Health Insurance Fund together with service 52400 (dental visit). According to the list of health services, service 52400 can be combined with a radiological examination but not with other services.⁸⁰ Therefore, under the benefit, it is not possible to use these two services during the same visit. Thus, in practice, cleaning of teeth performed during the same visit is included in the invoice as a full-cost service to the patient.

According to the Health Insurance Fund, these services cannot be used together because the dental visit already includes professional cleaning of teeth among other activities. According to the list of health services, dental visit includes the following activities:

- discussion with the patient and obtaining and recording medical history;
- examination of the patient, recording the status of diagnostics, diagnosis, counselling;
- recommending and prescribing medicinal products;
- preparing documents certifying the provision of services and processing data related to the provision of health services to the patient in the health information system;
- performing simpler treatment procedures;
- other activities required during the visit that are directly related to the provision of services.⁸¹

Cleaning of teeth can also be used together with service 52467 (base price of a visit) if the patient arrives at a separate appointment to have their teeth cleaned of biofilm. However, in this case, the patient does not receive the services listed above that are included in the dental appointment (base price of a visit includes the cost of base trays, sterilisation, and waste handling⁸²).

⁷⁹ The cost is based on the limit prices of dental care provided in section 77 of the [List of Health Services](#) in force until 31 December 2020.

⁸⁰ [List of Health Services](#), subsection 77 (3)

⁸¹ [List of Health Services](#), subsection 77 (2)

⁸² [List of Health Services](#), subsection 77 (4)

Example 1 describes a situation where a dentist is visited by a patient who does not have any complaints but who regularly goes for annual oral check-ups and needs more services than the base price of the visit enables and who wishes to have their teeth professionally cleaned. In this case, the patient is unable to use the benefit in paying for both services. Thus, the patient's cost-sharing is higher than 50%, approaching 70% in practice.

Example 2: An adult with no complaints or need for treatment. Cost-sharing 15% and maximum amount of benefit per calendar year 85 euros.

Code	Service	Cost, €	Cost-sharing
52400	Dental visit	32.18	€4.83
52412	Professional cleaning of teeth of biofilm	19.89	€19.89
	Total amount	52.07	€24.72
	Total cost-sharing		47%
	Balance of unused benefit		€57.65

Source: National Audit Office

Example 3: An adult with no complaints but a small need for treatment is identified at the appointment. Cost-sharing 50% and maximum amount of benefit per calendar year 40 euros.

Code	Service	Cost, €	Cost-sharing
52467	Base price of a visit (dental care)	12.14	€6.07
52414	Anaesthetic injection	10.88	€5.44
52418	Filling for two surfaces	41.73	€20.87
	Total amount	64.75	€32.38
	Total cost-sharing		50%
	Balance of unused benefit		€7.63

Source: National Audit Office

Example 4: An adult with no complaints but a small need for treatment is identified at the appointment. Cost-sharing 15% and maximum amount of benefit per calendar year 85 euros.

Code	Service	Cost, €	Cost-sharing
52467	Base price of a visit (dental care)	12.14	€1.82
52414	Anaesthetic injection	10.88	€1.63
52418	Filling for two surfaces	41.73	€6.26
	Total amount	64.75	€9.71
	Total cost-sharing		15%
	Balance of unused benefit		€29.96

Source: National Audit Office

Example 5: An adult with complaints who is identified to have a high need for treatment (root canal treatment for two teeth). Cost-sharing 50% and maximum amount of benefit per calendar year 40 euros.

Code	Service	Cost, €	Cost-sharing
First visit			
52467	Base price of a visit (dental care)	12.14	€7.83
52414	Anaesthetic injection	10.88	€7.02
52405	Intraoral dental imaging (digital or on film)	13.47	€8.69
52429	Opening and cleaning one root canal (including establishing access and applying medicinal product)	49.58	€31.99
52430	Opening and cleaning each subsequent root canal (including applying medicinal product)	26.7	€17.23
	Total amount	112.77	€72.77
	Total cost-sharing		65%
	Balance of unused benefit		€0
Second visit (cost, provided that the service provider uses the Health Insurance Fund's price list)			
52467	Base price of a visit (dental care)	12.14	€12.14
52414	Anaesthetic injection	10.88	€10.88
52432	Filling one root canal	50.52	€50.52
52433	Filling each subsequent root canal	25.2	€25.2
52405	Intraoral dental imaging (digital or on film)	13.47	€13.47
	Total amount	112.21	€112.21
Third visit (cost, provided that the service provider uses the Health Insurance Fund's price list)			
52467	Base price of a visit (dental care)	12.14	€12.14
52413	Application anaesthesia	3.5	€3.5
52418	Filling for two surfaces	41.73	€41.73
	Total amount	57.37	€57.37
	Total cost of treatment	282.35	€242.35
	Total cost-sharing (total for three visits)		86%
	Balance of unused benefit		€0

Source: National Audit Office

Example 6: An adult with complaints who is identified to have a high need for treatment (root canal treatment for two teeth). Cost-sharing 15% and maximum amount of benefit per calendar year 85 euros.

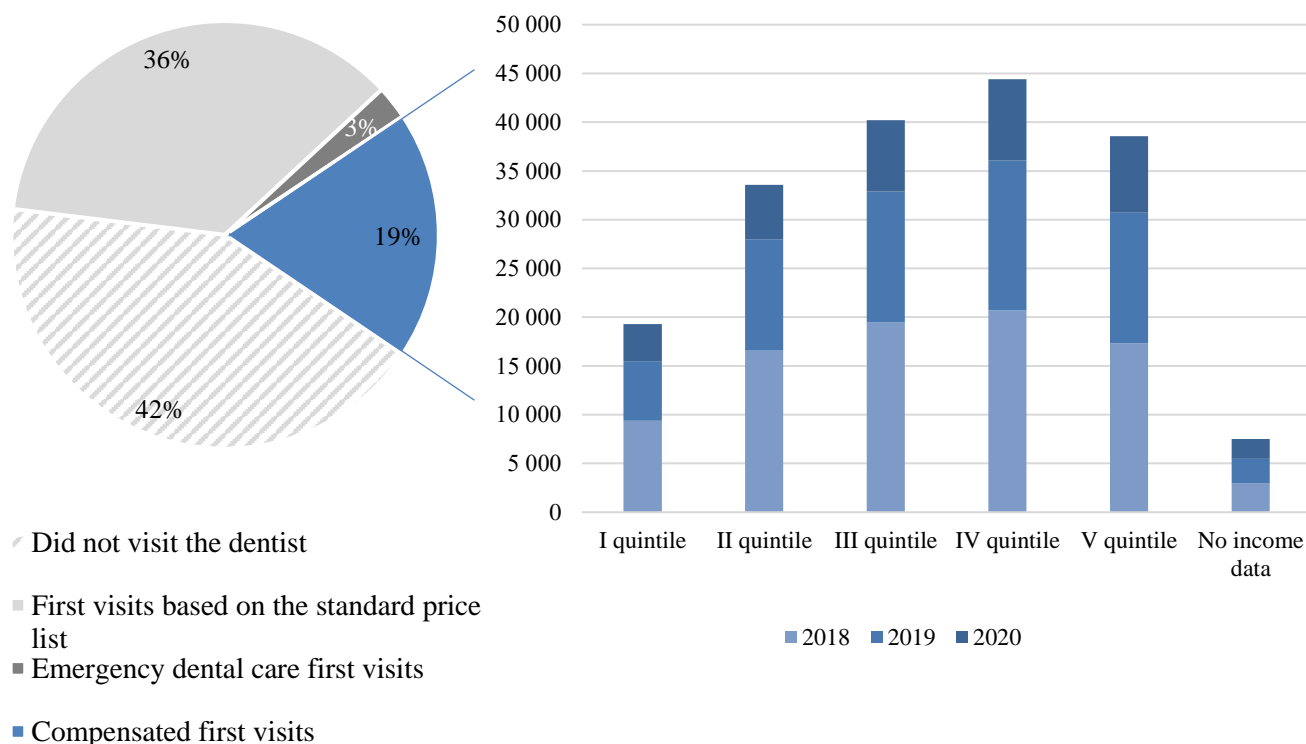
Code	Service	Cost, €	Cost-sharing
First visit			
52467	Base price of a visit (dental care)	12.14	€2.99
52414	Anaesthetic injection	10.88	€2.68
52405	Intraoral dental imaging (digital or on film)	13.47	€3.32
52429	Opening and cleaning one root canal (including establishing access and applying medicinal product)	49.58	€12.21
52430	Opening and cleaning each subsequent root canal (including applying medicinal product)	26.7	€6.57
	Total amount	112.77	€27.77
	Total cost-sharing		25%
	Balance of unused benefit		€0
Second visit (cost, provided that the service provider uses the Health Insurance Fund's price list)			
52467	Base price of a visit (dental care)	12.14	€12.14
52414	Anaesthetic injection	10.88	€10.88
52432	Filling one root canal	50.52	€50.52
52433	Filling each subsequent root canal	25.2	€25.2
52405	Intraoral dental imaging (digital or on film)	13.47	€13.47
	Total amount	112.21	€112.21
Third visit (cost, provided that the service provider uses the Health Insurance Fund's price list)			
52467	Base price of a visit (dental care)	12.14	€12.14
52413	Application anaesthesia	3.5	€3.5
52418	Filling for two surfaces	41.73	€41.73
	Total amount	57.37	€57.37
	Total cost of treatment	282.35	€197.35
	Total cost-sharing (total for three visits)		70%
	Balance of unused benefit		€0

Source: National Audit Office

Appendix D. Additional figures on the income data of benefit users

Appendix D provides additional figures on using the benefit and the income data of benefit users. Looking at the income data of people who went to a compensated first visit shows that the division of their income quintiles is similar to the division of income quintiles of all benefit users (see Figure 1). Thus, during the reference period, people in the fourth quintile have gone to their first visit due to the benefit the most and people earning the lowest income, i.e. in the first quintile, have gone to their first visit the least.

Figure 1. First dental visits of adult population during the period from 1 January 2016 to 31 October 2020 (left) and division of people who went to the first visit in 2018–2020 due to the benefit by income quintiles⁸³ (right)

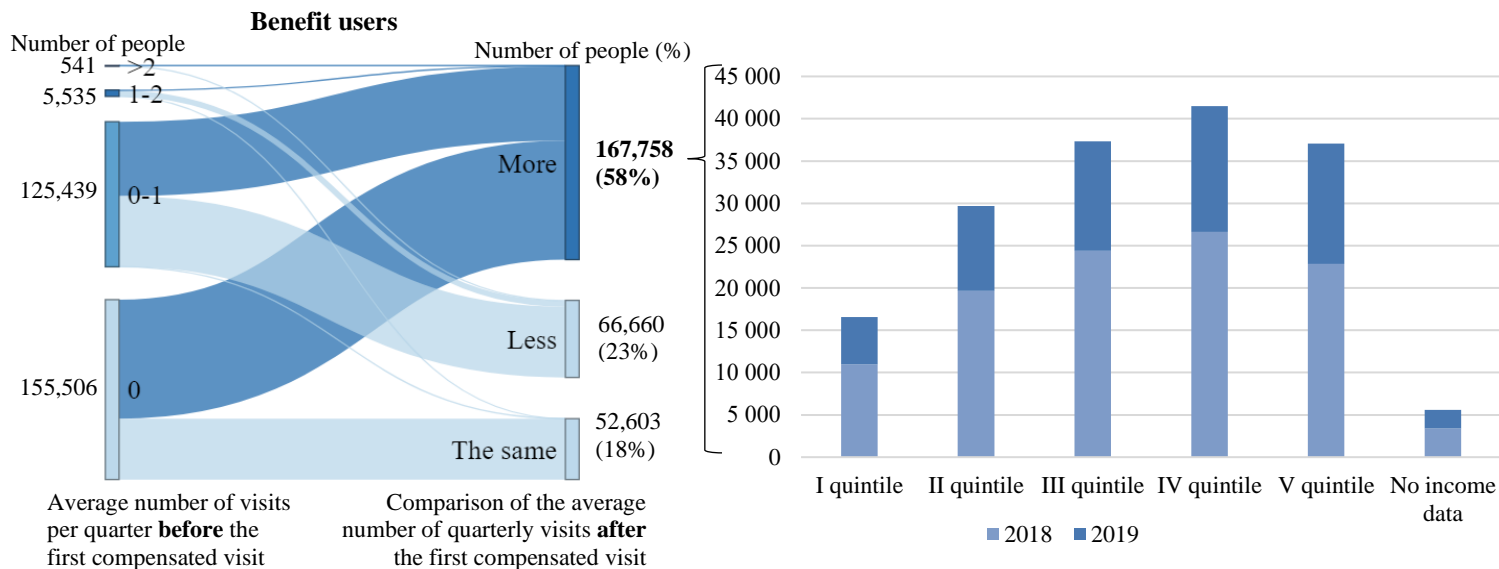


Sources: National Audit Office based on the data of the Estonian Health Insurance Fund, Health and Welfare Information Systems Centre, and the Tax and Customs Board

Looking at the division of income data of people who started seeing a dentist more frequently after the first compensated visit once again shows that people in the fourth quintile are the most prominent (see Figure 2). Similarly to the division of the general income data of benefit users, this group also has the fewest people with the lowest income.

⁸³ Limits of income quintiles in 2018 (total annual income): **I quintile** – up to €4,020.07; **II quintile** – up to €5,774.91; **III quintile** – up to €9,706.73; **IV quintile** – up to €16,524.78; **V quintile** – from €16,524.79. In 2019 and 2020: **I quintile** – up to €4,140.47; **II quintile** – up to €6,201.04; **III quintile** – up to €10,454.61; **IV quintile** – up to €17,863.6; **V quintile** – from €17,863.61.

Figure 2. Frequency of dental visits among benefit users (left) in 2016–2020 and the division of people who started seeing the dentist more often by income quintiles⁸⁴ (right)



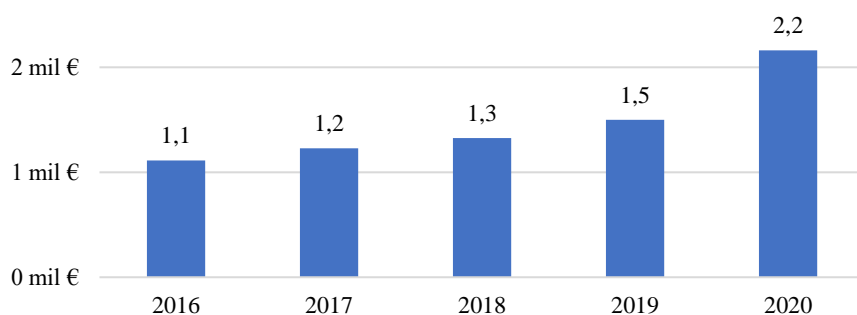
Source: National Audit Office based on the data of the Estonian Health Insurance Fund, Health and Welfare Information Systems Centre, and the Tax and Customs Board

⁸⁴ Limits of income quintiles in 2018 (total annual income): **I quintile** – up to €4,020.07; **II quintile** – up to €5,774.91; **III quintile** – up to €9,706.73; **IV quintile** – up to €16,524.78; **V quintile** – from €16,524.79. In 2019: **I quintile** – up to €4,140.47; **II quintile** – up to €6,201.04; **III quintile** – up to €10,454.61; **IV quintile** – up to €17,863.6; **V quintile** – from €17,863.61.

Appendix E. Effect of the benefit on emergency dental care

Emergency dental care is provided free of charge to all adults, regardless of health insurance, if the postponement of failure to provide care could lead to the death or permanent damage to the health of the person in need.⁸⁵ Thus, emergency dental care is extraordinary and people who take care of their oral health, i.e. receive at least essential dental care, presumably do not need it for the most part. Therefore, the National Audit Office presumed that the need of people who use the benefit for emergency dental care would start to decrease after the establishment of the benefit (see Figure 1).

Figure 1. The expenditure of the Health Insurance Fund on emergency dental care for adults in 2016–2020



Source: Estonian Health Insurance Fund annual accounts [2016](#), [2017](#), [2018](#), [2019](#) and [2020](#)

More information about data collection and processing and personal data protection is available under characteristics of the audit in the section ‘First visits’.

Data cleansing and sampling

The National Audit Office used comprehensive data to compare general statistics on emergency dental care and benefit during the period from 1 January 2016 to 31 October 2020 (see Figure 1). In comparing the proportion of recipients of emergency dental care who used the benefit and the proportion of recipients of emergency dental care who did not use the benefit (i.e. reference group) (see Figures 2 and 3), the National Audit Office excluded everyone who had died or whose date of birth was 1 January 1999 or later in the interests of comparability of data and reliability of conclusions to be drawn on the basis thereof. A total of 73,783 people received emergency dental care during the reference period, of whom 72,289 people were included in the comparison of the proportion of recipients of emergency dental care after cleansing the aforementioned data. These people were divided between benefit users and the reference group as follows: 50,565 people had used the benefit at least once and 21,724 had not.

In order to assess the impact of the benefit on the recipients of emergency dental care in more detail (see Figures 4–5), the National Audit Office formed smaller sample pools among both the benefit users as well as the reference group to look at receiving emergency dental care among both groups before and after the first compensated visit (before and after the first dental visit based on the standard price list in the reference group). Among benefit users, the audit covered those who used the benefit for the first time in 2018 (from 1 January 2018 to 31 December 2018) and in the reference group those who went to a dental visit based on the standard price list for the first time in the same period. In the case of the reference group, first dental visit based on the standard price list means the first dental visit based on the standard price list during the period covered in the audit, i.e. from 1 January 2016 to 31 October 2020, not the first dental visit based on the standard price list during the lifetime of these people.

⁸⁵ [Health Services Organisation Act](#), sections 5 and 6

The year 2018 was determined for the first compensated dental visit or the first dental visit based on the standard price list for the following reasons:

1. First, the availability of the benefit in the second half-year of 2017, i.e. the first half-year of the benefit, was still modest (the number of contractual partners of the Health Insurance Fund was low and the benefit was not available in all counties) and in 2018, the number of contractual partners increased significantly;
2. Second, as explained in section 'First visits' in Appendix A, the coverage of data of first dental visits based on the standard price list was low in the health information system in 2016 (concerning the reliability of determining the reference group's first dental visit based on the standard price list), but improved from 2017; and
3. Third, the year 2018 falls in the middle of the reference period, which allows for a sufficiently long period to observe emergency dental visits both before and after the first compensated dental visit or first dental visit based on the standard price list.

As the first possible compensated visit shifted to 1 January 2018 in the analysis, the analysis includes people with the date of birth on 31 December 1998 at the latest. This allowed analysing the data of only these people who were at least 19 years of age at the time of the first possible compensated visit, i.e. who were entitled to the benefit. For the sake of comparability, the minimum age in the reference group is exactly the same. Of the 50,565 people who received emergency dental care and used the benefit, 20,574 people used the benefit for the first time in 2018. Of the 21,724 people in the reference group, 1,215 people had their first visit based on the standard price list for the first time in 2018.

The analysis, which assesses the impact of the benefit on recipients of emergency dental care based on smaller sample pools, sets the end of the period at 29 February 2020, i.e. the end of the last month before the emergency situation declared in March 2020. This is because planned dental care was suspended⁸⁶ by the order of the Health Board during the emergency situation but, according to the Health Insurance Fund, services provided as part of emergency dental care were expanded accordingly⁸⁷. Although the basic condition for emergency dental care remained the same (postponement or failure to provide treatment may cause the death or permanent damage to the health of the person in need), the Health Insurance Fund specified the disease conditions under which emergency dental care was provided during the emergency situation.⁸⁸ As such, the use of the benefit decreased and the number of emergency dental visits increased significantly during the emergency situation, and including this period would have distorted the results of the analysis. Excluding the months of the emergency situation alone would also have been unjustified because at the end of the entire reference period, i.e. in the autumn of 2020, the number of recipients of emergency dental care once again started to increase compared to the previous years. This is probably not due to an increase in the need for emergency dental care but rather due to a change in habits caused by the emergency situation and the second wave of the coronavirus epidemic that began to intensify in the autumn.

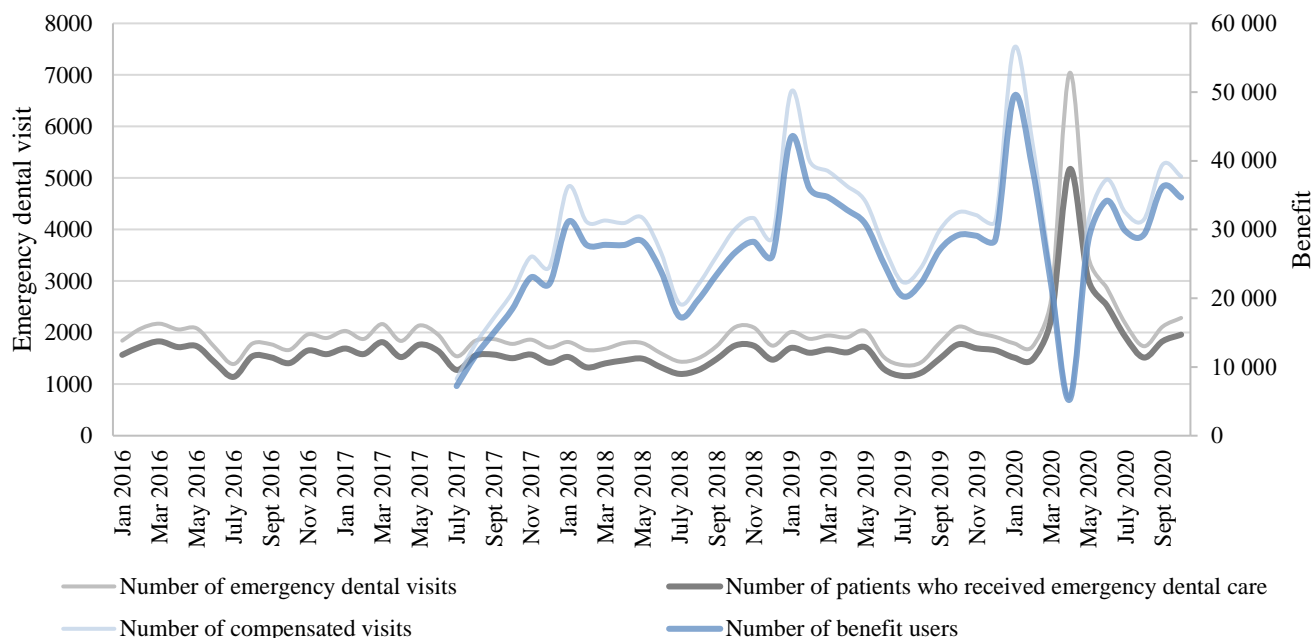
⁸⁶ [„Eratervishoid ja hambaravikliinikud jätkavad ainult vältimatu abi pakkumist“ \(Private health care and dental clinics will continue providing only emergency care\)](#), Health Board, 26 March 2020

⁸⁷ „Vähemalt 19-aastaste kindlustatud isikute hambaravi teenuse ravi rahastamise lepingu lisa 3 kinnitamine ja volituse andmine“ (Approval of appendix 3 to the contract for financing the treatment of dental care service for insured people aged 19 and over and giving an authorisation), Estonian Health Insurance Fund Management Board decision no. 142 of 8 April 2020.

⁸⁸ [„Vältimatu hambaravi on inimestele jätkuvalt tagatud“ \(Emergency dental care is still available\)](#), Estonian Health Insurance Fund, 30 March 2020

Results

Figure 2. Comparison of general statistics of emergency dental care and use of the benefit during the period from 1 January 2016 to 31 October 2020

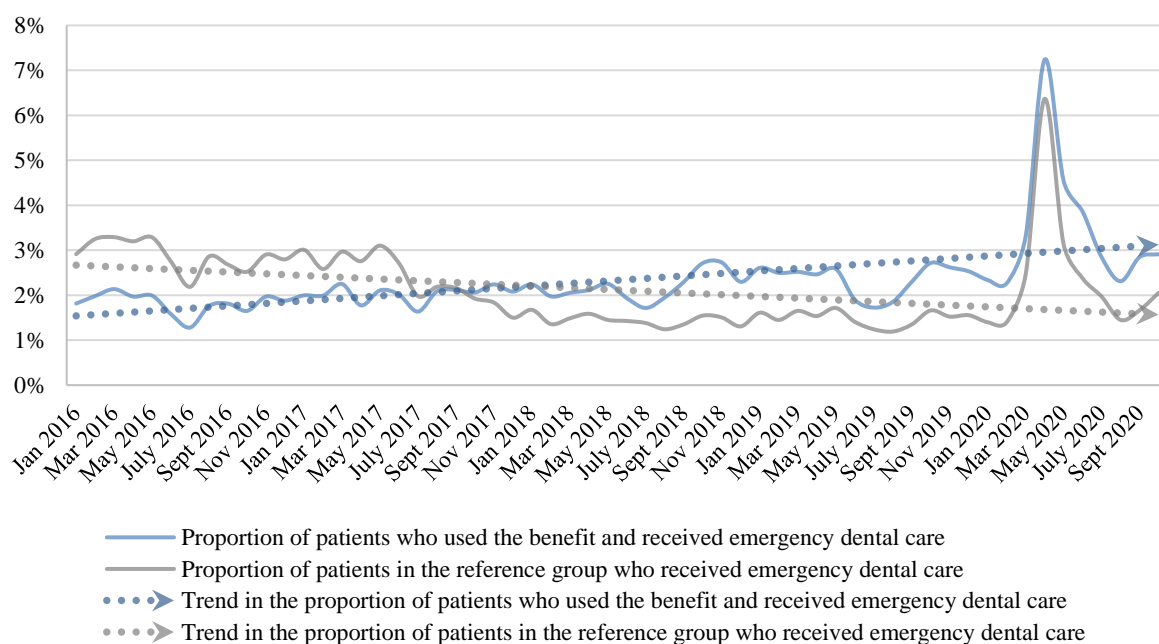


Source: National Audit Office based on the data of the Estonian Health Insurance Fund

Comparing the general statistics of emergency dental care and the use of the benefit, it can be observed that during the reference period, the introduction of the benefit (from 1 July 2017) did not bring about a visible or permanent change in the number of recipients of emergency dental care or in the number of their visits (see Figure 2). In the short-term, however, the year 2018 when the average number of recipients of emergency dental care per month decreased by 7.5%, i.e. to 1,456, stands out. In 2016 and 2017, the same indicator was 1,570 and 1,577 people, respectively, and in 2019 at the same level again, i.e. 1,550. The year 2020 when the number of recipients of emergency dental care increased sharply differs significantly from the other years, but as explained in subsection ‘Data cleansing and sampling’, this was caused by the emergency situation.

In the following, we will consider only those recipients of emergency dental care who were alive for the entirety of the reference period (1 January 2016 – 31 October 2020) and at least 19 years of age on 1 January 2018 (in total, 72,289 people) and we divided them into two groups based on whether they used the benefit (50,565 people) or did not use the benefit (21,724 people). As the two groups are of different sizes, recipients of emergency dental care in both groups should be compared as proportions. A comparison of the two groups shows that up until the introduction of the benefit, the proportion of recipients of emergency dental care was somewhat higher in the reference group than in the group of benefit users (see Figure 3). However, since October 2017, the situation is reversed – the proportion of recipients of emergency dental care is higher among benefit users than among those who did not use the benefit. The trends of the proportion of recipients of emergency dental care indicate, however, that the proportion of recipients of emergency dental care is growing among benefit users and decreasing in the reference group.

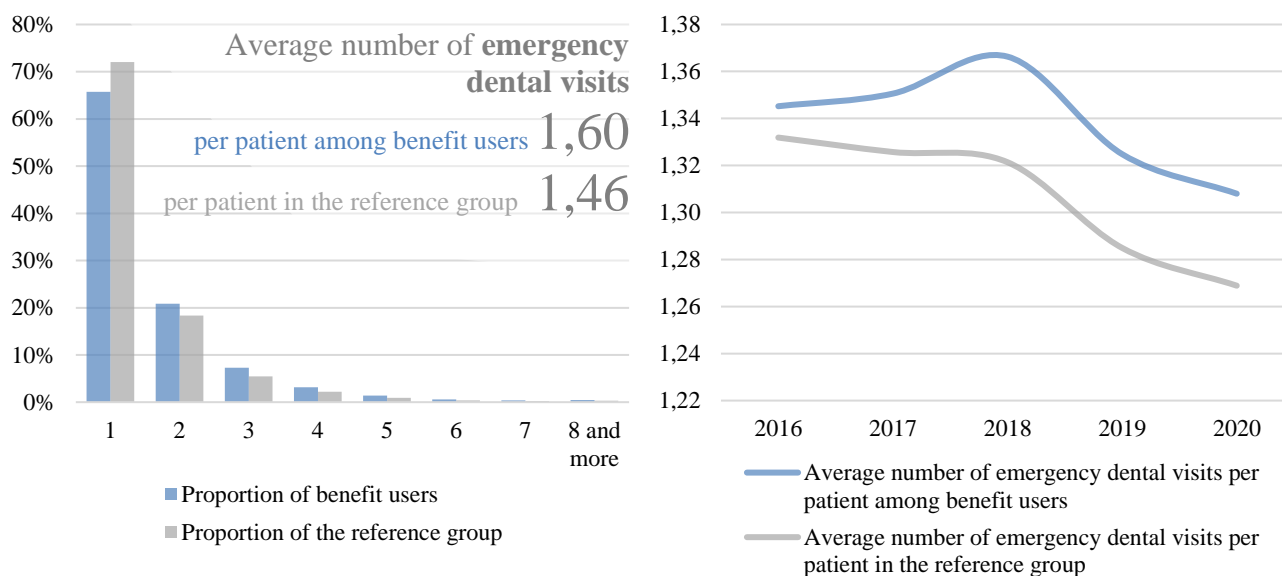
Figure 3. Recipients of emergency dental care among people who used the benefit and people who did not use the benefit (i.e. reference group) during the period from 1 January 2016 to 31 October 2020 (as proportions)



Source: National Audit Office based on the data of the Estonian Health Insurance Fund

Comparing the division of the number of emergency dental visits per patient in both groups (see Figure 4), it can be observed that there are more of those who received emergency dental care once during the reference period in the reference group (72.1%) than among benefit users (65.8%). This also means that the proportion of patients who received emergency dental care twice or more is higher among benefit users. Therefore, the average number of emergency dental visits per patient is higher among benefit users (1.6 visits per patient) than in the reference group (1.46 visits per patient). The average number of emergency dental visits per patient among benefit users is also higher throughout the years (see Figure 4).

Figure 4. Number of emergency dental visits of people who used the benefit and people who did not use the benefit (i.e. reference group) (left)⁸⁹ and average number of visits per patients (right) during the period from 1 January 2016 to 31 October 2020



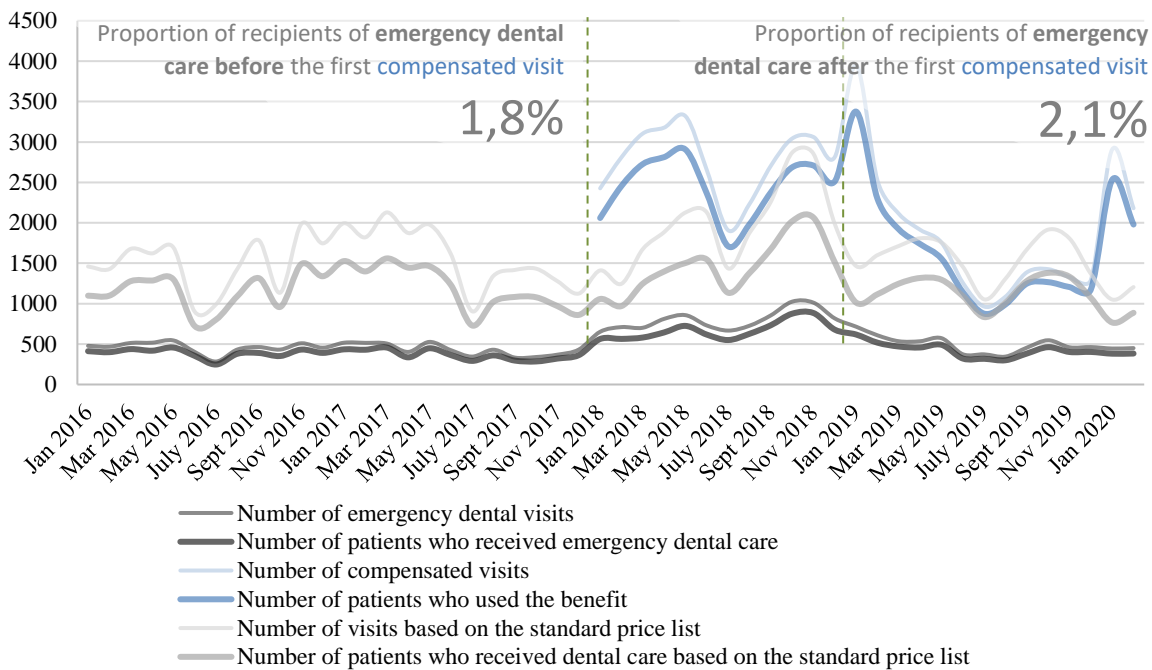
Source: National Audit Office based on the data of the Estonian Health Insurance Fund

In the following, we look at benefit users who used the benefit for the first time during a dental visit in 2018 (1,215 people) to assess in more detail the receipt of emergency dental care before and after the first compensated visit in both groups and before and after the first dental visit based on the standard price list in the reference group.

The comparisons show (see Figures 5 and 6) that before the first compensated visit and before the first dental visit based on the standard price list in the reference group (i.e. during the period from 1 January 2016 to 31 December 2017), the proportion of recipients of emergency dental care was similar in both groups (respectively, 1.8% of benefit users and 1.6% of the reference group). However, while the proportion of recipients of emergency dental care increased to 2.1% in the group of benefit users during the later period (from 1 January 2019 to 29 February 2020), it decreased to 1.4% in the reference group.

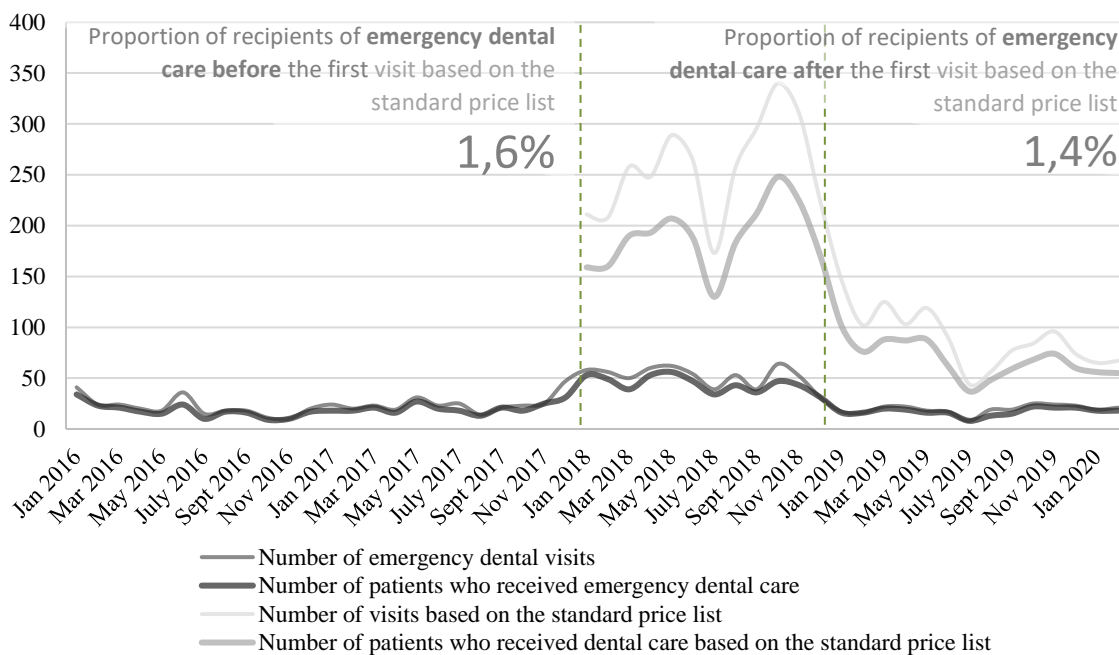
⁸⁹ For the sake of clarity of the figure, the proportions of people who received emergency dental care eight or more times are presented together. The maximum number of emergency dental visits per patient is 24 among benefit users and 28 in the reference group.

Figure 5. Emergency dental visits and dental visits based on the standard price list of people who used the benefit for the first time in 2018 during the period from 1 January 2016 to 29 February 2020



Source: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

Figure 6. People who received emergency dental care during the period from 1 January 2016 to 29 February 2020 who did not use the benefit and went to a visit based on the standard price list in 2018



Source: National Audit Office based on the data of the Health Insurance Fund and the Health and Welfare Information Systems Centre

Findings and conclusions

The provision of the benefit has not led to a visible or permanent reduction in the need for emergency dental care in 2016–2020.

There are more recipients of emergency dental care among benefit users than among people who did not use the benefit. At the same time, the proportion of emergency dental care has increased among benefit users and decreased among people who did not use the benefit. The average number of emergency dental visits per patients is higher among benefit users than among people who did not use the benefit.

A more detailed analysis of recipients of emergency dental care showed that after the first compensated visit, the proportion of emergency dental care increased among benefit users. At the same time, it fell among people who did not use the benefit.

Thus, the presumption that the need for emergency dental care of people who use the benefit would start to decrease after the introduction of the benefit was not confirmed. On the contrary, the results of the analyses showed that people who used the benefit received more emergency dental care than before the implementation of the benefit than people who did not use the benefit.