Emergency medicine

Does the department of emergency medicine treat primarily patients whose health condition requires emergency care?

Report of the National Audit Office of Estonia to
Riigikogu Tallinn 23 October 2018

Dear readers,

We all have been in a situation where we or our loved ones suddenly need urgent medical help. When this happens, we want to be assisted quickly and in a competent way. If we want the emergency department to be able to help us quickly, it is important that only patients for whom the department was created, that is people who need urgent help, would go there for help.

In practice, every year almost every fourth person living in Estonia, or about 300,000 people, visit the emergency department. In many cases, patients attend the ED with minor health problems, in case of which they could receive help from their family physician instead.

Why do people turn to the emergency department if their health problem does not need emergency care?

First of all, emergency medical care is always available unlike primary medical care – everyone can visit the ED around the clock and be seen by a physician. At the ED, the patient undergoes necessary examinations and test, the results of which together with further treatment guidelines can be obtained during the same visit.

The survey conducted during the audit revealed that 40% of visits to ED with minor concerns were due to the fact that they reported not to have been able to get a family physician's appointment at the right time. In Estonia, only 9% of all family physicians provide out-of-hours appointments. For example, in Tartu and Pärnu there are no family physicians who would see patients outside working hours covered by the EHIF funding.

Thus, in many regions, the department of emergency medicine is the only option in the evenings and during weekends to receive medical help even for minor, but urgent, health problems.

The second reason is uneven quality of primary medical care. In Estonia, 43% of family physician practices have been rated at higher quality level, while the rest of the practices are at the lowest quality level. However, about one third of all practices have not been evaluated, that is, there is no overview of their capacity to assist the patient. The level of family physician practice is related to visits made to the emergency department – a patient seeks help from elsewhere if he or she does not receive the necessary medical service at the family physician or is not satisfied with it.

The third reason is continuously long waiting lists in specialised medical care. For example, in outpatient care in nearly a third of the specialties the waiting lists exceed the allowed waiting time. International comparison also indicates the problem, showing that Estonian people’s unmet health care needs due to long treatment waiting lists are Europe's largest. If people are not able to see a physician within prescribed time,

their health condition may deteriorate and they will turn to the places where they can get assistance more quickly - in many cases, to the emergency department.

The treatment of a patient in the emergency department is the most expensive way to treat the patient in the current healthcare system. In other words, the department of emergency medicine has become a place where the bottlenecks of other healthcare levels are resolved, but for higher cost.

Solutions for the emergency department to be able to act primarily as a provider of emergency care can be found at other levels of healthcare and they are not just about adding extra resources. It is necessary to reduce the waiting times of medical specialists, using more the option of e-counselling and implementing a joint digital registration; the quality of primary health care should be improved by involving mentors who would help the lower level practices to catch up with others; creating new health centres provides an opportunity to extend their opening hours based on the demand, both in the evening and on weekends.

Raising patients' awareness and guiding their behaviour should also be considered. One option would be advising patients with minor health problems via phone before visiting ED to direct them to the most appropriate ED, ask them to contact their family physician or provide guidance on how to resolve a health problem at home.

The first prerequisite for the implementation of these solutions is that the Ministry of Social Affairs, together with the Estonian Health Insurance Fund, take a stronger leading role in managing the development of the healthcare system.

Janar Holm
Auditor General

In October, 2018

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Summary of Audit Results

What did we audit?

National Audit Office assessed whether

- the patients attending the ED need emergency care;
- the patients received necessary and timely treatment prior to visiting ED;
- the patients received timely and necessary follow-up treatment after their visit to the ED.

Why is this important for taxpayers?

Health care resources must be used efficiently and economically to ensure best possible access to services with the given health insurance funding. This implies that patients are treated at the right health care level. Treating patients who do not need emergency care at ED leads to additional costs and longer service times. In Estonia, the departments of emergency medicine had approximately 462,000 visits in 2017, an increase of 13% compared to 2010.

In 2017, the cost of specialised medical care was €629 million, including the cost of ED treatment (approximately €153 million). €114 million were spent on primary health care in the same year.

What did we find and conclude from the audit?

According to the National Audit Office, the health care system does not guarantee that ED primarily treats patients in need of emergency care. A large part of the patients that visit ED could be assisted by a family physician. Thereby, ED waiting times could be reduced and money saved.

However, this is difficult to achieve due to uneven level of primary health care, specialised medical care waiting lists, inadequate information technology solutions and patients' varying attitudes and awareness.

- **Most patients who attend ED are not in need of emergency care.** In 2017, 57% of ED patients were assigned green or blue triage category, which does not indicate a need for emergency care. Expert analysis carried out by the Estonian Society of Emergency Physicians showed that 66% of ED patients with back pain, hypertension, and lower respiratory tract infections did not need emergency care. At the same time, a survey carried out at 8 hospitals revealed that 49% of patients with yellow, green and blue triage category could have received help from a family physician instead of attending ED. A large number of visits leads to ED overload resulting in a situation

where some patients do not get to see a doctor quickly enough and the service time increases.

- **Emergency treatment is expensive.** It is more expensive to treat patients at ED than by a family physician. ED outpatient treatment invoice is on average about 4 times higher than the average cost of a family physician's appointment. Medical specialists' consultations and further tests and procedures at ED make it more expensive.

- **People with no health insurance come to ED with a worsened health condition that results in a more expensive treatment.** The state has ensured emergency care for uninsured individuals. As their access to other medical care is limited, people with no health insurance often attend ED only when their health problem has worsened. Therefore, treatment of uninsured people is more expensive. According to the Health Insurance Fund, in 2017, the average ED outpatient treatment invoice and the average cost of the inpatient treatment for hospitalised ED patients were respectively 27% and 33% higher for people without health insurance compared to insured patients.

- **The Health Board and the Health Insurance Fund do not have a comprehensive overview of the availability of primary health care.** The methodology they use does not allow to evaluate whether people are able to visit a family physician within the required time frame and according to their needs. 40% of visits to ED with minor concerns were due to the fact that they reported not to have been able to get a family physician's appointment at the right time. Additionally, less than 10% of family physicians offered appointments before 8:00 in the morning and after 18:00 in the evening on working days or on weekends. Currently, the health care system is organised so that generally it is not possible for a patient to access a health care provider outside working hours and they have to turn to ED to solve their health problems.

- **Uneven quality of primary health care increases ED workload.** Quality assessment of family physician practices in 2017 showed that 43% of practices comply with the highest level (A- and B-levels). Since 2009, 1/3 of practices have never been evaluated, so there is no information about their quality level. Varying quality also affects ED visits: in the course of the audit, the results of expert analysis carried out by the Estonian Society of Emergency Physicians showed that in about one fifth of treatment cases for ED patients, the past course of action by their family physician for treating back pain, hypertension or lower respiratory tract infections had been inadequate. One of the reasons for varying quality level is the differing preparedness of family physician practices to cope with the increasing workload. On the other hand, the funding system may also have a role here, because primary healthcare is funded on a basis of capitation fee and a family physician's income does not depend on whether and how quickly he or she sees patients with acute health problems.

- **Unmet need for treatment in specialised medical care leads to waiting lists.** Specialised medical care funding does not meet the needs of the people of Estonia – in 2018, there are about 245,000 unfunded treatment cases which would cost €52 million. For patients,

unmet need for treatment means waiting lists. 9 out of 33 specialised medical care outpatient treatment waiting lists exceeded the allowed waiting period in 2017. International comparison shows that Estonian people's unmet health care needs due to long treatment waiting lists are Europe's largest. Long waiting times in specialised medical care can lead to an increase in ED visits.

- **ED visits are related to patients' awareness and attitude towards the health care system.** Some patients do not turn to a family physician when they have a health problem. This is often due to the patients' attitudes, past experiences or ignorance. Even after an ED visit, some patients will not visit a family physician for further treatment or follow their prescribed treatment plan. Expert analysis carried out by the Estonian Society of Emergency Physicians showed that 49% of patients with back pain, hypertension, and lower respiratory tract infections had poor health-related behaviour prior to coming to ED. Health-related behaviour following an ED visit was poor in 34% of treatment cases. Patients should be instructed better and it should be explained to them whom to contact in case of a certain health problem. Patient should receive the same message from all levels of the health care system.

- **Inadequate information systems hinder collaboration of family physicians and ED in treating patients.** Family physician does not know whether and when patients on his or her practice list visited ED and what kind of a diagnosis they received. After the visit, patient's medical history from ED is usually uploaded to the Health Information System but the family physician is not notified about it. Family physician only learns about the ED visit if the patient informs him or her. In the absence of necessary information, family physician will not be able to intervene at the right time after an ED visit and determine the next treatment necessary for the patient. Similarly, a physician in ED does not always have an overview of previous tests, procedures and treatment regimens prescribed to the patient, because the Health Information System receives information with a delay. However, the aforementioned information would be necessary for diagnosis and treatment alike.

What do we recommend based on our audit?

Main recommendations of the National Audit Office:

- Create an incentive through the funding system for family physicians to ensure that patients in their practice list visit the family physician before anyone else in case of minor health problems. Introduce a mentoring system to help family physicians who are rated at a lower quality level;

- find a solution that allows uninsured people to receive disease prevention and primary care services, thereby preventing their health condition from getting so serious that they need emergency care, which leads to higher medical expenses;

- consider advising patients via phone before visiting ED to direct them to the most appropriate ED based on their location and current waiting times, ask them to contact their family physician or provide guidance on how to resolve a health problem at home. This solution could be connected to the existing family physician advisory line

1220. The ambulance service would continue to remain separate from phone counselling.

- Create an IT solution that allows family physicians to receive daily information about the patients on his or her practice list who have visited ED or called an ambulance during the previous day.

Responses of the auditees: The Minister of Health and Labour agreed that there is a need to develop information technology solutions. The minister pointed out that raising the awareness of patients is very important and the health centres to be established will also help solve some of the problems.

According to the Chairman of the Board of the Estonian Health Insurance Fund the recommendations made in the audit are valuable, and specified that the implementation of a mentorship system for family physicians is planned for 2020. The Chairman of the Board also promised to review the scope of insurance and the rules of coverage in cooperation with the Ministry of Social Affairs.

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The majority of visitors in the department of emergency medicine do not need emergency care

Emergency care – healthcare service provided by a health care professional in a situation where deferrals or failure to provide assistance may result in death or permanent health damage to the patient.

Any person on the Estonian territory is entitled to emergency care.

Source: Health Services Organisation Act, Section 5(6)

Department of emergency medicine (ED) – hospital department with relevant equipment and furnishing that complies with hospital requirements and provides all medical services for emergency medical care. EDs are involved in the prevention of death or incapacity to work for early diagnosis and treatment in emergency health conditions.

Source: Website of the National Institute for Health Development and Emergency Medicine Development Plan for 2020

Some of the patients who come to the department of emergency medicine could also get help from a family physician

1. Residents of Estonia have the right to the protection of health according to Section 28 of the Constitution of the Republic of Estonia. This right includes the principle that a person must be offered health care in accordance with his or her condition.[1]

2. Emergency care is generally provided by the ambulance and the department of emergency medicine (ED)[2,3,4] in the hospital. Emergency Medicine Development Plan for 2020 specifies that ED target group is a patient with acute illness, trauma or poisoning that needs emergency assistance. Also, one of the objectives of the Development Plan is to reduce unjustified visits to the ED. See Appendix A for an overviewof emergency care in Estonia.

3. Based on the above, the National Audit Office assumed that ED mainly treats patients in need of emergency care.

4. In order to identify the actual situation, three major assessments were carried out during the audit:

- survey in the EDs of eight hospitals;
- expert analysis in cooperation with the Estonian Society of Emergency Physicians (ESEP) and
- statistical analysis of requested data from ED in hospitals (also referred to as HNDP hospitals, see page 11 on the left-hand side for details)[5]

5. The survey and expert analysis do not include ED visits by trauma patients and children.

Number of visits to the department of emergency medicine

6. The total number of cases has increased by 13% between 2010 and 2017. In 2010, there were 410,000 visits, in 2017 – 462,000 visits. Number of visits have stabilised in recent years.

7. There are significant differences in ED visits by hospitals (see Figure 1). So-called large hospitals clearly stand out, with ED covering the majority of Estonian people's need for respective services. For example,

[1]Constitution of the Republic of Estonia Executive edition. Fourth revised and updated edition. Tartu University, 2017, page 391.

[2] Requirements for availability of health care services and for maintaining the waiting list, Section 4.

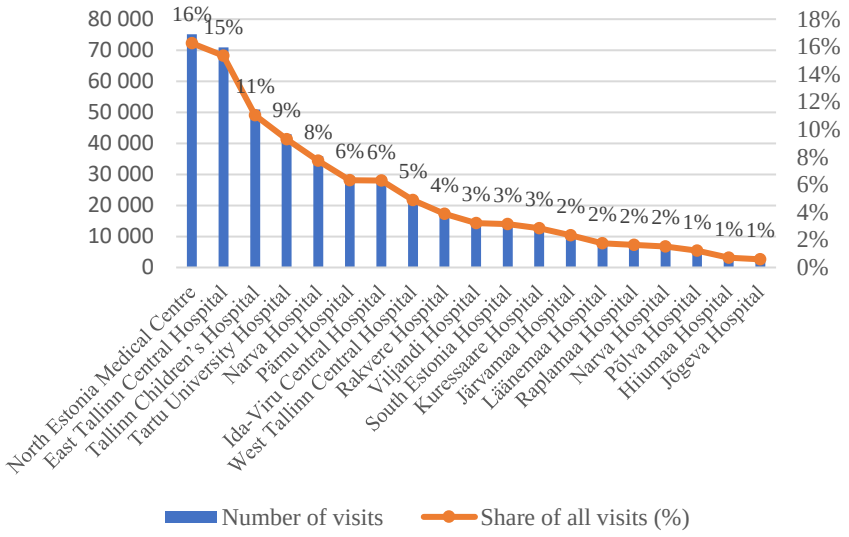
[3] Audit focuses on the help provided to the patient in the department of emergency medicine. Audit does not include ambulance. Also, audit does not include emergency care for children.

[4]In addition to ED, a medical specialist without referral or a family physician may also offer emergency care.

[5]See other analyses used in the audit and their more detailed methodology in the Audit characteristics.

the North Estonia Medical Centre and the East Tallinn Central Hospital cover approximately one third of all ED visits.

Figure 1. Visits to the ED in 2017 by HNDP hospitals[6]



Source: Statistics of HNDP hospitals

Number of visits to the department of emergency medicine by triage category

Triage category - Category prescribed to a patient during triage, which indicates the speed with which the patient is handled and determines the maximum time of the appointment. Triage is the distribution of patients into categories based on how fast the patient needs medical assistance, his or her condition and the potential threat to his or her life and health.

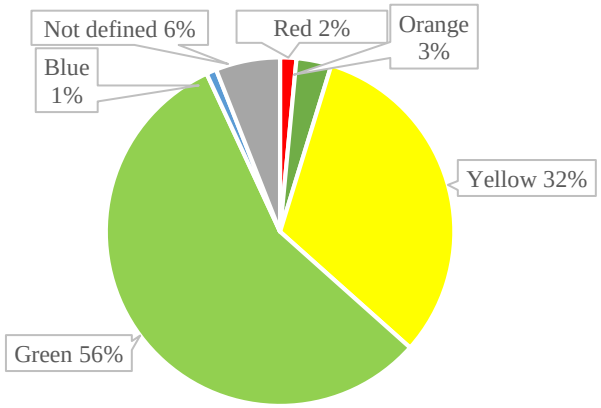
EDs generally use a four-stage triage system, where patients are divided into "red", "orange", "yellow" and "green". Some hospitals also use "blue" triage category.

Patients of red and orange category needs immediate assistance. The condition of the yellow category patient needs emergency care but it is stable. Patients of green or blue category do not normally need emergency care. See Appendix A for more detail.

8. The need for emergency care in ED is determined after defining the triage category. As the overview of the distribution of ED patients by triage category exists only for regional hospitals, the National Audit Office asked all HNDP hospitals to create such a classification.

9. Results showed that 57% of the patients who visited the ED did not need emergency care. It was a group of blue or green triage category patients who generally should receive help from a different health care level (see Figure 2).

Figure 2 Proportion of ED visits by triage categories in 2017[7,8]



Source: Statistics of HNDP hospitals

For your information

distributing all patients in the blue and green triage category among all family physicians would result in 1–2 additional appointments per day for each family physician.

[6]Here and thereafter, the data on the admission of pregnant, nursing women and patients with female health issues in East Tallinn Central Hospital and the data of the Women's Clinic of West Tallinn Central Hospital have been excluded from the statistics.

[7]Undefined patients are mainly patients with ocular diseases. For example, a triage is not used in the Eye Clinic of East Tallinn Central Hospital.

[8] Data usually contains the latest triage category even if triage category was reassigned.

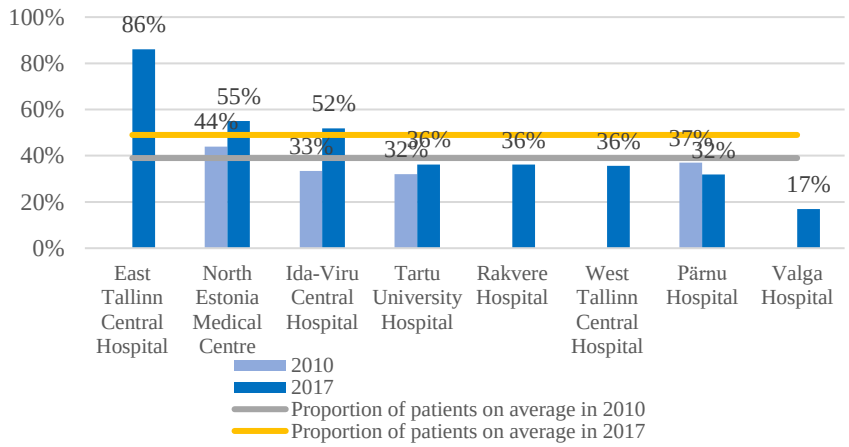
10. The National Audit Office conducted a survey[9] in collaboration with eight HNDP hospitals to find out if the condition of the patients in the green, blue and yellow triage category who visit the ED was such where they could have received help from a family physician.

Primary level – outpatient care, which addresses the most common health problems and where the services are provided by a family physician with a family nurse and other supporting specialists.

11. As a result, 49% of the patients' health problems could have been addressed on the primary level. Proportion has increased compared to results from 2010, when the National Audit Office organised a similar survey[10]: in 2010 of the patients could have received help on the primary health care level (see Figure 3).

Source: Ministry of Social Affairs website

Figure 3. Share of patients in all the surveys who could have received help from a family physician[11]



Source: Survey of the National Audit Office

12. At the same time, 57% of the patients (who answered the survey) who could have received help on the primary level visited the ED on the working day between 8:00 and 18:00.[12] Therefore, it was most often used at a time when family medicine centres were open, and the patient could have contacted a family physician. See ED visiting times in Figure 8 of Annex A.

Need for urgent care in the department of emergency medicine

Hypertension – high blood pressure

Infection of lower respiratory tract – pneumonia and bronchitis

13. The National Audit Office also conducted expert analysis with ESEP during the audit. This included an analysis of medical histories of patients who visited the ED with three diseases in the first half of 2016 – back pain, hypertension and lower respiratory tract infections. The purpose of the expert analysis was to find out whether patients visited the ED with the need for emergency care. See the audit characteristics for a more precise description of the method of expert analysis.

[9] See the survey methodology from the audit characteristics and the form in Appendix B.

[10] It is important to keep in mind that in 2010 and 2017 a different number of hospitals were included in the survey. If we were to compare four hospitals that were surveyed in both years, the survey of 2017 revealed 44% of patients who could have received medical assistance for their condition in primary care.

[11] See the methodology in more detail in the Appendix "Audit Characteristics".

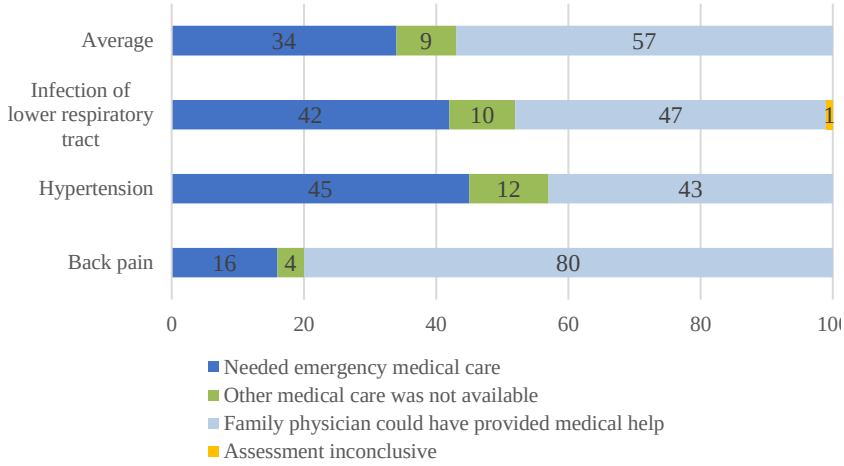
[12] However, it must be noted that although the family medicine centre is open for 8 hours on weekdays, a family physician receives patients as per contract for at least 4 hours a day. Outside the family physician's reception hours, patients should have an opportunity to see another health care professional (for example, family nurse).

Unavailability of other medical care is, for example, a situation in which a family physician cannot provide a service because he or she has no appointments available or he or she is not available for any reason.

14. Results showed that, on average, 34% of the patients visited ED with the need for emergency care. The rest of the patients did not need emergency care: 9% visited due to the unavailability of other medical care and 57% had a health problem treatable by the family physician.

15. For example, pain management of the majority of patients with back pain could have been started by a family physician who would then have been able to refer the patient to further procedures if necessary. Hypertension as a chronic disease requires consistent treatment, assessment of the patient's health status and, if necessary, adjustment of treatment – all this can be done by their family physician (see Figure 4).

Figure 4. Share of the necessity for emergency medical care of patients who visited the ED



Source: National Audit Office based on data of the ESEP expert analysis

Service times of the department of emergency medicine

For your information

For your information HNDP hospitals are divided into regional, central, general, and local hospitals.

Highest rank hospitals or regional hospitals are **Tallinn** Children's Hospital, Tartu University Hospital and North Estonia Medical Centre.

Next level or central hospitals are East Tallinn Central Hospital, West Tallinn Central Hospital, Pärnu Hospital and Ida-Viru Central Hospital.

General hospitals are Rakvere Hospital, Valga Hospital, Narva Hospital, Järvamaa Hospital, Viljandi Hospital, Läänemaa Hospital, Hiiumaa Hospital, Kuressaare Hospital, Põlva Hospital, South Estonia Hospital, Raplamaa Hospital.

Local hospital is Jõgeva Hospital.

In April 2018, Haapsalu Neurological Rehabilitation Center was added to the list of HVDP hospitals but its data were not included in the audit.

16. If we generalise the results of all visits with those health problems to the ED in 2016, it would appear that about 6,420 back pain, 4,306 hypertension, and 4,290 lower respiratory tract infection cases could have been assessed by a family physician instead of ED. This would have ensured cost savings (see below, "Treating patients in emergency care increases costs").

17. Due to the large number of ED patients who do not require emergency care, higher-rank EDs in hospitals are overloaded and cannot attend patients within the given time.

18. The Health Insurance Fund (EHIF) analysed the situation and found that in about 20% of the cases, triage was not completed in time and in 10% of cases, patients were not able to get to the doctor's appointment within the prescribed triage time (see the time prescribed for triage category in Appendix A). Of those who did not see the doctor in a specified period of time, 56% were yellow, 18.5% orange and 6.2% red category patients.[13] The delay in medical intervention may result in a worsening of the patient's condition and the likelihood of complications.

19. HNDP hospitals do not collect data about ED service time on a unified basis, but data from larger hospitals indicate lengthening of this period. For example, an analysis carried out by the ED of Tartu

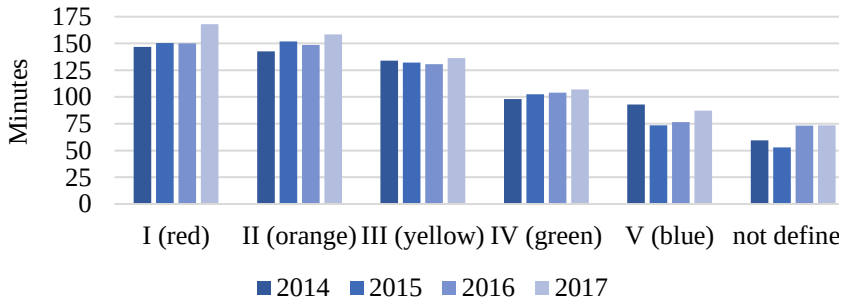
[13] Analysis of the Health Insurance Fund "Implementation of ED services and correctness of coding in the first half of 2016". Total of 780 cases in 9 institutions were analysed regarding the time from defining the triage category to meeting the doctor.

University Hospital showed that a patient hospitalised from ED was in the ED 22 minutes longer in 2017 than in 2010. An increase in ED visits and a longer stay in ED for those in need of hospital treatment is associated with poorer treatment outcomes for patients.[14]

20. Data from the East Tallinn Central Hospital also shows that patient's time spent in ED has prolonged. Longest service time for patients in the red and orange triage category (21 and 16 minutes, respectively) has increased the most in 2014–2017. However, the time of receiving emergency care is the most critical for them. Service time increased by 9 minutes (see Figure 5) for patients with a green triage category (53% of patients in 2017). Average service time increased by 6 minutes in the North Estonia Medical Centre. In these hospitals the causes of the service time lengthening has been identified as ED overload, shortage of staff as well as more severe health conditions of patients.

Service time – time from the beginning of triage until the final diagnosis

Figure 5. Average time spent in the ED by triage category in the East Tallinn Central Hospital (in minutes) in 2014–2017



Source: East Tallinn Central Hospital

For your information

According to the Estonian Family Physicians Association, the requirement for mandatory family physician referral would reduce ED visits in case of minor health problems, that is, the patient could visit ED if a family physician has given him or her a referral in advance.

Another way to reach ED is to call an ambulance.

21. The situation of patients with minor health problems would be mitigated by the implementation of an independent nurse's appointment in the ED, which will not be followed by a physician's appointment. According to the current triage guide, the patient needs to be examined by a doctor, which is why its use is not widespread.[15] This would reduce waiting times, as many patients with a green and blue triage category could see a nurse instead of a doctor. It would also encourage more efficient use of resources (including funding and physician's working time).

22. Another solution could be patient counselling. For example, before visiting the ED, the patient should call a particular central phone number and, based on the description of his or her health problem, the patient would be referred to a family physician, given guidance on how to resolve the health problem at home or referred to the most suitable ED based on his or her location and current waiting times. This would not include calling an ambulance, which would be a stand-alone service. However, it would be possible to associate the general number if ED with

[14] Kuido Nõmm. Crowding, overcrowding ja boarding EMOs. Kliinikumi Leht, 12.2017.

[15] Appendix 26 to the Minister of Social Affairs Regulation no. 9 "Guidelines for triage operation in Estonian departments of emergency medicine" of 19 January 2007.

Family physician advisory line – A 24-hour line (1220) to which a patient can call if he or she has a health-related question.

the existing family physician advisory line (see Appendix C). Such a solution would reduce visits that are due to poor awareness of patients.[16]

23. In the opinion of the National Audit Office, based on the results of the analyses carried out during the audit, it is not currently guaranteed that the ED is predominantly visited by patients in need of emergency care. This increases ED workload and increases service time. A longer wait may lead to the deterioration of the patient's health condition and poorer treatment outcome.

24. Based on the above, the National Audit Office examined why many patients without the need for emergency medical care visit the ED. Reasons are shown in chapters "Workload of the department of emergency medicine depends on the functioning of primary health care" and "Provision of specialised medical care does not meet all the needs".

Visits to the department of emergency medicine are financed at the expense of planned specialised medical care

Planned treatment – medical care provided according to the waiting list.

25. From the point of view of availability of medical care, it is important that planned specialised medical care is ensured to the greatest possible extent, based on the amount specified in the hospital contracts.

26. This implies that the cost of planned treatment is not reduced at the expense of funding ED visits.

Emergency medical care in the financing of planned specialised medical care

Outpatient care – A healthcare service that includes a doctor's appointment during which the patient is examined, undergoes some on-site procedure and, if necessary, further treatment is prescribed. The patient does not stay at the hospital for a longer period.

Day care – A healthcare service, in which the patient is staying at the hospital longer than usual, but not staying at the hospital overnight.

Inpatient care – A healthcare service provided at the hospital and requiring a patient to stay at the hospital for at least one night.

Treatment guide — one treatment case involving health examinations and services for one person in one case and for which one treatment invoice is prepared.

27. The funding of emergency medicine and planned specialised medical care is closely interlinked. Each year, a contract concluded with medical institutions specifies a certain amount and number of treatment cases in outpatient, day care and inpatient care for which the Health Insurance Fund pays. There is no special section for ED in the contract, i.e. the costs of ED appointments, including tests and procedures, are covered at the expense of other contractual services offered at the hospital – outpatient ED appointments are financed from the outpatient contract costs and the costs of patients hospitalised from ED are financed from the inpatient contract costs. In addition, preparedness fee is paid for ED (see Appendix A for more details).[17]

28. Hospitals are obligated to first send emergency care treatment invoices to the Health Insurance Fund and then the treatment invoices for other medical services. When there are a lot of emergency treatment cases and part of the planned treatment cannot be accommodated into the amount of medical care foreseen in the contract, the planned treatment cases that exceed the contract amount are then paid for based on excess work coefficient (see clause 147).

29. This makes it difficult for hospitals to schedule planned treatment since the number of emergency visits cannot be accurately predicted. Some hospitals have indicated that the number of planned appointments is often reduced due to ED visits.[18] Due to the fact that the EHIF has reduced funding for inpatient treatment in recent years, hospitals say that

[16] For more details see the subchapter "Some patients do not turn to a family physician for initial diagnosis or follow-up treatment".

[17] For the amendment to the ED funding system for two regional hospitals see clause 34.

[18] Triin Tabur. Hospitals lose millions from excess work. Äripäev, 26 March 2017.

treatment cases from ED affect the availability of planned hospital treatment.[19]

30. However, there is no financial motivation for hospitals to reduce the number of avoidable visits. As hospitals receive pay for ED visits on the same basis as a planned visit, they can plan fewer planned treatment appointments and use the money provided in the contract for emergency care appointments.[20]

31. According to hospitals, current funding does not cover the actual cost of treatment in severe ED cases. However, most ED visits are related to minor health problems (green and blue triage categories) and the actual costs in these cases are lower than those of patients requiring specialised medical care. Nevertheless, when the patient turns to the ED with a minor health concern, essentially something that is in the competence of a family physician, the hospital will receive a service-based fee, i.e. for a specialised medical care appointment.

32. It also means that more planned outpatient visits are carried out as excess work. According to the Health Insurance Fund, hospitals are interested in outpatient and day-care excess work, as a large part of general costs is covered by the costs of services provided under the contract. Such a funding system encourages the ED to treat patients who could have received help from a family physician.

33. A representative of Tartu University Hospital[21] has criticised the terms of the contracts for financing medical treatment, according to which the EHIF agrees to pay hospitals for excess work only if the money provided for outpatient cases (half-year amount) has been spent. According to the representative of the hospital, such a system directs hospitals to provide much less costly outpatient appointments, so that the hospitals are remunerated for excess work in inpatient care more than provided for in the contract.

Share of treatment cases and costs in the department of emergency medicine and in specialised medical care

34. The above may be the reason why the proportion and cost of ED treatment cases has increased[22] (see Figure 6). According to the EHIF, the proportion of ED treatment cases[23] out of specialised medical care in HNDP hospitals has increased from 15.5% to 16.8% in 2014–2017, and the total cost of ED treatment cases out of total hospital costs increased from 15% to 26.5% (see also clause 40).

[19] Imbi Moks, Anžela Popova. West Tallinn Central Hospital: ED funding needs to be reviewed. Meditsiiniuudised, 1 April 2016.

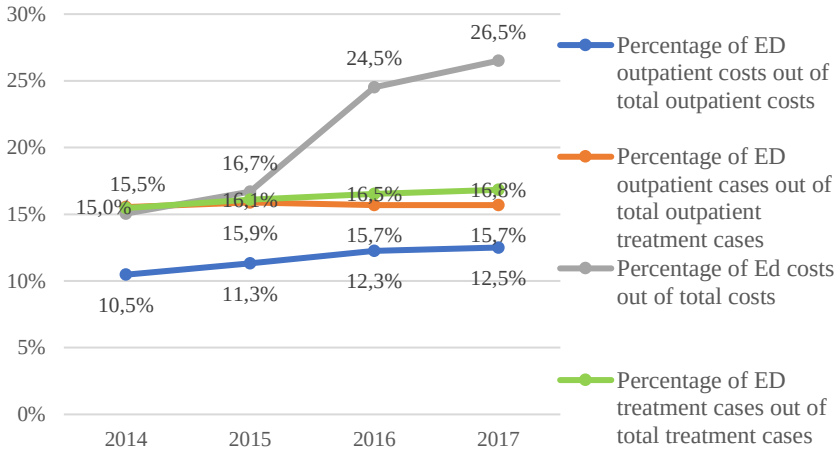
[20] Interview with the Estonian Health Insurance Fund.

[21] Mart Einasto. Big hospital and big money. What is missing and why. What is missing and why. Presentation at the conference "Medicine 2018", 13 December 2017.

[22] Analysis of the use of ED services. Estonian Health Insurance Fund, 2016.

[23] Based on A95 treatment invoices, i.e. healthcare service is provided or the need for it has been determined in the department of emergency medicine. In connection with an amendment to the contract for financing medical treatment, which clarified the meaning and concept of ED, this characteristic has been specified in ED treatment invoices as of 2014, so the data of 2014 may not be complete.

Figure 6. Share of ED treatment cases and costs out of specialised medical care treatment cases and costs in HNDP hospitals



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

35. Therefore, due to the fact that the work of ED is funded at the expense of the funds provided for specialised medical care, the large number of visits to the ED results in a reduced availability of planned specialised medical care. The proportion of ED costs to hospital costs is increasing. If patients do not get planned treatment at the right time, their health status may deteriorate. The latter can in turn facilitate the increase of visits for emergency care.

36. In the opinion of the National Audit Office, the contractual ED funding system creates a situation where there is no financial motivation for hospitals to reduce the number of avoidable ED visits and for patients the availability of planned treatment deteriorates. The situation could be improved by modifying the funding of departments of emergency medicine so that the availability of planned treatment would not be directly dependent on ED treatment cases due to contractual terms.

Treating patients in emergency care increases costs

37. "National Health Plan 2009–2020" sets out the goal of ensuring that access to healthcare services is guaranteed through the optimal use of resources. In addition, the Ministry of Social Affairs has pointed out that examining and treating patients in ED is generally the most expensive way to do this for the healthcare system.[24]

38. For optimal functioning of the financing system of health care it is important for patients to be treated at a more economical level.[25]

[24] Annex to the memorandum submitted to the meeting of the Cabinet of Ministers "An analysis of the possibilities for additional health care financing and proposals for ensuring the sustainability of health care financing" in July 2016.

[25] Similarly, according to OECD, a situation where healthcare services could have been provided at lower costs (e.g. by treating patients at a more economical level) while maintaining the same result is considered as ineffective use of resources. For example, the OECD considers avoidable ED visits an ineffective use of healthcare resources.

For your information

As a pilot project, a separate service price for ED services based on triage categories was established in the North Estonia Medical Centre and Tartu University Hospital in 2016. In addition, tests and procedures done in the ED will be paid for.

The aim of the amendment was to motivate effective management of patients in the ED. As a result, the goal was to reduce hospitalisation and excessive use of ED instead of planned treatment. For ED outpatient services, other hospitals are paid a similar amount as for specialised medical care outpatient visits. Hospitals are paid for inpatient care when patients are hospitalised from ED. In addition, they will receive a preparedness fee.

According to EHIF, the implementation of the new funding system is questionable because it does not appear that funding has contributed to achieving the goal.

39. The National Audit Office examined how much the admission, diagnosing and treatment of a patient in ED cost and how they have changed compared to the costs of primary health care.

40. Results showed that the average ED treatment invoice[26] was €341 in 2017. In the period 2014–2017, the average cost of an ED invoice increased by 24% annually. In addition to the rapid increase in healthcare service costs due to technological advances and rapid salary growth[27], the additional growth is also due to the change in the funding of ED in two regional hospitals (see the left-hand side of the page for details) and patients' more severe conditions.[28]

41. Although primary healthcare is funded on the basis of capitation fee[29] and ED costs on the basis of treatment cases and they are therefore not fully comparable, the differences in visit costs are significant. For example, the average cost of ED outpatient treatment invoice in 2017 was €67; in the same year, the average cost of a family physician appointment was €17 [30](see Figure 7). For comparison, the average cost of an outpatient treatment invoice for patients with a green and blue triage category in the North Estonia Medical Centre and Tartu University Hospital was €60 in 2017.

For your information

The average treatment invoice of outpatient specialised medical care was €77 in 2017 and the increase from 2014 to 2017 was 22%.

42. ED costs are significantly higher and grew faster when comparing the average cost of a family physician appointment to the average cost of ED outpatient treatment case. From 2014 to 2017, ED outpatient treatment invoice increased by 44%, the average cost of family physician appointment increased by 23%.[31] Thus, in ED, the treatment of a patient becomes more expensive every year compared with treating him or her by a family physician. During the same period, the number of ED cases increased by 6%. On the one hand, the ED appointment is costlier because of the medical specialist's appointment; on the other hand, tests and procedures are more accessible in ED.

[26] Includes ED outpatient and hospitalised ED inpatient treatment invoices. For more details about ED treatment invoices see Appendix A.

[27] Analysis of the sustainability of financing health care. Ministry of Social Affairs, 2016.

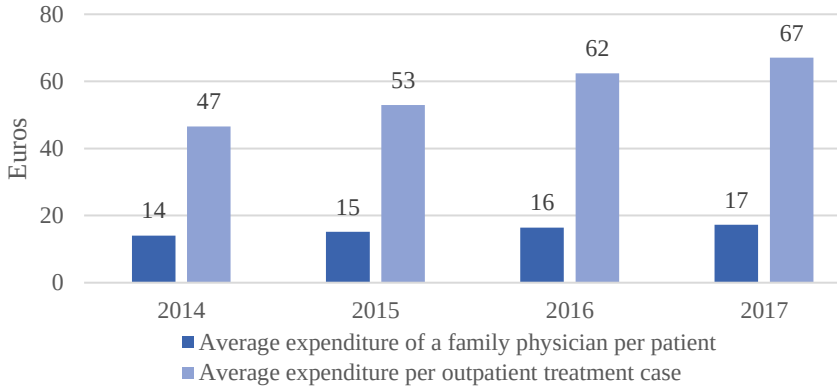
[28] See Appendix A p. 65 for more detail.

[29] See details in subchapter "Primary healthcare funding system does not encourage patients to receive timely medical care at primary health care level to prevent a visit to the department of emergency medicine".

[30] Total cost of primary health care is divided by the number of visits, including preventive visits, which account for 5.6%. If these costs are not taken into account when calculating the costs of visits, the average cost per appointment would increase by €1.

[31] Distribution and cost of ED treatment invoices by type of treatment, see Annex A, Fig. 3 and 4.

Figure 7. The average expenditure of a family physician per appointment and the average expenditure of ED outpatient treatment case in 2014–2017 (in euros)



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

Difference in the expenditure of health-insured and uninsured patients

43. It is significantly more expensive to diagnose and treat uninsured people through ED for whom family physician and specialist appointments, as well as disease prevention services are provided for a fee. State has provided emergency care for all uninsured individuals.[33]

For your information

In Estonia, there are estimated to be 120,000 people without health insurance coverage, of whom approximately 30,000 might actually live abroad. These are mainly young people of working age, the majority of whom are men.[32]

44. According to the Health Insurance Fund, the average cost of outpatient treatment for uninsured patients was €84 in 2017, which is more than a quarter higher than the average cost of outpatient treatment for working-age outpatient patients. The average cost of an inpatient treatment for hospitalised uninsured patients in ED was €2,395, which is one-third higher than in the case of working-age patients with health insurance (see Figures 8 and 9).

Figure 8. Average cost per outpatient treatment invoice of working-aged ED patients (in euros)

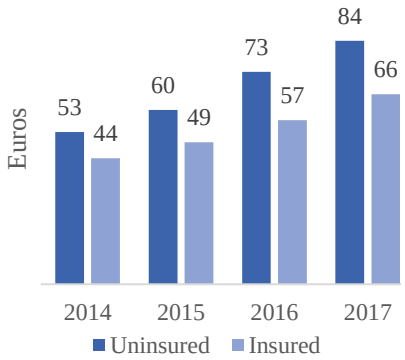
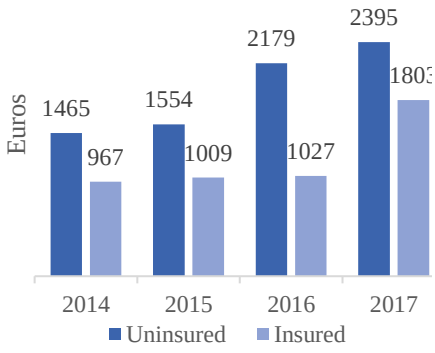


Figure 9. Average cost per inpatient treatment invoice of working-aged patients hospitalised from ED (in euros)



Source: Estonian Health Insurance Fund

Difference in the visit to their family physician among health insured and uninsured patients

45. One of the important reasons why treatment for uninsured people is more expensive is due to the fact that people visit ED with a worse health condition. The analysis of the National Audit Office showed that physicians have examined the health condition of uninsured individuals less and therefore there is a risk that their health problems are not

[32] Kaupo Koppel, Magnus Piirits, Märt Masso et. al. Health insurance for some or health coverage for all — how to fill the gaps in the Estonian health insurance system? Tallinn: PRAXIS Centre for Policy Studies; 2018.

[33] Health Services Organisation Act, Section 6.

detected early enough. For example, during the year, 3.5% of uninsured people visited their family physician prior to the ED visit with the same health problem[34] , while for people with health insurance, the figure was 20%.[35]

46. Even after the ED visit, the number of uninsured people at the family physician appointments was considerably lower than that of people with health insurance. During the year, 11.3% of the uninsured individuals visited the doctor after an ED visit, while the respective figure was 30% for people with health insurance. Insufficient ED follow-up treatment may lead to a second visit to the ED.

47. It is likely that the main reason why uninsured people have not visited their doctor before and they visit ED with a worsened health condition is their low income. Analysis of the National Audit Office showed that 87% of uninsured people who visited ED in the first half of 2016 (except for trauma patients) did not declare income during the same period (neither in Estonia nor abroad) and they probably would not have been able to pay for their medical services themselves.

Self-payers – persons without health insurance who pay for ED service themselves.

48. According to statistics collected from HNDP hospitals, in 2017, the number of uninsured individuals (including self-payers) who visited ED was 19,187, of which 12,819 visits were paid for by the Ministry of Social Affairs. The number of visits of uninsured people decreased in the period from 2014 to 2017, but this may be due to more rigorous surveillance by the Ministry and the Health Insurance Fund (see Annex D for more details about the visits of uninsured individuals).

Payment for healthcare service provided to uninsured persons

49. For uninsured individuals, emergency care is paid for from the state budget through the Ministry of Social Affairs. Health Insurance Fund checks the accuracy of the treatment invoices. The treatment invoice will not be paid for if the healthcare service provided does not fall in the emergency care category. Hospital is required to pay for the service itself if, for example, hospital issues an invoice and it turns out that the health condition of the patient did not require emergency care.

50. This arrangement has led to a situation where hospitals ask for money from a patient during their ED visit. Since many uninsured people do not have income, this may mean that, despite the health problem, they decide not to visit the ED. The health problem may worsen, which means that the patient turns to the ED with the need for emergency care. In this case, the cost of treatment is often more expensive. Improving access to primary care for uninsured people could help mitigate the situation, enabling early intervention and preventing deterioration of a health condition.

51. Some local municipalities have become aware of the problem and given uninsured individuals a discount from the purchase of medicines and cover their healthcare service costs. For example, there are such opportunities for residents of Tallinn and Narva. However, there is no

[34] The analysis is based on a comparison of diagnosis sections. Diagnosis section is a diagnostic code without extensions.

[35] Analysis included family physician appointments one year before and one year after ED visit in the first half of 2016 for insured and uninsured people

comprehensive overview of how many municipalities and to which extent provide support to uninsured individuals.

International comparison of health insurance coverage

52. According to the Organization for Economic Co-operation and Development (OECD), Estonia is one of the few countries in the European Union where some people do not have health insurance coverage.[36] For example, there is a full health insurance coverage in Finland, Sweden and Denmark. See details in Appendix D, Figure 2.

For your information

The Estonian Family Physicians Association also believes that uninsured persons should have access to primary care services without co-payments.

53. The Ministry of Social Affairs has calculated that, in comparison with the current system, the expansion of full health insurance coverage would not be significantly costlier. For example, if the amendment came into force in 2017, the financial cost of the Health Insurance Fund budget would have been around €59 million. However, taking into account other costs for uninsured individuals guaranteed by the state budget, it would not ultimately lead to costs to a large extent, as the opportunity to provide preventive healthcare services for uninsured persons, e.g. primary healthcare and cheaper pharmaceuticals, improves instead of funding emergency care provided in the departments of emergency medicine.[37]

54. In the opinion of the National Audit Office, people are not always diagnosed or treated at the level of treatment where it is more economical, because many ED visitors could get help from a family physician. Additionally, availability of medical care is limited to those uninsured people who lack income to pay for healthcare services. As a consequence, uninsured individuals can attend the ED if the need for emergency care is inevitable and the treatment is more expensive and longer-lasting.

55. Recommendations of the National Audit Office to the Minister of Health and Labour:

- Consider advising patients via phone before visiting the ED to direct them to the most appropriate ED based on their location and current waiting times, ask them to contact their family physician or provide guidance on how to resolve a health problem at home. This solution could be connected to the existing family physician advisory line, 1220. The ambulance service would continue to remain separate from phone counselling.

Response of the Minister of Health and Labour: Advising patients via phone before visiting the EMO is also possible through currently available family physician advisory line, which at the moment is anonymous, though. However, it is possible to give advice based on the information provided by the patient. An information technology solution for identifying persons who need counselling is also under development, and this would also allow to look up the health records of a person in the health information system, if necessary. According to the estimation by

[36] In some countries, insurance coverage has been achieved through private insurance.

[37] Annex to the memorandum submitted to the sitting of the Cabinet of Ministers "An analysis of the possibilities for additional health care financing and proposals for ensuring the sustainability of health care financing" in July 2016.

EHIF, personalized counselling can be launched in the second half of the year.

Comment by the National Audit Office: We agree that also today, patients have the opportunity to call the family physician advisory line before visiting ED, but in practice this is often not the case. In order to reduce the number of ED visits and, thus, the workload of EDs, with the help of phone counselling service, it is necessary to further develop this service. On the one hand, we should raise awareness among patients about the fact that it is recommended and useful to seek advice via phone service before visiting the ED. At the same time, an opportunity to get information about the waiting times of ED in different hospitals would help patients decide if and which hospital to go for help.

Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund: The Health Insurance Fund has begun reviewing counselling services in order to extend them on the basis of the current family physician advisory line, 1220. We are making preparations for a procurement in order to start personalized counselling from 1 August 2019, the extent of clinical work required is being agreed upon with the Estonian Family Medicine Society and other affiliated organizations.

- Find a solution that allows uninsured people to receive disease prevention and primary care services, thereby preventing their health condition from getting so serious that they need emergency care, which leads to higher medical expenses;

Response of the Minister of Health and Labour: The Ministry of Social Affairs commissioned a study on the reasons for not having health insurance coverage among uninsured persons, and the next step would be to consider the possibilities of extending insurance coverage. Solutions depend to a large extent on the possibilities of the state budget, as well as on political preferences. Until now, insurance coverage has been extended to individual problematic target groups that have been without health insurance (for example, creative people, persons working under several contracts under the law of obligations, etc.). At the same time, it should be kept in mind that in many regions, uninsured individuals are being provided free primary health care, which is possible thanks to the support by local municipalities. Tallinn municipality, the largest municipality in Estonia, has provided uninsured individuals with an opportunity to receive limited outpatient and inpatient health care services; several smaller municipalities have made agreements in co-operation with family physicians to provide family physician services to uninsured individuals, offering family physicians more favourable rental conditions or other solutions to compensate for their work.

Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund: It is known to the Health Insurance Fund that the Ministry of Social Affairs is preparing a study on the reasons for the lack of health insurance, which also includes considering of the possibilities of extending insurance coverage. In cooperation with the Ministry of Social Affairs, we will review the rules on the extent and scope of supplementary insurance coverage.

- Amend the Minister of Social Affairs Regulation no. 9 „Guidelines for triage operation in Estonian departments of emergency medicine“ of 19 January 2007 and its Appendix 26 in such a way that makes it possible to use independent nurse's appointments without consequent physician appointment. This would reduce waiting times and make more efficient use of resources (including money and time)

Response of the Minister of Health and Labour: At present, hospitals can provide independent nurse's appointments. Independent nurse's appointment service is also included in the EHIF list of health care services, which is used as the basis for funding. It is rather a matter of organisation; the guidelines will not create any additional rights here. When a triage nurse has examined a patient and rated the triage category as green or blue and instructs the patient to see his or her family physician on the next day, then this is, in our opinion, fully consistent with both the legislation and the guidelines. However, specifications to the guidelines by its authors, if necessary, may be appropriate.

Comment by the National Audit Office: The current guideline determines the time spent on a patient before the physician's appointment. Therefore, according to the current guide, a patient cannot be attended by a nurse only. Independent nurse's appointment without a subsequent physician appointment in ED would help shorten the waiting times for patients with less severe complaints and use the physician's time more efficiently.

56. **Recommendation of the National Audit Office to the Chairman of the Management Board of the Health Insurance Fund**: modify the funding of the departments of emergency medicine so that the availability of planned treatment would not depend on ED treatment cases due to contract terms.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: The work of emergency departments is largely based on readiness, which means that the availability of personnel and equipment and associated costs are necessary regardless of the number of patients. As a result, the EHIF has started discussions with the Estonian Society of Emergency Physicians to consider paying for the work of emergency departments based on a fixed monthly fee that would cover the costs of EDs' preparedness and initial handling of patients. This way, the treatment provided by the ED and the availability of planned treatment would not be directly linked. The analysis carried out by World Bank in September 2018 will also provide an evaluation of various proposals and possible implications associated with them.

The workload of the department of emergency medicine depends on the functioning of primary care

Primary healthcare funding system does not encourage patients to receive timely medical care at primary care level in order to prevent a visit to the department of emergency medicine

Correlation of the family physician's income to the patient's visit to the department of emergency medicine

57. First contact in a healthcare system for a person with a health concern should normally be his or her family physician or family nurse. The purpose of primary care is also to provide medical care for an unexpected health disorder.[38]

58. In order for the primary care to fulfil this task, family physicians should be motivated to receive patients quickly and, if possible, assist in preventing the visit to the ED by a patient without the need for emergency care.

59. Main sources of income for a family physician are capitation fee paid according to the number of individuals in the practice list and basic allowance in a fixed amount. Additional fee can be obtained through a quality system that can be up to 7.5% of income for family physicians who receives all additional fees.[39]A medical test fund is also used by a family physician, but it does not have a significant effect on his or her income.[40]

Capitation fee covers the salary of personnel, medical supplies, simpler analyses and studies and medical expenses.

Basic allowance covers room, medical equipment, IT and household expenses for family physician practices.

Medical test fund is intended for the family physician to perform and order analyses, studies and procedures in the list of health services.

Quality system includes indicators related to prevention, vaccination and monitoring of patients with chronic diseases, as well as the organisation of a Family Health Centre and the quality of treatment.

60. Thus, family physician's income depends mainly on the capitation fee and basic allowance, and it is not affected by whether a patient receives the necessary medical care by his or her family physician or visits another medical institution like the ED. In general, income also does not depend on the number of appointments offered to patients, with the exception of a certain expense for medical supplies.

61. The quality system of family physicians also has no connection with the ED; that is, the payment of quality fees does not depend on whether and how often patients of a particular family physician attend to the ED. So, there is no component in the family physician's remuneration system that would make a family physician avoid a visit to the ED by a patient on his or her practice list.

Referral of patients to the department of emergency medicine by family physicians

62. Representatives of HNDP hospitals also indicated that the current organisation of primary health care does not give family physicians sufficient motivation to deal with patients themselves and to prevent them from visiting the ED. Therefore, some family physicians refer their

[38] Website of the Health Insurance Fund https://www.haigekassa.ee/inimesele/arsti-ja-oendusabi/perearstiabi.

[39] An estimate based on a hypothetical example prepared by Andres Lasni, a member of the management board of the Estonian Family Physicians Association, using the following assumptions: a family physician with an average practice list who is located 30 km from the hospital and has hired second family nurse; family physician receives an additional fee for monitoring and prevention of chronic diseases, additional professional competence, participating in the national programme for screening intestinal cancer, and the management of an audited and high-quality family health centre (A. Lasni's response to the query of the National Audit Office on 13 May 2018).

[40] In some cases, family physicians receive laboratory tests at a lower cost than the price set in the health care service list, which could lead to a profitable use of the research fund.

patients to the ED even though their health status does not give grounds to it.[41]

63. Although, according to the Health Insurance Fund, about 4% of patients with health insurance are referred to the ED by a family physician, there is a lack of overview of how many patients are referred to the ED by a family physician's oral recommendation. It is also unknown how many people choose to attend the ED because they are not able to reach their family physician or cannot visit their family physician soon enough. The Health Insurance Fund has confirmed that primary health care needs better arrangements for patients in need of emergency care.

64. The Estonian Family Physicians Association estimates that there are family physicians who send patients to the ED without assessing their health, and the practice of family physicians is quite different here. This was confirmed by the analysis conducted by the National Audit Office, which revealed that the share of patients (in the practice list of a family physician) who visited the ED varied from 1 to 13%.[42] The most common (41%) were lists where 5–6% visited the ED. However, it should be kept in mind that visits to the ED are also affected by the composition of the practice list (e.g. how many are elderly, have chronic illnesses and are persons in risk groups).

65. OECD[43] has also highlighted that funding for primary health care based on capitation fee can lead to a selective approach to addressing patients' health issues and result in an inadequate provision of health services, which in turn leads to unnecessary ED visits.

66. Although there is no complete national overview of the triage category for patients with a family physician's referral, the data of the North Estonia Medical Centre has confirmed that family physicians send patients to the ED without the need for emergency care. For example, in 2016, the 51% of patients whose family physician had referred them to the ED were categorised as green and 47.3% as yellow.

67. Although the Health Insurance Fund plans to further develop a funding model for primary care, the changes focus mainly on the application of the system to health centres, the development of the quality system and the differentiation of funding based on the structure of the practice list. In addition, ways to motivate family physicians to see patients whose family physician is in another region is being considered. Proposed changes do not directly increase the motivation of family physicians to avoid their patients' visits to the ED.

68. In the opinion of the National Audit Office, current funding of primary health care does not encourage family physicians to provide medical care in a timely and necessary manner since their income is not

[41] Interviews with representatives of Pärnu Hospital, Ida-Viru Central Hospital, North Estonia Medical Centre, West Tallinn Central Hospital, Järvamaa Hospital, Valga Hospital, Läänemaa Hospital, Rakvere Hospital, Viljandi Hospital, Raplamaa Hospital, Põlva Hospital.

[42] The National Audit Office analysed which practice list included patients who visited the ED in the first half of 2016 and calculated the proportion of visits per list size.

[43] Health at a Glance 2016. OECD, 2017

affected by how quickly he or she takes in patients with the need for emergency care and how many of his or her patients visit the ED without the need for emergency care.

The Health Board and the Health Insurance Fund do not have a comprehensive overview of the availability of primary health care

69. The lack of access to primary care services and the lack of out-of-hours appointments are inversely related to the increased need for emergency care.[44] If the availability of primary care does not meet the needs of patients, it can increase the workload of the healthcare system, including the increase of visits to the ED. At the same time, the "National Health Plan 2009–2020" emphasises the need to ensure the availability of healthcare services in primary care.

70. Based on the above, the National Audit Office assumed that primary healthcare services are available.[45]

Assessment of the availability of primary healthcare

71. The National Audit Office examined the availability of primary health care and how it is assessed. Supervision of primary care is carried out by the Health Board. The Health Insurance Fund monitors the performance of contracts with family physicians.

72. Both the Health Insurance Fund and the Health Board [46]estimate that there are no significant problems with the availability of primary health care in Estonia. According to the EHIF, in 2017, requirements of medical availability were met in full by 82% of the inspected primary care centres.[47] Nevertheless, the share of practices who do not meet the requirement of availability has increased – in 2014 this figure was 10%.[48]

73. According to the Health Board, there are seasonal problems with the availability of primary care – for example, when the period of upper respiratory diseases and the workload of nurses and doctors is high.[49] According to the Estonian Family Physicians Association, problems with accessibility are mainly due to the uneven quality of primary health care (for details see clause 90).[50]

74. However, according to the Health Board and the Estonian Family Physicians Association, the actual assessment of the availability of primary care is complicated and the estimates based on the current methodology may not be adequate. Asking about available appointments

[44] Caroline Berchet. Emergency Care Services. OECD Health Working Papers No. 83, 2015.

[45] See Appendix E for details on the criteria for assessing the availability of primary health care.

[46] Interview with the Health Board.

[47] Report on the availability of family physicians in 2017.

[48] Report on the availability of family physicians in 2014.

[49] Interview with the Health Board.

[50] Interview with the Estonian Family Physicians Association.

For your information

In October 2016, the Estonian Family Physicians Association turned to the Minister of Health and Labour to request that the period from contacting the medical institution to the time of the appointment is extended to 10 days from the current 5 days for a patient with a non-acute illness.

According to the Association, it was not possible to ensure proper appointment with the same resource due to the increase in the proportion of chronic illnesses in the practice lists.

So far, the Ministry has not initiated the requested amendment.

Source: Estonian Family Physicians Association inquiry no. 5-3/91 of 6 October 2016

Out-of-hours family physician's appointments

Out-of-hours service – a family physician's appointment, which takes place on the working day before 8:00 in the morning, after 18:00 in the evening or on the weekend.

of family physicians allows them to provide a formal, not substantive, assessment.[51]

75. The National Audit Office examined (through a survey) how many ED visitors with minor health complaints (triage category blue, green and yellow) indicated the reason for the visit to be that they did not, in their opinion, receive a family physician's appointment at the right time and turned to the department of emergency medicine once their health condition had worsened. Results showed that 40% of the visitors said the reason to be inadequate access to primary care.

76. Representatives of HDNP hospitals[52] have also emphasised that ED patients with a green triage category have noted poor access to primary care as one of the main reasons for their visit to the hospital. They believe that family physicians are sending their patients to the ED too easily. Therefore, the estimates provided by the current methodology for the availability of primary care may not reflect the actual situation, and the methodology should be reviewed.

77. In addition to access to primary care during working hours, ED visits are also dependent on the opportunities to see a family physician outside working hours.[53] In Estonia, family physicians do not have a legal obligation to provide out-of-hours service.

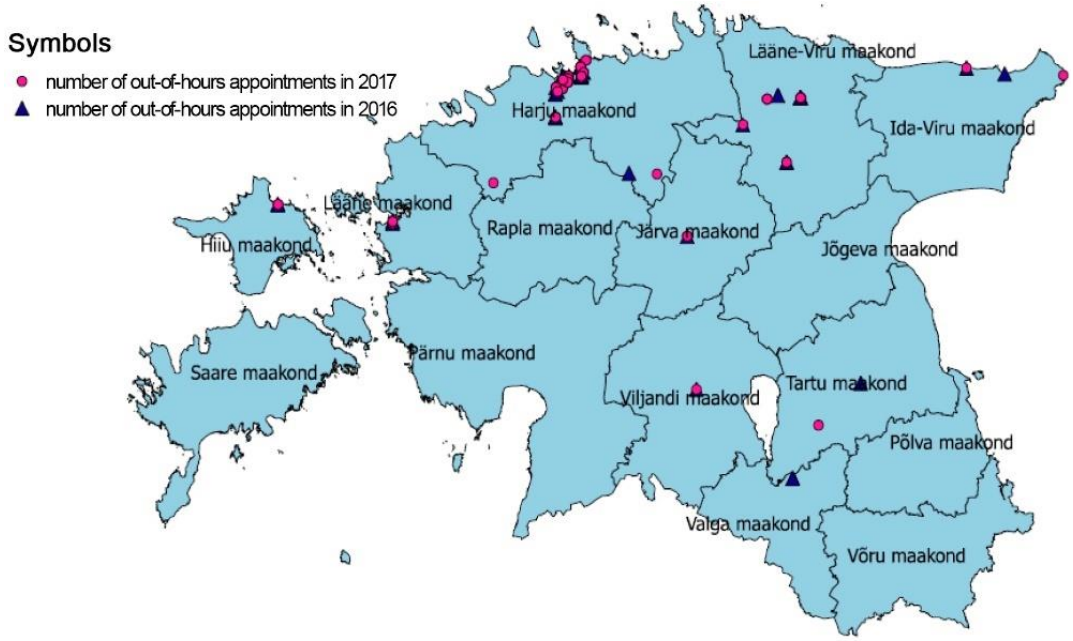
78. The National Audit Office examined how many family physicians receive patients outside working hours. In 2016, the number of family physicians that provided out-of-hours service was 55, and their number has increased (73 family physicians) in comparison with 2017, but it accounts for about 9% of all family physicians. For example, there are no family physicians in Tartu and Pärnu who offer out-of-hours service funded by the Health Insurance Fund (see Figure 10).

[51] Availability check of primary care is carried out in the family physician's place of business. The evaluator asks whether a patient with an acute condition is able to get a family physician's appointment on the same day and whether a patient with chronic illness can be seen within five days. Service is considered to be available if the reception indicates that it is possible to get an appointment. This, however, does not reflect the actual time it took to see patients, as it is not documented. In other words, there is no knowledge of the time when the patient wanted the appointment and when he or she actually got it. In addition, there are no receivers in the medical practices for recording unanswered phone calls, and in this case the family physician does not know that the patient has requested an appointment.

[52] Interviews with Valga, Raplamaa, Rakvere, Pärnu, Põlva, Läänemaa Hospitals, West Tallinn Central Hospital, Järvamaa Hospital, Ida-Viru Central Hospital and Viljandi Hospital.

[53] Caroline Berchet. Emergency Care Services. OECD Health Working Papers No. 83, 2015.

Figure 10. Number of family physicians who provide out-of-hours service by location



Source: Estonian Health Insurance Fund

79. The Health Insurance Fund[54] estimates that there are currently few primary care centres that provide out-of-hours service. At the same time, the differences between regions are very high. The main challenge in improving the situation, however, is that the service is not provided on a basis of necessity, but rather on the basis of capability.

80. The Health Insurance Fund has so far not analysed the occupancy rate of out-of-hours appointments. The Health Board responsible for the organisation of primary care also does not collect information about out-of-hours appointments. As family physicians do not have an obligation to provide data to the EHIF on the number of out-of-hours cases handled, they do not have an exact record of how many people use this service. Therefore, the Health Insurance Fund does not have an overview of whether additional appointments are beneficial and whether they help to reduce the workload of ED.

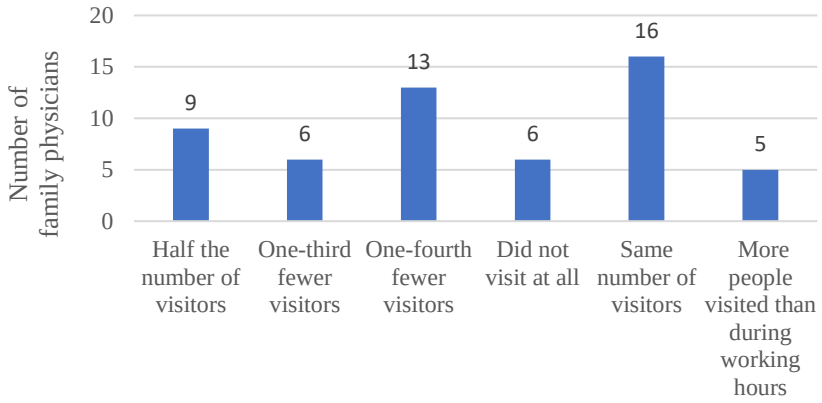
81. Based on the above, the National Audit Office examined how many patients turn to those family physicians outside working hours who offer out-of-hours service. Almost 40% of family physicians noted that the number of patients was equal or higher than during working hours. In 60% of cases, there were fewer patients (see Figure 11).

For your information

One family physician, who responded that patients did not use out-of-hours service at all (see Figure 11) explained that in reality there was no appointment for patients, that time was noted as excess work for the family nurse (performing administrative tasks).

[54] Interview with the Estonian Health Insurance Fund.

Figure 11. Patients' use of out-of-hours appointments compared to appointments during working hours according to family physicians



Source: National Audit Office's inquiry to family physicians

82. Additionally, 48% of Estonian people consider it important for a family physician or a nurse to be available after 18:00 in the evening.[55] The aforementioned shows that there is a certain demand for the service outside the working hours.

83. Interviews with the representatives of HNDP hospitals show that ED staff and hospital managers think that primary care centres should be open longer on weekdays and open on weekends.[56] According to family physicians, however, primary care centres that operate outside working hours may not necessarily reduce the number of visits to the ED.

84. However, a significant proportion (39%) of patients with minor health problems attend the ED in the evening of a working day and on a weekend (see details in Appendix A, Figure 7). It also demonstrates that there is a certain need for an out-of-hours service. One solution is to extend the appointment time of a family physician in the newly created health centres.

85. In the opinion of the National Audit Office, the methodology used does not allow assessing the actual availability of primary health care with the necessary accuracy. The control system gives an assessment on whether and how primary care centres have provided patients with access to book an appointment, but this does not make it possible to assess whether people actually get an appointment to the family physician at the right time and according to their needs.

Family physicians' capability to help patients varies

86. "National Health Plan 2009–2020" states that it is important to ensure high-quality healthcare services in primary care. Shortcomings in primary health care encourage ED visits. Patient seeks help from elsewhere if he or she does not receive the necessary medical service or is not satisfied with it.

[55] Opinions of Estonia's Residents on Health and Medical care, 2016. Ministry of Social Affairs

[56] Interview with Tartu University Hospital, West Tallinn Central Hospital, Rakvere, Raplamaa, Narva, Pärnu, Valga and Põlva Hospital.

87. The National Audit Office assumed that patients receive healthcare service of similar quality regardless of the practice list of a family physician that he or she is listed in.

Quality assessment of primary care centres

88. The Health Insurance Fund supervises the execution of contracts with family physicians. The Health Board's responsibility is to organise primary medical care and to monitor whether family physicians comply with the requirements established by law. In addition, the quality of primary care centres is evaluated under the guidance of the Estonian Family Physicians Association and in cooperation with the EHIF and the Health Board.

89. Quality assessment of primary care centres is made up of 20 criteria, according to which the centres are divided into three levels: A, B and C. One point is given for each criterion met. Inter alia, the criteria also take into account the organisation of the primary care centre and the quality of treatment. To achieve level A, a primary care centre has to receive 19–20 points, for level B, 16–18 points and 0–15 points for the level C.

90. The quality of primary care centres[57] has been evaluated since 2009. In the latest assessment of 2017, 21% of the centres (66) achieved level A, 22% (68) centres achieved level B and 57% (174) level C. Since 2009, two-thirds of centres have participated in the assessments, thus, one-third of centres have not been assessed and there is no verified knowledge of the quality of the service a patient receives there.

91. So far, the participation in the quality assessment has been motivated mainly by rewarding the best, i.e. each year, additional fee is paid to the centre when the agreed indicators are met. Sanctions are not imposed to those centres at a lower level or who do not fulfil the criteria and do not participate in the assessment. This is also the main reason why a large share of primary care centres are not involved in quality assessment and there is no comprehensive overview of the quality level of the service they provide.

92. Instead of sanctioning, a mentoring system could help improve the situation by which more primary care centres can be guided to participate in the assessment. Mentors are family physicians from centres that have been rated at level A in previous years and who give advice on how to improve the organisation of centres at a lower quality level.

93. According to the Estonian Family Physicians Association, there could be 30–40 primary care centres in Estonia that do not meet the minimum quality requirements. Therefore, the quality of service can vary according to the centre where the patient receives help.

Family physician's activity before a patient visits the department of emergency medicine

94. The uneven level of primary care centres was also confirmed by the results of the expert analysis carried out by the ESEP audit. Experts evaluated the activities of family physicians up to the year before the patient had visited the ED. The results showed that in 21% of the

[57] Primary care centres are contractual general medical care providers of the Health Insurance Fund.

analysed patients, the activity of the family physician was not sufficient before the patient's ED visit.[58]

95. For example, experts pointed out as inadequate activities situations where the family physicians did not refer the patient to the examination(s) and/or procedure(s), even though it would have been necessary. 36% of the analysed patients were not sent for the necessary test and/or procedure.[59]The expert analysis of the ESEP also revealed that 13% of the patients had not been prescribed the necessary medication. Inadequate intervention by a family physician can be one of the factors that has led to a patient's visit to the ED.

Activity of a family physician after the patient's visit to the department of emergency medicine

96. Experts also evaluated the activities of family physicians after a patient's visit to the ED. In summary, the results showed that the activity of a family physician was insufficient in 19% of the analysed cases. In those cases where the activity was assessed to be inadequate, it was justified (among other things) by the inactivity of physicians. For example, 22% of patients were not referred to test(s) and/or procedure(s), and 6% of patients were not prescribed medication, even though experts considered it necessary. The inadequate activity of a family physician can lead to a recurring visit to the ED.

For your information

In Estonia, family physicians and nurses handle on average over 6 million appointments per year. The total number of appointments has increased by 21% between 2012 and 2017.

97. Different levels and capacities of family physicians in helping patients were also confirmed by the results of the assessment of family physicians by the Health Insurance Fund, according to which 32% of family physicians do not adequately deal with the prevention of illness or the monitoring of chronic illnesses.[60]

98. Therefore, one of the reasons for the varying quality of patient treatment is the different experience and competences of family physicians, the root causes of which require further examination. The Estonian Family Physicians Association has also emphasised that the level of family physicians varies greatly and depends on the region, competence, including knowledge of treatment guidelines and the quality indicators of family medical care centres as well as language proficiency.[61]

Number of family physicians and their workload

OSKA is a system for monitoring and forecasting labour demand aimed at better connecting learning with labour market needs.

OSKA analyses the need of labour and skills necessary for Estonia's economic development over the next 10 years.

99. Another bottleneck is the lack of family physicians. Even though the number of healthcare professionals has started to grow (according to the Health Board), the number of family physicians has decreased by 2% compared to 2016. The average age of family physicians was 55 years in 2016, which is higher than the average age of Estonian physicians (51 years). According to OSKA[62] and the Health Board[63], the number of residents in primary care does not cover the need for new family physicians due to the retirement age of family physicians.

[58] The share is taken from cases analysed where it was possible to assess the adequacy of a family physician's activity.

[59] The share was taken from those patients who needed examinations.

[60] List of family physicians who took part in the primary care quality system and achieved an additional fee level in 2017. Estonian Health Insurance Fund, 2018.

[61] Interview with the Estonian Family Physicians Association.

[62] Urve Mets, Vootele Veldre. A prospective view of the need for labour and skills: health care. Estonian Qualifications Authority, 2017.

[63] Summary of activities of the Health Board from 2016.

100. Shortage of family physicians is reflected, in particular, in the failure of family physician competitions and the comparison of the number of renouncements of practice lists with the number of newly-started family physicians. While in 2014 (according to the Health Board) one-third of the family physician competitions were unsuccessful, the figure was 45% in 2017. The number of renouncements exceeds the number of family physicians who started work with the practice list. In 2014, 23 family physicians began work with and 19 family physicians renounced their practice lists. In 2017, 9 family physicians began work with and 16 family physicians gave up on the practice list.

101. This has led to a situation in which the Health Board has no opportunity of choosing a family physician for a practice list. Currently, all family physicians, regardless of their quality, are funded, because there is effectively no opportunity to terminate a contract with a family physician who has a practice list. According to the Health Insurance Fund, an additional 10% would be needed in order to be able to choose and impose sanctions on family physicians of poorer quality.

102. Practice lists of family physicians are also too large. As at the end of 2017, half of the practice lists included over 1,736 people.[64] According to the Estonian Family Physicians Association, an optimal size of the list would be 1,600 patients. Therefore, the workload of family physicians increases, and practices have a different level of ability to deal with it.

103. However, there are jobs in a primary care centres that do not require the qualification of a doctor or nurse, such as receiving telephone calls, organising documentation, and reporting.[65] These tasks could be performed by a clinical assistant, whose hourly rate is lower. This would help free the family physician and nurse from non-medical responsibilities and make primary health care more effective.

104. Even though the capitation fee paid to a family physician includes assistant costs, it may not be sufficient for smaller practices. Currently, the professional standard of a clinical assistant has not been agreed upon and the relevant specialist training is provided by the employers themselves. Agreeing on the training programme is necessary as the shortage of doctors and nurses and long training periods require a rational use of labour resources.[66]

105. In the opinion of the National Audit Office, the uneven quality of primary health care facilitates visits to the ED. Equal quality of primary care is not guaranteed to all patients, as the level of assessed centres varies. In addition, some centres are not evaluated. If a patient does not receive high-quality healthcare service from his or her family physician, he or she will search for it elsewhere. In the current system, the fastest and most favourable alternative is to visit the ED.

For your information

EHIF raised the need to increase the number of primary care residents already in 2009, but no action has been taken so far.

Clinical assistant – a member of the administrative staff of the primary care centre who is responsible for providing patients with information about the primary care centre and general health care organisation and registering patients for appointments based on their health problems.

Source: Quality Guideline for Estonian Primary Care Centres, 2018

[64] Data from the Health Board, which includes both insured and uninsured people.

[65] Primary Care Development Plan 2012–2020.

[66] Urve Mets, Vootele Veldre. A prospective view of the need for labour and skills: health care. Estonian Qualifications Authority, 2017.

Some patients do not turn to a family physician for initial diagnosis or follow-up treatment

106. "National Health Plan 2009–2020" states that the healthcare system must be patient-centred in order to ensure the continuity of health care. This includes co-operation and coordination between different health care levels. Another important aspect is patient awareness, which means both the ability to orient in the healthcare system and awareness of one's health problems and treatment options.

Activity of a patient before a visit to the department of emergency medicine

107. In order to achieve an optimal treatment outcome, the patient must first contact a family physician (except traumas, poisoning and other cases requiring emergency care) in the event of a health problem.[67] After a visit to the ED, the patient should contact their family physician (if necessary) in order to make sure their disease is controlled or treated. A prerequisite for successful treatment is also following the prescribed treatment regimen.

108. The National Audit Office examined how many ED patients turned to their family physician with the same health problem[68] that was identified in ED. Results showed that in the first half of 2016, 21.5% of all ED patients (except trauma patients and children) had visited their family physician with the same health problem during the previous year.

109. At the same time, the results of the analysis showed that 11% of patients had never visited a family physician during the year preceding the ED visit (this does not include trauma or poisoning, which in general does not require a visit to the family physician).

110. The results of the expert analysis conducted in cooperation with the National Audit Office and the ESEP also confirmed that many patients do not turn to their family physician before they visit the ED. For example, 35% of patients who visited the ED with hypertension, back pain, and lower respiratory tract infections had previously visited their family physician with the same health problem.

111. In summary, the results of expert analysis showed that the activity 49% of patients who visited the ED due to the three aforementioned diseases was inadequate prior to the visit. For example, inadequate activities include appointments to a family physician too late, failure to go to an examination, and not purchasing the medication.

Activity of a patient after a visit to the department of emergency medicine

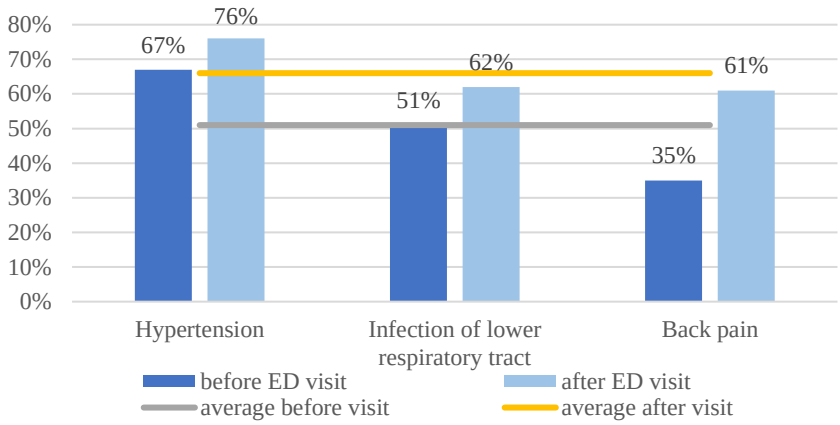
112. Expert analysis also studied whether patients visited a family physician for follow-up treatment or keeping the disease under control after the ED visit. Results showed that patients' activities after the visit to the ED is more health-conscious, as 61% of patients turned to a family physician.

113. The expert analysis also evaluated the patient's activity after a visit to the ED to be inadequate in 34% of cases (2/3 of total cases) (see division by disease groups in Figure 12).

[67] Population Health Development Plan 2009–2020.

[68] The analysis is based on a comparison of diagnosis sections.

Figure 12. Share of patients whose activities were adequate in treating their disease before and after a visit to the ED



Source: National Audit Office based on data of the ESEP expert analysis

114. Experts considered insufficient activity to be, for example, cases where the patient needed follow-up treatment after the ED visit, but the patient did not make it to the appointment. Total number of such patients was 18%.[69] Similarly, activity was considered inadequate when a doctor referred the patient to a medical procedure, but the patient did not go there. These patients constituted 5% of all patients referred to examinations. 9% of patients who were prescribed medicine did not purchase it. Therefore, there are patients who do not follow the prescribed treatment regimen.

115. There are currently no methods to remind the patient of treatment, since the family physician cannot get information about how the patient in the practice list was treated in the ED. If this information were available, a family physician would have the opportunity to contact the patient and give the necessary instructions (see the next subchapter). This also requires clarification of the legislation, since at the moment, the family physician does not have the right to receive information about the patient outside the patient's own appointment.

116. In addition to the aforementioned expert analysis, results of the analysis of the National Audit Office showed that all patients do not go to a family physician after the ED visit. Out of all patients who visited the ED in the first half of 2016 (except trauma patients and children), 29% visited their family physician with the same health problem in the first half of the year.[70] 12% of patients did not visit their family physician after visiting the ED. Inadequate activity of both the patient and the family physician after the visit to the ED could lead to a deterioration of the patient's health and a new visit to the ED.

Repeated visits of patients to the department of emergency medicine

117. The National Audit Office examined whether and how many patients have visited the ED more than once a year. Results showed that over the course of one year, 21%, i.e. 17,375 patients visited the ED twice. It is

[69] 12% of patients diagnosed with hypertension, 25% with lower respiratory tract infections and 18% with back pain.

[70] The analysis is based on a comparison of diagnosis sections. The same clarification applies to the two subsequent paragraphs

significant that 10%, i.e. 8,073 patients visited the ED repeatedly with the same health problem.

For your information

The most visits to the ED by a patient with the same health problem (or the same diagnosis) in the first half of 2016 was 23 times.

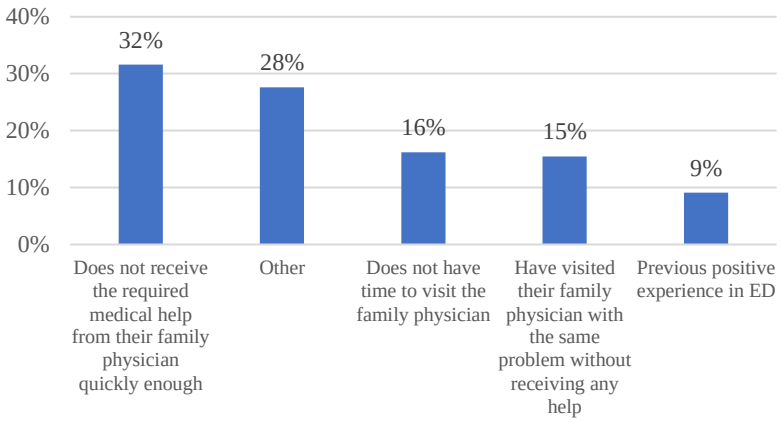
118. There were 19,420 repeated visits with the same health problem in the first half of 2016 (18% of visits). This suggests that the same health problem is addressed more than twice a year. However, it should be kept in mind that some of these visits may have been planned reappointments by the ED physician, i.e. after a certain amount of time, the ED physician may wish to re-examine the patient.

Patient's attitudes and awareness towards shaping their health behaviour

119. One important reason for poor health behaviour are the different attitudes, knowledge and past experiences of patients in different health care sectors, including primary care, i.e. with a family physician.

120. The National Audit Office carried out a survey on why patients with minor complaints did not go to their family physician instead of the ED. Results showed that nearly a quarter did not want to turn to a family physician. In turn, 15% of them had previously visited a family physician without receiving help for the same problem, and 9% of respondents had previous positive experiences when visiting the ED. Most respondents (32%) found that they did not receive help fast enough from their family physician (see Figure 13).[71]

Figure 13. Reasons why patients did not want to turn to the family physician, by share[72]



Source: Survey of the National Audit Office

121. Out of all the respondents, 40% indicated that the family physician was not available to them. 25% of the responders had visited their family physician who saw and examined their health problem, but the patient had still decided to attend the ED. At the same time, 6.2% of all the responders did not know that the family physician could have helped with this problem nor that the family physician can provide emergency care (for the questions asked in the survey, see Appendix B).

122. Interviews with the representatives of HNDP hospitals[73] also showed that the patients' awareness and attitudes play an important role in determining where the patients decide to go. There is a problem,

[71] For details see the form in Appendix B.

[72] Category "other" mainly covers patients whose disease had worsened, although they had previously hoped that they would pass on its own, see also form in Appendix B.

[73] Interview with North Estonia Medical Centre, West Tallinn Central Hospital, Järvamaa, Narva, Pärnu, Rakvere, Rapla, Põlva, Valga, Viljandi, Läänemaa Hospital.

however, that sometimes people request medical care with minor health problems that do not require medical attention. It is also a common problem that all patients do not follow their treatment regimen.

Criteria for visiting the department of emergency medicine

123. However, one of the factors shaping the patients' behaviour may be that the criteria for emergency medical condition based on which to decide when a patient should visit the ED and when to visit a family physician is not determined by the Ministry of Social Affairs together with the administrative authorities. The current healthcare organisation has left the explaining mainly to the doctor, nurse or health care institution, and therefore it can be assumed that the explanation is based on the work organisation of a particular institution.[74]

124. The role of primary care has been described as the first contact point in healthcare system, but at the same time, people can have access to medical care more quickly in the ED. If an appointment has to be made in advance in order to see the family physician and examinations usually require a separate appointment, services are available in the ED on the same day.

125. The patients' awareness should be addressed by all parties, including telling the same information to the patient. This could be facilitated by concentrating patient information on various symptoms and conditions, medical services, health promotion and disease prevention, etc. in a single website (which may be included, for example, in a patient portal or EHIF website). This would allow people to find reliable and systematic information. Among other things, such a website should provide patient support to decide where to go with their problem.

For your information

The first step to explain to the patient where to turn with their problem has been completed.

In 2017, the Estonian Family Physicians Association in collaboration with the Estonian Society of Emergency Physicians issued instructions "Family Physician or ED", which provides recommendations on when to visit the ED and when a family physician.

Source: Estonian Family Physicians Association

126. In the opinion of the National Audit Office, additional guidance of patients is needed on what health problems should be addressed first by a family physician and with which to turn to the ED. All levels of the healthcare system should give people a single message on how medical care is organised, explain where to turn with what health concern, and reiterate the importance of adhering to the treatment regimen. Currently, improving the patient's awareness depends on a particular healthcare provider. The family physician also does not receive information about ED visits of patients in the practice list, in order to start subsequent treatment at the right time if necessary, thereby ensuring compliance with the treatment regimen.

Inadequate information systems prevent the collaboration of family physicians and the department of emergency medicine in treating patients

127. Implementation plan of 2015 of the “National Health Plan 2009–2020” specifies the sub-goal of improving cooperation between service providers through the implementation of e-Government principles and improving information exchange. In addition, the goal of “E-Health Strategic Development Plan 2020” is to make sure that both healthcare providers and individuals have comprehensive information on the health status of the patient and the action plans of the relevant parties.

128. The National Audit Office assumed that family physicians receive information promptly when their practice list patient has visited the ED. It

[74] Diana Ingerainen. Editorial. Perearst, February, 2015

Information exchange between the department of emergency medicine and the family physician

Epicrisis – summary of a medical history.

Health Information System – national information system database that processes healthcare data.

HWISC – Health and Welfare Information Systems Centre

ED e-chart – digital document to be compiled about ED visit and uploaded to the Health Information System

is equally important that the physician who conducts appointments in ED has information about the patient's prior visits, diagnoses, procedures, and the prescribed treatment regimen.

129. The National Audit Office examined how information about the patient's ED visit was forwarded to his or her family physician, and whether physician conducting the ED appointment has the patient's medical history available promptly.

130. An interview with the Estonian Family Physicians Association revealed that one of the main reasons why the treatment following the patient's ED visit is often inadequate and may lead to a repeated visit to the ED is that family physicians do not know if, when and with which diagnosis the physician's practice list patient visited the ED. At the end of the visit, ED usually uploads the epicrisis to the Health Information System, but a family physician is not notified about it. Family physician only learns about the ED visit if the patient informs him or her. However, many patients do not do so. HWISC has also not been able to implement the e-chart specifically developed for ED visits.

Family physician advisory line

131. In addition, family physicians do not know if their patients have called the family physician's advisory line 1220 due to more severe health problems and if a patient is referred, for example, to the ED or if call was forwarded to the Emergency Response Centre (see Appendix C). Advisory line is currently anonymous, i.e., a medical professional who does not see the patient's prior medical history takes the call. Patients do not always remember the necessary details about their previous treatment and do not provide correct information about their health status. This makes the provision of solutions difficult and there is a risk that the recommendation will not help the patient. The family physician also does not know what advice the patient has received from the advisory line and how it affects potential ongoing treatment. The situation would improve if callers could be identified if necessary.

132. Often, it is not possible for the doctor making an ED appointment to see the patient's entire previous treatment history, as it is not displayed in real time. Specifically, procedures and analyses uploaded to the Health Information System can be viewed by other parties as soon as the doctor has confirmed the epicrisis. It is not rare that the epicrisis is confirmed with a delay, as for the doctor the treatment case ends with healing or at the end of a particular sickness episode. This applies to both specialised medical care and family physician appointments. When visiting other doctors (including ED) in the meantime, previous activities are not shown, and the doctor is not in a position to take it into account in the diagnosis or treatment. It can also lead to duplication of procedures and analyses.

133. Quality Guideline of Estonian Primary Care Centres also states that quality of treatment may worsen if exchange of information is inadequate due to the patient's movement from one treatment stage to another.

134. Additionally, visits and contact with the doctor (including telephone counselling, prescribing medication, etc.) are not uploaded to the Health Information System. According to HWISC, for example, as of Q1 of 2018, about 50–55% of family physician epicrises were uploaded to the

Health Information System.[75] This is due to different practices amongst family physicians On the other hand, more detailed rules[76] on the transmission of data have still not been agreed on between family physicians and medical specialists nor have they been specified in the guidelines.[77]

135. In the opinion of the National Audit Office, both insufficient information technology solutions and inadequate co-operation between the ED and family physicians inhibit treating a patient as the information on the patient's ED visit regarding the patient's condition and further necessary follow-up treatment does not reach the family physician. Similarly, a doctor making an appointment in ED does not always have an overview of previous procedures and treatment regimen prescribed to a patient that would allow for a more accurate diagnosis and should be taken into account when determining the treatment.

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

- Create a financial incentive for family physicians to act to ensure that the patients in the physician's practice list visit their family physician before anyone else for minor health problems. In doing so, ensure that funding is not reduced for those family physicians who have provided high-quality healthcare services and their availability in the event of an emergency, but the patient still visits ED with a minor health problem (recommendation should be implemented in conjunction with the recommendation in clause 137).

Response of the Minister of Health and Labour: In case of a sudden health problem the decision about where to turn for help is made primarily by a patient. The patient's choices are related to both awareness as well as trust in the service provider. To raise awareness, the Estonian Society of Emergency Physicians has, in collaboration with family physicians, developed the patient guide "Family Physician or ED?" that explains in plain language where it is appropriate to turn for help depending on a symptom. The guide is available both electronically and in hard copy.

In order to increase trust in the primary care level, we are implementing a health centres project that brings family physicians in the centres with modern facilities, better options and support services, and one of the characteristics of a new health centre will be longer opening hours (at least in larger centres). At present, it is not possible to expect or request extended office hours to the extent necessary or services comparable to ED from the family physicians who are mostly having sole practices.

[75] Interview with HWISC.

[76] Family physicians do not know what data in the outpatient epicrisis should be uploaded to the Health Information System. Often, information about repeated appointments and minor and recurring diagnoses is not uploaded. Some data can be duplicated when data is uploaded about one appointment in both outpatient epicrisis and medical examination notice.

[77] Eva Anderson, Liisi Panov. Outpatient visits to family primary care centres in the data of the Health Information System in 2015. National Institute for Health Development, 2017.

According to the current EHIF list of health care services, the basic allowance is paid to the centres that are open on weekdays from 08:00 to 18:00 and where at least one family physician receives patients during opening hours, who ensures the reception of all patients in the health centre practice list in case of acute health problems. It is also expected to be a financial incentive, as the basic allowance of a family physician operating in the health centre is significantly higher than the basic allowance of a family physician who has not joined the health centre.

Comment by the National Audit Office: The financial incentive outlined by the Ministry of Social Affairs is related to the concentration of family physicians in health centres. The State Audit Office supports longer opening hours of primary care centres in order to improve the availability of primary care. However, the above recommendation of the State Audit Office is aimed at all family physicians and not just those who have their practices in health centres. The National Audit Office also refers to a financial incentive that would be directly related to how effectively a family physician can ensure care for patients in his or her practice list in case of urgent problems and thus help prevent their visits to the ED.

Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund: Different types of models have been implemented in primary medical care and the different level and capacity of the service providers are known to the Health Insurance Fund.

The Health Insurance Fund has started drafting a new framework contract, which ensures better maintenance of the agreed minimum base level and motivates to achieve a higher level. The mentoring system is being developed in co-operation with the Estonian Family Physicians Association and the World Bank. The system is expected to be implemented from 2020 as an integral part of the new primary care framework agreement. Participation in the system is mandatory for practice lists that need mentoring.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: Current funding model for family physicians sets out the reception times for family physicians and family nurses and the opening hours of the practice. Health centres have a higher basic allowance, which guarantees the requirements for longer opening hours. Patients are still accustomed to turning to the ED in case of a sudden health problem. We believe that raising awareness among patients through various campaigns could help the situation. The extension of various counselling services based on the current family physician advisory line (1220) would also be useful. We are working on launching personalized counselling starting from August 1, 2019.

- If necessary, extend the family physician’s opening time until 20:00 on weekdays once health centres have been completed. Also provide a shortened appointment time on weekends.

  In doing so, systematically start collecting data on out-of-hours service by regions and assess whether patients in the practice lists of centres offering out-of-hours service are less likely to attend the ED and, if necessary, adjust appointment times based on patient visits.

Response of the Minister of Health and Labour: see the previous answer.

Comment by the National Audit Office: The National Audit Office believes that in order to plan appointments outside working hours it is important to start collecting data on the attendance rate of out-of-hours appointments, and then to extend the opening hours, if necessary. As family physicians do not have an obligation to provide data on the number of out-of-hours cases handled, they do not have an exact record of how many people use this service and if it helps decrease ED's workload.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: Family physicians have three different types of practice: solo practice, group practice and practice at a health centre. Health centres are subject to requirements for longer opening hours:

- health centres are open on weekdays from 08:00 to 18:00;
- during opening hours, there is at least one family physician in the health centre who receives patients and ensures the reception of all patients in the health centre practice list in case of acute health problems.
- During the opening hours of the health centre, there is at least one family nurse who receives patients.

    - Concentrate patient information on various symptoms and conditions, medical services, health promotion and disease prevention, etc. in a single website (which may be included, for example, in a patient portal or EHIF website), so that people can find reliable and systematic information. Among other things, such a website should provide support to the patient on deciding when to turn to the ED and when to a family physician, and which problems the patients could handle by him/herself and how.

Response of the Minister of Health and Labour: The above-mentioned patient guide "Family physician or ED?" is available, for example, on the websites of the Estonian Family Physicians Association and larger hospitals, which are definitely reliable sources, but additional digital information channels under public control could also be considered. This, unfortunately, does not prevent other information channels from operating.

Comment by the National Audit Office: The patient guide "Family physician or ED?" is the first step in explaining to the patient where to turn for help based on a symptom. However, the issue of the patient guide was not followed by systematic communication. In order to find the guide on the Internet, you must either be aware of the guide or know the correct keywords. Distribution of the guide on paper depends on the healthcare provider, whether she or he is willing to print the guide. In the opinion of the National Audit Office, the effect of the guide without increasing the patient's awareness is rather modest.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: The proposal is absolutely relevant. The information that helps patients make better health choices could/should be

available from a single source. The Health Insurance Fund will further analyse the proposal.

137. **Recommendations of the National Audit Office to the Minister of Health and Labour in cooperation with the Managing Director of Health and Welfare Information Systems Centre:**

- Create an IT solution by 2020 that would allow family physicians to receive daily information on who on their practice list has visited the ED or called an ambulance during the previous day.

Response of the Minister of Health and Labour: We are familiar with the family physicians' desktop problem and we have together discussed possible solutions. It should be taken into account that family physicians as private legal entities communicate with their IT system developers independently, and the state can only have a supporting role here, including the compatibility with the Health Information System. To our knowledge, the development of Perearst 3, a new IT system solution for family physicians, is in progress and its user-friendliness depends also on the cooperation between the developer and family physicians.

Response of the Managing Director of Health and Welfare Information Systems Centre: The technical solution that allows a family physician to make inquiries about new documents received about patients on their list (and also receive notices dependent on the software the physician uses) is developed by the Health and Welfare Information System Center (HWISC) (standards were published in December 2016). At the moment, it is necessary to change the legislation in order to implement services to the extent desired. Today, the legislation allows to use the service only for obtaining information about newly arrived documents for patients with an open treatment case (for example, for a patient who has been issued a referral or for whom a treatment case has been opened). According to current legislation, the fact that a person is included in the practice list does not constitute the basis for a family physician to make inquiry from the Health Information System to obtain the person's health information. A change to the legislation is needed for the family physician to be able to inquire any new records across all his or her listed patients. It is also necessary to implement and deploy the service in the family physician's software.

Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund: The Health Insurance Fund agrees with the proposal of the State Audit Office.

Health data is a special type of personal data that have to be processed in accordance with the precise requirements of Article 9 of the GDPR. Normally, processing can only be carried out with the consent of the data subject. Paragraph 2 subsection (h) is particularly important..."processing is necessary for the purposes of preventive or occupational medicine, for the assessment of the working capacity of the employee, medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services on the basis of Union or Member State law or pursuant to contract with a health professional and subject to the conditions and safeguards referred to in paragraph 3". In other words, when developing IT solutions, one must comply with the principles of personal data protection.

An agreement is concluded between the patient and the healthcare provider for the provision of the service. In accordance with § 759 of the Law of Obligations Act, a contract is also deemed to have been entered into upon commencement of the provision of services. The family physician and his or her listed patient have not signed an agreement for the provision of service for an unlimited term. Therefore, at present, the family physician has no legal basis for reviewing the data on his or her listed patient without the patient being informed. To implement the proposals, respective legal regulations need to be established.

Viljandi Hospital initiated a pilot project aimed at optimizing the processes of providing different services and improving the exchange of information between the healthcare and social welfare systems, which avoids incidental activities and duplication, reduces costs, and ensures that the service is provided in the right place. The project involves different service providers (family physician, hospital, ambulance, home nurse, pharmacist, social worker), as well as family members or people close to the patient.

- Develop a family physician advisory line in such a way that, with the consent of the patient, the medical staff would be able to access his or her previous medical history, as this makes it possible to verify the accuracy of the advisory line recommendation. The notification system should be developed to ensure that, in the event of more serious cases, the person's family physician is notified of the health issue and the proposed solution;

Response of the Minister of Health and Labour: Respective additional capacity of the family physician advisory line is being developed and the new service is being processed with regard to the supplementation of the healthcare services list of the current year.

Response of the Managing Director of Health and Welfare Information Systems Centre: As for the family physician advisory line, HWISC has been cooperating with Arstliku Perenõuandla PLC on these topics. Arstliku Perenõuandla PLC is introducing Perearst 2 software, which enables to link the Health Information System with the Digital Prescription Centre. To identify a caller of the advisory line, an ID-card and mobile-ID-based system will be introduced, which provides the basis for making inquiries about the caller to the health information system (information received from Arstliku Perenõuandla PLC).

- Create a digital information exchange environment in which it would be possible to monitor entries made by the medical staff upon the diagnosis and treatment of a patient in real time. For example, this would allow the physician who takes appointments in the ED to immediately see the family physician's activities in the diagnosis and treatment of a patient, including examinations and procedures performed.

Response of the Minister of Health and Labour: An option of creating such capacity has been considered in the discussions on the long-term goals of the Health Information System. However, creating this kind of online solution that covers the entire work of the healthcare system is not likely in the coming years.

Response of the Managing Director of Health and Welfare Information Systems Centre: Real-time healthcare information in the Health Information System requires, in addition to technical developments in the Health Information System and in the software used by physicians, a fundamental change in the physician's work processes. Today, all healthcare providers are obliged to submit to the Health Information System a summary of treatment, as well as data from examinations, tests and procedures performed during the treatment process. According to the current legislation, healthcare providers are obliged to submit the summary of outpatient treatment to the Health Information System within 1 working day after approval of the document and a summary of in-patient treatment within 5 working days after approval of the document.

At present, the Health Information System does not receive patient treatment data, for example, if the healthcare professional has not approved the document (for example, the patient has been called back to the physician's appointment) and the treatment case is left open for a longer period. In order to ensure that health information is received by the Health Information System in real-time even if the healthcare professional has not closed the treatment case, a fundamental change in the healthcare system is needed.

138. **Recommendations of the National Audit Office to the Chairman of the Management Board of Health Insurance Fund:**

- Create a mentoring system for family physicians who consistently receive low results according to the quality indicators.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: The mentoring system is being developed in co-operation with the Estonian Family Physicians Association and the World Bank.

Response of the Managing Director of Health Board: The Health Board supports the idea of introducing a mentoring system to help family physicians who are rated at a lower quality level.

- Design a funding model for primary care so that it can, if necessary, supplement family physician's medical staff with a clinical assistant. Involve medical professionals in the development of a professional standard and training plan for a clinical assistant.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: Family physician funding model is constantly evolving and should meet more needs of various service providers, as well as the determination of various non-clinical roles at primary care level. We will conduct respective discussions in cooperation with the Estonian Family Physicians Association in the purchasing model working group of the Health Insurance Fund.

- Oblige all family physicians to participate in the assessment (audit) of the implementation of the quality management system

in order to obtain a comprehensive overview of the level and shortcomings of all family physicians.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: The Health Insurance Fund has participated in the auditing of the Estonian Family Physicians Association practices since 2016 and has clearly expressed its wish to audit the practices of every level. From 2019 onwards, all practices will be assessed on a random sample basis, regardless of whether the family physician has previously asked for it or not.

Comment by the National Audit Office: Since 2009, two thirds of the primary care centres have participated in evaluations carried out by the Estonian Family Physicians Association. The National Audit Office finds it important that an evaluation is given to a third for which the level of quality is unknown. Evaluation based on a random sample does not guarantee this.

139. **Recommendation of the National Audit Office to the Managing Director of the Health Board:** supplement the methodology for assessing the availability of primary care so that it can assess the actual availability of primary care. In doing so, analyse whether the principles of family physician's work organisation (maximum number of persons on a practice list and prescribed appointment time) correspond to the actual needs.

Response of the Managing Director of Health Board: One of the tasks of the Health Services Department is to advise people on the availability of family physicians. Majority of the callers are people who are living or temporarily residing in Tallinn. We also receive quite a few requests on the change and selection of family physicians, and in order to provide people with prompt and operative information on primary care, we have created a special counselling position. We will also register complaints concerning the availability of primary care and, if necessary, initiate a supervision procedure.

Pursuant to the instructions for the family physician and healthcare professionals working with him or her, a primary care provider (health centre) is obligated to enable a patient to have an appointment in the event of an acute illness on the day patient turned to the practice and in other cases within five working days. In order to comply with this deadline, the family physician must, if necessary, extend his or her opening hours. A health certificate that is not related to the provision of healthcare services must be issued to the patient within 15 days. Thus, the family physician is already obliged to extend the admission hours in order to ensure the availability of primary care based on the law.

Response of the Chairman of the Management Board of the Estonian Health Insurance Fund: The availability of primary care is monitored by visiting family physicians' practices on-site without prior notice. The purpose of the inspection is to assess the compliance with the availability requirements based on the terms and conditions set out in the legislation and in agreement with the Health Insurance Fund. The control of the availability of primary care services is carried out by the health inspectors of the Health Insurance Fund, who have been using updated methodology since October 1, 2016.

From October 1, 2016 to June 30, 2018, on-site inspections of primary care were carried out in 742 practice lists (i.e., 93.7% of all lists according to the number of lists as of June 18). All sites were checked, including secondary sites, in addition to the main location of the family physicians. During the abovementioned period, inspectors visited 807 sites.

Results. In a quarter of inspected sites, all availability requirements were met. In 13.5% of the inspected site, more than 10 deficiencies were found.

The availability requirements are as follows: display of information (information is visible to patients at the family physicians' facilities and on the Internet), notification about changes (informing the Health Insurance Fund about changes in reception times, vacations, or staffing), access to an appointment (enabling the registration for the family physician's appointment, getting an appointment within required time, etc.).

Most of the deficiencies identified during inspections were related to the display of information (for example, information about opening hours, price list of paid services, etc.). Notifying of changes (for example, work arrangements during holidays) was performed properly in most locations. Patients with acute conditions were able to get an appointment on the day they contacted the family physician (approx. 99%) in most locations inspected.

The Health Insurance Fund will continue to carry out on-site inspections based on the current methodology, until the main locations of all the practice lists and at least one secondary site have been inspected.

We clarify the reasons for any identified deviations and agree on corrective measures.

Comment by the National Audit Office: In our opinion, the current methodology does not allow to assess the availability of primary care with necessary accuracy, as it does not reflect the actual time a patient has to wait to get an appointment.

Provision of specialised medical care does not meet all the needs

Unmet need for health care in specialised medical care increases the number of visits to the department of emergency medicine

Treatment need for specialised medical care

140. "National Health Plan 2009–2020" aims to ensure the availability of high-quality health care for all of those in need.

For your information

EHIF's methodology for assessing demand has been criticised for the fact that it is based on earlier use of services and there is no information on how much of the services are left unused due to various obstacles (out-of-pocket expenses, waiting time, insurance status, etc.).[78] It has also been pointed out that the assessment of demand does not include such healthcare and nursing services, care and support that is needed but not currently offered by the healthcare system.[79]

141. One of the prerequisites is the availability of specialised medical care. The latter depends on the extent to which health care needs of the people of Estonia, i.e. demand for specialised medical care, are met.

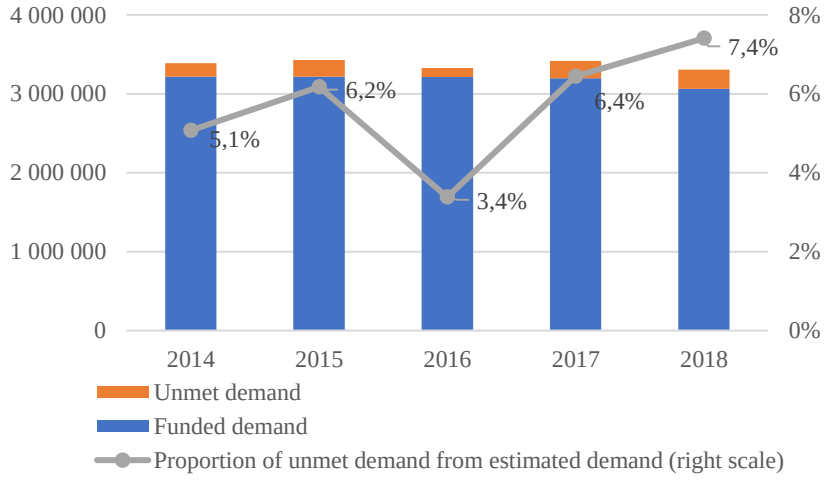
142. The Health Insurance Fund is responsible for the availability of specialised medical care. Every year, EHIF assesses the need for health care of insured individuals in order to conclude contracts with healthcare institutions on the basis thereof. Calculation of demand takes into account the past use of services and sociodemographic characteristics of the population

143. (e.g. ageing, proportion of women and men), population density and regional differences in illness. Demand is planned by area of specialisation and type of services in the form of treatment cases, the number of which is limited based on the health insurance budget and priorities for the year in question.

Unmet demand – the difference between the estimated demand calculated by the EHIF and met (or budget-covered) demand.

144. In the period from 2014 to 2018, the proportion of unmet demand in specialised medical care has increased from 5.1% to 7.4%. In terms of funding, EHIF estimates the population's demand to be around €685 million in 2018, while unfunded demand is 7.6% of this (or about €52 million). This means that there are about 245,000 unfunded treatment cases (see Figure 14).

Figure 14. Number of estimated, funded and unfunded treatment cases of specialised medical care and the proportion of unfunded demand out of estimated demand, 2014–2018[80]



Source: Estonian Health Insurance Fund

For your information

In 2018, demand for specialised medical care was estimated at 3.3 million cases, which is about 113,000 fewer treatment cases than in 2017.

E-consultation – Family physicians have been given the opportunity to consult with medical specialists to help diagnose their patient and determine treatment using the Health Information System.

145. According to the Health Insurance Fund, the number of treatment cases and the availability of medical care cannot be equated one-on-one, as some specialised medical care appointments can be prevented; that is, these patients could have been helped by a family physician. EHIF plans

[78] Memorandum of the Minister of Health and Labour to the Cabinet, 16 March 2017.

[79] Raul-Allan Kiivet. Estonian Health care needs extra 500 million. Postimees, 05.04.2017.

[80] In 2016, the small proportion of unfunded treatment cases was not the result of a large number of funded treatment cases, but rather due to the fact that the EHIF rated the demand for this year to be smaller compared to other years as a result of changes in the methodology. In 2017, the methodology was changed again and demand was estimated to be at a similar level than before 2016.

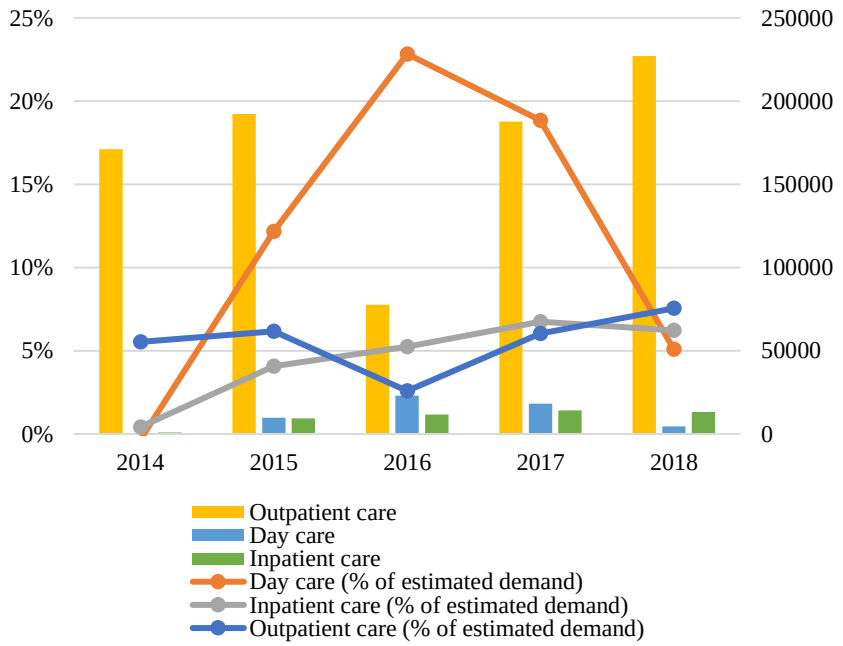
to reduce the number of avoidable appointments through a wider adoption of e-consultations.

Unmet demand in specialised medical care

146. According to EHIF, the majority of unfunded treatment cases are in outpatient care. The proportion of unfunded treatment cases in outpatient care has increased from 5.5% to 7.6% in 2014–2018. In absolute numbers, in 2018, 227,000 treatment cases are unfunded; in 2017, the number was 188,000.

147. In the case of inpatient care, unfunded demand has increased significantly, from 0.4% to 6.2%. Although there are few unfunded treatment cases compared to outpatient care, it accounts for 44% of unfunded demand financially. In day care, the proportion of unfunded demand has significantly fluctuated, but it accounts for quite a small proportion of specialised medical care (see Figure 15).

Figure 15. Number of treatment cases of unfunded demand in specialised medical care and their proportion out of estimated demand by the type of treatment, 2014–2018[81]



Source: Estonian Health Insurance Fund

[81] See previous footnote.

Hospitals' excess work

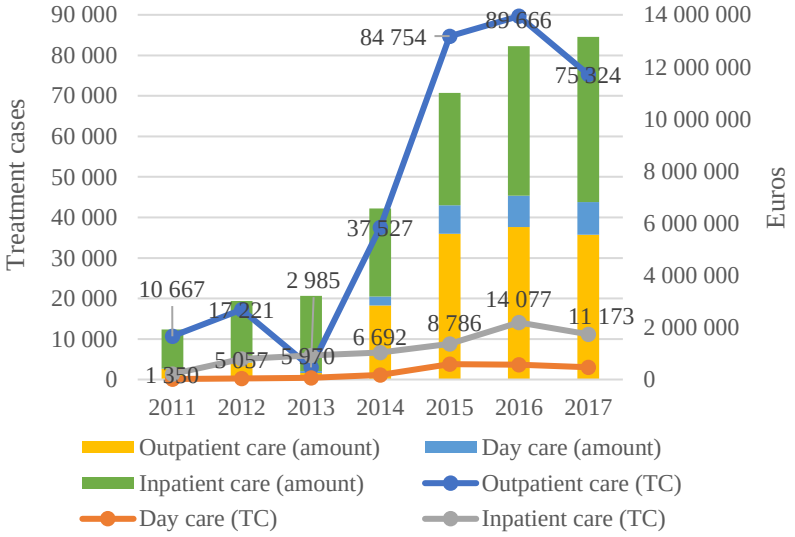
Excess work – work done by the hospitals that exceeds the work provided in the contract with the Health Insurance Fund. Medical service offered up to a 5% more than agreed on in contract is paid for with a coefficient of 0.7 in outpatient and day care unit and 0.3 in inpatient care. Further excess work must be added to its own costs by the hospital.

The purpose of financing excess work is to ensure that the necessary medical care is still offered despite the constraints arising from the EHIF contract.

148. Hospital excess work also reflects people's unmet healthcare needs. In 2011–2017, the number of excess work treatment cases increased by about 6 times. The growth of excess work was partly affected by the increase of the excess work coefficient in 2014 and the decreased volume of the contract for inpatient care. According to EHIF, increase in excess work shows the difference between the funding of specialised medical care and the actual needs of patients. Increase in the volume of contracts for financing medical treatment is limited by the accrual of the health insurance component of the social security tax.[82]

149. In 2017, outpatient care accounted for 84% of treatment cases that were carried out as excess work, and 42% of the total cost of excess work. A large number of outpatient treatment cases in excess work may be connected to a large number of visits to the ED. While there were fewer treatment cases in inpatient excess work (13%), their cost accounted for 48% of the total excess work (see Figure 16).

Figure 16. Excess work by type of treatment, amounts and treatment cases (TC), 2011–2017



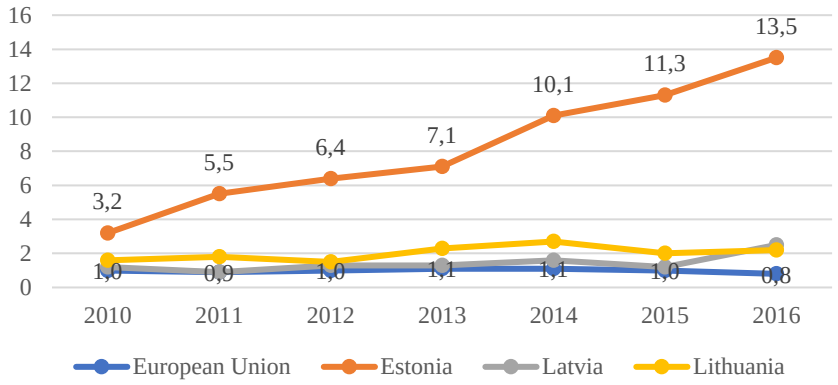
Source: Estonian Health Insurance Fund

International comparison of unmet demand for specialised medical care

150. International comparison also indicates that there is unmet demand for specialised medical care in Estonia. In 2017, 10.5% of surveyed 16-year-old and older people reported to have uncovered healthcare needs (see Figure 17). Although the share has slightly decreased compared to 2016, in Estonia it is still the highest among the European countries. Poland was second with 3.9%, and the rate was below 1% in the majority of countries.

[82] Tanel Ross. Current situation and future perspective of Estonian health insurance. Estonian Health Insurance Fund, 2016.

Figure 17. Unmet healthcare need of Estonian people (% of respondents reporting unmet needs due to long treatment waiting lists), 2010–2017

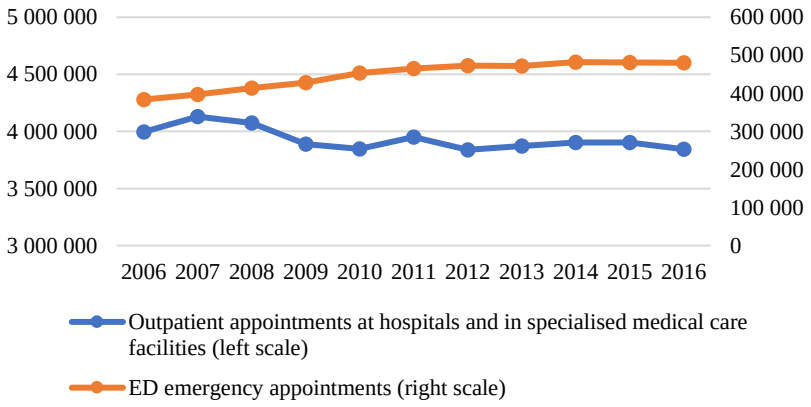


Source: Eurostat

Correlation between unmet need for health care and visits to the department of emergency medicine

151. There is a clear correlation between people's unmet healthcare needs and their visits to the ED. The National Institute for Health Development[83] has pointed out that since 2006, the decrease in the number of outpatient appointments has increased ED workload (see Figure 18). Analysis results showed that when the number of outpatient appointments to doctors in other specialties decreases, the number of patients arriving at the ED increases. According to the National Institute for Health Development, a decrease in healthcare funding has played a role in reducing the number of doctor's visits in the given period.

Figure 18. Outpatient admissions and visits to the ED, 2006–2016



Source: National Institute for Health Development

152. In interviews organised by the National Audit Office, representatives of several hospitals and the Ministry of Social Affairs[84] also pointed out that the limited availability of planned medical care increases the number of ED visits. People go to the department of emergency medicine if they are not able to visit a medical specialist quickly enough.

[83] Eva Anderson. Doctors' outpatient appointments and home visits, 2004–2014. National Institute for Health Development, 2016.

[84] Interview with the Estonian Family Physicians Association, Tartu University Hospital, North Estonia Medical Centre, East Tallinn Central Hospital, West Tallinn Central Hospital, Põlva, Valga, Viljandi and Rakvere Hospital.

Difference between revenues and expenses of health insurance budget

153. Health care costs have grown year by year (for details, see Appendix A), but the gap between people's need for health care and the services offered increases. In the period of 2013–2016, EHIF's total net income was permanently negative: losses reached nearly €30 million in 2016. For this reason, EHIF's reserves have been steadily decreasing in recent years. As a result of a larger social tax receipt than expected and a 10 million state budget allocation to improve the availability of specialized medical care, the EHIF's net gain for 2017 was €6.8 million.

For your information

In 2018, social security tax will be paid for pensioners, adding €89 million to health care. Of this, €55 million will be used for covering EHIF's added liabilities and €34 million will be the actual additional revenue.

By 2021, income from social security tax payable for pensioners is estimated at €176 million, of which €100 million will be spent on added liabilities and €76 million will be the actual additional revenue.

154. This means that the health insurance component of the social security tax does not cover health care costs. The reason is, in particular, a decrease in revenue due to a decrease in working-age population, an increase in costs due to ageing, and a higher than average increase in the cost of health services (new treatment options and faster salary growth)[85]

155. In 2017, amendments to the Estonian Health Insurance Fund Act were approved, according to which the state will start to pay health insurance contributions of the social security tax for non-working pensioners. At the same time, liabilities such as financing the ambulance, HIV and tuberculosis pharmaceuticals, vaccines, etc., which were previously funded separately from the national budget, will be transferred to the EHIF, and those costs will take up the majority of the additional health care funding. Therefore, there is a lack of clarity as to the extent to which additional funding helps to improve the availability of medical care and reduce unmet healthcare needs.

156. In the opinion of the National Audit Office, the current funding of specialised medical care does not guarantee that the needs for specialised medical care services are met. Shortfalls in the availability of specialised medical care lead to ED visits by patients.

Some patients are not able to visit a medical specialist in time

157. Decision of the supervisory board of the EHIF[86] sets the maximum waiting time for outpatient medical care at 6 weeks (42 days). For planned inpatient specialised medical care, day care (except for some operations) and infertility treatment, the maximum waiting time for treatment is 8 months (240 days). Maximum length of the outpatient waiting list was extended in 2009 and has not been reviewed.

158. The National Audit Office assumed that the waiting lists correspond to the established requirements and that patients receive appointments within a permitted time period.

Keeping track of treatment waiting lists

159. HNDP hospitals submit data on the treatment waiting list for each type of treatment (outpatient, day care, inpatient) and specific medical specialty at the start of each month (other providers do so quarterly). For outpatient care waiting times, HNDP hospitals also submit a retrospective report on waiting times. From 2014 onwards, a healthcare service provider must provide the option to book an appointment for 3 months in advance in medical specialities [87]that do not require a referral and 4

[85] Analysis of the sustainability of financing health care. Ministry of Social Affairs, 2016.

[86] Supervisory board of the EHIF decision no. 5 "Maximum length of treatment waiting lists" of 11 January 2013.

[87] Psychiatry, gynaecology, skin and venereal diseases, and eye diseases.

months in advance for other medical specialities.[88] Hospitals do not need to keep a queue of a waiting list, i.e. the Health Insurance Fund has no overview of the cases where a patient calls to book, but there are no available appointments.

Waiting time in outpatient care

Ophthalmology – medical field focusing on eye diseases.

160. In 2017, 9 out of 33 medical specialities in outpatient care had longer waiting times than allowed (see Table 1). For example, ophthalmology has a longer waiting list than allowed. This is also reflected in visits to the ED, as 23,500 patients visited the ophthalmologists in the ED of the East Tallinn Central Hospital in 2017. This is about a quarter of the treatment cases of ophthalmology outpatient and inpatient care in the East Tallinn Central Hospital, which may therefore be considered in essence to be an ophthalmology outpatient service.

Table 1. Average waiting time for outpatient treatment in medical specialties where waiting time was longer than allowed

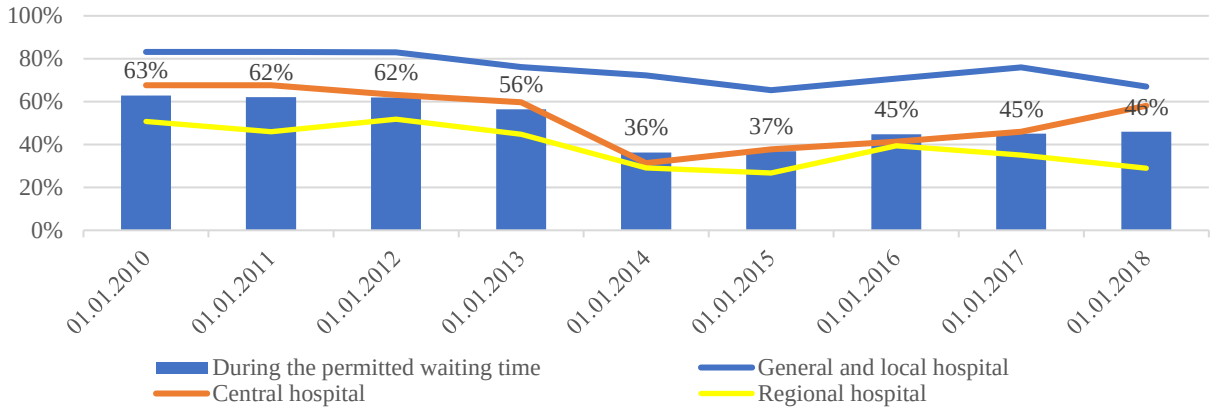
Medical specialty	Average quarterly waiting times in 2017, in days	Number or days exceeding the waiting time
Endocrinology	43.3	1.3
Psychiatry	43.4	1.4
Rehabilitation	44.2	2.2
Orthopaedics	45.7	3.7
Urology	52.5	10.5
Gastroenterology	60.1	18.1
Ophthalmology	63.2	21.2
Facial and maxillofacial surgery	66.3	24.3
Neurosurgery	104.1	62.1

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

161. As of January 1, 2018 - 54% of patients were unable to get an appointment during the prescribed waiting time (see Figure 19).Waiting times are caused by the lack of capacity, i.e. shortage of staff, including doctors (15%) and inadequate funding (4%). The main reason is the patient's choice (81%), i.e., the appointment time was not suitable for the patient or they wanted to see a specific doctor. At the same time, patients might have dropped their appointments because the waiting time for the medical specialist was too long.

[88] There was no such requirement previously.

Figure 19. Proportion of outpatient appointments within permitted waiting time at the beginning of the year according to hospital rank, 2010–2018



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

Waiting time in inpatient care

Orthopaedics – Surgical specialised medicine that focuses on the diagnosis and treatment of the musculoskeletal system, i.e. bone, muscle and joint injuries.

Otorhinolaryngology – Medical field that focuses on diagnosis and treatment of ear-nose-throat diseases.

162. Inpatient treatment did not exceed the time limits for any specialty, except for certain medical specialities in specific hospitals, where there waiting time is several times higher than allowed. For example, as at 1 January 2018, the waiting time at East Tallinn Central Hospital in the field of orthopaedics is 658 days. A similar situation is in the field of otorhinolaryngology, where waiting time at Tartu University Hospital was 608 days.

163. 20% of patients were unable to receive inpatient and 28% were unable to receive day care treatment during the permitted waiting time.

164. According to the Health Insurance Fund, one of the reasons for waiting lists is that HNDP hospitals plan more emergency and repeat appointments than before (see chapter "Visits to the department of emergency medicine are financed at the expense of planned specialised medical care"). For example, compared with the same period in 2015, the number of first-time planned appointments decreased by 20,000 in HNDP hospitals in 2016.[89] The second reason is the unmet need for treatment (see the previous sub-chapter).

Estonian waiting times in international comparison

165. OECD has analysed the availability of specialised medical care on the basis of three operations: hip replacement, knee replacement and cataract[90] surgery. Estonia has one of the longest waiting times according to the average waiting time for each of these three operations, although the waiting time does not exceed the maximum time set in Estonia (see Annex F). Therefore, the maximum lengths set for waiting times should be reviewed in Estonia.

Assessment by the Estonian people of the availability of specialised medical care

166. According to results of the study “Opinion of Estonia’s Residents on Health and Medical Care 2016", 73% of respondents think that the main reason why people did not see a medical specialist was a too long waiting

[89] Availability of healthcare services in 2016, 12 months. Estonian Health Insurance Fund, 2017.

[90] Cataract is one of the most common causes for loss of vision.

list. This reason has been brought up more and more over the last three years: In 2014, 68% and in 2015, 64% named this as a reason.

Digital referral – is a referral to a medical specialist that is forwarded through the Health Information System.

167. Both the full implementation and improvement of the digital referral and the introduction of a digital registry would help to manage waiting lists better.

168. By using a paper-based referral, the patient is able to put himself or herself on the waiting lists for several medical specialists. In the case of a digital referral, the booking is linked to a specific appointment and the patient is not able to book several appointments. This is currently being implemented.

169. Full implementation of digital referrals allows the introduction of a digital registry across hospitals, the implementation of which will probably reduce waiting times. Both development projects have been delayed so far, since the complete integration of information systems of family physicians and hospitals and the specification of technical standards for digital referrals has taken longer than planned. In addition, HNDP hospitals have not aligned the stages of work processes and substantive planning of work (e.g. early release of appointment schedules) nor ensured the exchange of data.

170. According to the Estonian Family Physicians Association, e-counselling could help patients with emergency health problems visit a medical specialist sooner. This means that a medical specialist receives a comprehensive overview of the patient's condition and, based on this, offers the most suitable waiting time for the patient based on his or her specialty. Advantages in selecting patients through e-counselling have also been pointed out by family physicians in the EHIF's study of 2016.[91]

171. In the opinion of the National Audit Office, as waiting time for patients exceeds the maximum times set out in regulations, it may in many cases result in a deterioration in their health status and/or visit to the ED. In Estonia, there are somewhat less stringent requirements for waiting lists compared to other OECD countries.

172. Recommendations of the National Audit Office to the Minister of Health and Labour:

- Fully implement digital referrals to prevent the patient from registering with several medical specialists at the same time;

Response of the Minister of Health and Labour: The transition from paper referrals to digital ones is planned in stages. In order to ensure smooth transition, the Ministry of Social Affairs, the Estonian Health Insurance Fund, the Health and Welfare Information Systems Centre, the Estonian Family Physicians Association and the Estonian Hospital Association are working closely together.

The timetable for switching to digital referrals is as follows. During 2018, it is planned to switch entirely to digital referrals in primary medical care. The development activities focus on the introduction of digital referrals from one medical specialist to another. In 2018-2019, the development activities are focused on the introduction of digital referrals for tests and

[91] Barrier analysis of the implementation of e-consultation. Saar Poll, 2016.

procedures and for admissions of non-medical specialists. In 2019, digital referrals will be developed and implemented for nursing care and hospitalization.

- Introduce a digital registry across multiple hospitals that would allow for a better management of waiting lists by the end of the first quarter of 2019.

Response of the Minister of Health and Labour: Implementation of nation-wide digital registration has, indeed, taken longer than planned. As a part of a pilot project, the North Estonian Regional Hospital will join the digital registration in November this year, and other hospitals will join the next year. In order to motivate medical institutions to join digital registration, we have planned to include in the treatment funding contract we sign with hospitals a requirement of joining the digital registration within in a year after the completion of the nationwide digital registration solution, in other words by 2020 at the latest.

- Determine whether the maximum length of waiting lists established in Estonia is justified and whether the patient's state of health does not generally get worse during the waiting time.

Response of the Minister of Health and Labour: Maximum lengths of waiting lists are approved by the Board of the Health Insurance Fund as an administrative limit and these are not intended to replace a medical evaluation. Every waiting list includes patients with different conditions although their formal diagnosis might be the same. The physician will assess a patient's health status and how urgently he or she needs treatment. A patient can never be registered in a waiting list mechanically, but based on the maximum allowed length of the waiting list. Thanks to increasing provision into the health insurance budget for non-working pensioners in coming years, we can gradually increase the number of services and reduce waiting lists, and it would certainly be relevant to review the maximum length of waiting lists.

Comment by the National Audit Office: Current system of waiting list registration does not take into account the level of severity of a patient's condition. In case of a long waiting time, there is a risk that the patient's condition deteriorates significantly, while the actual waiting time may not be longer than allowed. Thus, the criteria seem to be met, but the patient may already need more expensive, more complex and time-consuming care.

/signed digitally/

Ines Metsalu-Nurminen
Audit Department, Director of Audit

Recommendations of the National Audit Office and the responses of the auditees

The National Audit Office issued a number of recommendations on the basis of an audit to the Minister of Health and Labour, the Chairman of the Management Board of the Estonian Health Insurance Fund, the Managing Director of Health Board and the Managing Director of Health and Welfare Information Systems Centre. The Minister of Health and Labour sent their response to the recommendations of the National Audit Office on 27.08.2018, the Chairman of the Management Board of the Estonian Health Insurance Fund on 22.08.2018 and the Managing Director of Health and Welfare Information Systems Centre and the Managing Director of Health Board on 21.08.2018.

General comments about the audit report

Feedback by the Minister of Health and Labour: Thank you for sending us the draft of "Emergency Medicine" report for reviewing, and for the opportunity to provide feedback on the recommendations made to the Minister of Health and Labour. The situation at the departments of emergency medicine (EDs) is under our close attention and we work closely with the Estonian Health Insurance Fund while monitoring interventions and their impact.

Comment of the Managing Director of Health and Welfare Information Systems Centre: Clause 130: The standard issued by HWIS is based on judicial area. The documents forwarded to the Health Information System are set by the Regulation of the Minister of Social Affairs "Data Content of Documents Forwarded to Health Information System and the Conditions and Arrangements for Retention of these Documents". Today, the e-chart for ED visits has not been established in the judicial area as a health document to be forwarded to the Health Information System and therefore, it cannot be applied to the Health Information System. In the period of 2009–2011, the Estonian Hospitals Association prepared an analysis and process description, but it has not been implemented: https://haiglateliit.ee/wp-content/uploads/2015/04/standardimise_projekt_02_EMO_raport.pdf.

Response of the National Audit Office: It is true that the e-chart can be applied only when established by law, however, the need for this was identified already at least 8 years ago. HWIS as an authorized employee of the Health Information System can make suggestions for changing the judicial area and ensure that any visits to the department of emergency medicine would be forwarded to the Health Information System.

Comment of the Managing Director of Health and Welfare Information Systems Centre: Clause 134: We would like to specify that, at the time of the interview in February 2017, about 40% of the epicrises was forwarded (as compared to the treatment cases), the number of primary care centres that forwarded information was nearly 100% (this means that, basically all primary care centres registered in the Health Board's register forwarded epicrises to the Health Information System to some extent). In Q1 of 2018, the data collection for outpatient epicrises was between 50 and 55 percent (that is, all primary care centres forwarded epicrises within this range as compared to the treatment cases).

The documentation of the provision of healthcare services is regulated by various legal acts. The way how healthcare provider documents a contact with a patient is regulated by the Regulation no. 56 of the Minister of Social Affairs on 18.09.2008 „Documentation of Provision of Health Services and Conditions and Arrangements for Retention of these Documents“. Data on the healthcare service provided to the patient has to be forwarded to the Health Information System. What documents and for which health care services provided to the patient in which data content are to be forwarded to the Health Information System is regulated by the Regulation No. 53 of the Minister of Social Affairs on 17.09. 2008 "Data Content of Documents Forwarded to Health Information System and the Conditions and Arrangements for Retention of these Documents". The statutes of the Health Information System provide conditions for the delivery of a healthcare service document to the Health Information System.

The healthcare provider forwards data to the Health Information System according to the following principles:

- for outpatient treatment within 1 working day after the healthcare provider has approved the respective document;
- for inpatient treatment within 5 working days after the healthcare provider has approved the respective document;
- for a referral issued during the provision of a healthcare service, data should be forwarded immediately after the preparation of the referral;
- data on a death notice should be forwarded immediately after the establishment of death, and the data on a notice of cause of death and a notice of cause of perinatal death within one working day after the healthcare professional has approved respective document;
- to make medical images available, immediately after taking them.

Therefore, the argument that there are no rules in place for data forwarding is not true. As the percentage of data acquisition shows, there is a need for information and supervision work among physicians to ensure that their responsibilities for data transmission are met in the judicial area. And this is what HWIS is doing in co-operation with the Estonian Health Insurance Fund and the Health Board.

Response of the National Audit Office: We will add into the report new data of epicrises sent by physicians. Information about family physicians' lack of knowledge about what data should be sent to the Health Information System came from the study published by The National Institute for Health Development in 2017 "Outpatient visits in primary care institutions included in the data of the health information system in 2015". The study revealed that as the number of visits to family physicians was very high, the family physicians did not find it reasonable to record every visit and activity in the Health Information System (HIS). Often, data on recurrent visits and less severe and recurrent diagnoses (such as upper respiratory infections) are not forwarded to HIS. Physicians are afraid that if they forwarded all the data to HIS, the amount of data would finally be too large and it would be very difficult to find relevant patient information. Moreover, the physicians do not know whether they have to additionally forward outpatient epicrisis for children's health check notices (for example, notices on growth and immunization) and adults'

health certificates to HIS. Some primary care institutions forward an epicrisis with every notice and certificate. Therefore, family physicians need a more detailed guide on what kind of data and how to forward.

Response of the Managing Director of Health Board: Uninsured persons should be handled separately to clarify the reasons why a person is uninsured and to find a solution how to ensure health insurance in this case. The Health Board does not support the idea that everyone should automatically get health insurance. For example, health insurance can be obtained by registering as unemployed, so the question is - should all uninsured people still receive free primary care (for example, those who receive „envelope wages"). Providing free primary care for everyone will not solve the health problems of uninsured people, as further care is still payable in this case. Many people do not turn to a family physician irrespective of their insurance status

Response of the National Audit Office: We agree that it is necessary to investigate the reasons for the lack of health insurance coverage. Indeed, health insurance coverage can also be obtained, for example, when registering as unemployed, but this is also one of the wrong motivations that unemployment assistance system provides and that distorts the overview of people actually seeking work, and leads to costs (such as processing costs, provision of labour market services).

The findings of this audit showed that the treatment of uninsured persons in the EDs is significantly more expensive because they are often at a poorer state when they finally come to the ED. This, in turn, is due to the fact that uninsured people have previously been less likely to see a family physician and have been less examined. It is likely that the main reason why uninsured people have not visited their doctor before and they visit ED with a worsened health condition is their low income. Analysis of the National Audit Office showed that 87% of uninsured people who visited ED in the first half of 2016 (except for trauma patients) did not declare income during the same period (neither in Estonia nor abroad) and they probably would not have been able to pay for their medical services themselves.

The Ministry of Social Affairs has calculated that, in comparison with the current system, the expansion of health insurance coverage would not be significantly costlier. For example, if the amendment came into force in 2017, the financial cost of the Health Insurance Fund budget would have been around €59 million. However, taking into account other costs for uninsured individuals guaranteed by the state budget, it would not ultimately lead to costs to a large extent, as it is possible to provide preventive healthcare services for uninsured persons, e.g. primary healthcare and cheaper pharmaceuticals, instead of funding emergency assistance provided in the departments of emergency medicine. The Estonian Family Physicians Association also believes that uninsured persons should have access to primary care services without co-payments.

In addition, according to the Organization for Economic Co-operation and Development (OECD), Estonia is one of the few countries in the European Union where some people do not have health insurance coverage. For example, there is a full health insurance coverage in Finland, Sweden and Denmark. See details in Appendix D, Figure 2.

Response of the Managing Director of Health Board: We support the development of personalized counselling with the Family Physician Advisory Line (1220). However, the person should have an opportunity to turn directly to the ED. Given the shortage of staff at primary care level, people should not be deprived of the right to seek help at the ED, if necessary.

Response of the Managing Director of Health Board: The comments made by the National Audit Office that visits to ED are related to patients' awareness and attitudes towards the health care system need to be highlighted and commented separately.

When looking at the analysis carried out, it can be clearly seen that so-called avoidable visits happen mostly in regional hospitals (Tallinn and Tartu), while in smaller HNDP hospitals, the proportion of such patients is significantly lower. If you take the context of the availability of primary care, which is the focus in the audit, you cannot see a tendency there that in the regions where there is a problem with the organization of primary care, the number of visits to the ED would be higher than at other HNDP hospitals (practice lists have temporary replacement physicians or family physician's workload is temporarily higher due to replacement jobs). Lääne-Virumaa, Raplamaa are the regions where the number of temporary replacements is highest or the workload of family physicians has increased as compared to normal workload. At the same time, the number of ED visits at Rakvere or Rapla hospitals is not significant compared to regional hospitals. Therefore, more attention should be paid to patients' awareness and attitude rather than to the fact that primary care is not available and we should introduce out-of-hours and weekend reception. If the patient does not want to go to a family physician or it is more convenient for him or her to visit the ED, then longer reception hours will not change the patient's behaviour. To put it briefly, this should be a priority. In addition, it should be taken into account that patients are not always competent to assess their health condition or to decide whether or not they need emergency intervention.

Response of the National Audit Office: The National Audit Office believes that both the availability of primary medical care and patient awareness are important factors when it comes to the number of ED visits.

Based on the survey carried out at the EDs of 8 hospitals, the proportion of patients who could have received help from a family physician was indeed higher in regional hospitals than elsewhere. However, it is important to also look at the triage categories for the EDs of all HNDP hospitals. The proportion of Green and Blue triage category visits is the highest (over 80%) in smaller HNDP hospitals: Jõgeva, Läänemaa, South Estonia, Järvamaa, Rapla, Põlva and Kuressaare hospitals (see Appendix A, Figure 5). At North Estonia Medical Centre and Tartu University Clinic the proportion of such visits were 63% and 48% respectively. Therefore, it cannot be concluded that avoidable visits occur primarily in regional hospitals.

In Rapla and Rakvere Hospital EMOs, the total number of visitd is lower than in regional hospitals, but, compared to the county's population, the number of EMO visits is, on the contrary, higher than for Tallinn hospitals. This could be due to the problem with the availability of primary medical care in these areas as pointed out by the Health Board.

Response of the Managing Director of Health Board: Clause 12: A family doctor receives patients 4 hours a day, and on one day a week the reception must be open until 18:00. Many family physicians have established a so-called infant's day in their centre, when they do not see any other patients. As the family physician reception is open 4 hours a day, it is not correct to conclude that all patients who attended the ED between 8:00 and 18:00 on a working day could have turned to their family physician instead.

Response of the National Audit Office: Noted. We added a comment to cl. 12.

Response of the Managing Director of Health Board: Clause 21: An independent nurse's appointment cannot replace a physician's appointment. A medical specialist refers a patient to the independent nurse's appointment and the service is provided

by a clinical nurse specialist. Procedures that do not require a clinical decision (for example, tick removal) could, of course, be performed by a nurse independently, but in this case it would not be an independent nurse's appointment. Rather, it would be necessary to create family physician's 24-hour reception at the ED.

Response of the National Audit Office: The report notes that the use of nurse's appointment at ED, which does not have to be followed by a physician's appointment, would help reduce the workload of doctors working at the ED. Healthcare providers, in cooperation with national authorities, should agree on complaints and procedures that would enable to implement this solution.

Response of the Managing Director of Health Board: We advocate the development of health centres on the primary level aimed at concentrating the service from sole practices into collective practices, and comprehensive approach to services, as well as flexible use of resources. This organisation allows for integrated patient treatment at the primary level. We also support the idea of joint registration system, which would improve the availability of the service.

As for the suggestion to extend the reception hours of family physicians in health centres after working hours or weekends, this might not bring about expected solutions in practical organisation of healthcare quickly enough. Transfer to such organisation should be flexible and done in stages. Many family physicians may refuse to bring their practice in the health centre because they do not want to extend their appointment hours. There are also many sole practices in Estonia where family doctors cannot provide reception out of working hour, thus, family physicians will be required to work longer and with bigger workload, which may result in family physicians leaving their practices. Such a solution can be used in a situation and in regions where the succession of family physicians is ensured and family physicians are concentrated in health centres.

Response of the National Audit Office: In the opinion of the National Audit Office, it is important to systematically start collecting data on out-of-hours service by regions and assess whether patients in the practice lists of centres offering out-of-hours service are less likely to attend the ED and, if necessary, adjust appointment times based on patient visits.

Recommendations of the National Audit Office	Responses of the auditees
Raising awareness among patients **55 Recommendations of the National Audit Office to the Minister of Health and Labour:** ▪ consider advising patients via phone before visiting the ED to direct them to the most appropriate ED based on their location and current waiting times, ask them to contact their family physician or provide guidance on how to resolve a health problem at home. This solution could be connected to the existing family physician advisory line, 1220. The ambulance service would continue to remain separate from phone counselling. cl. 22	**Response of the Minister of Health and Labour:** Advising patients via phone before visiting the EMO is also possible through currently available family physician advisory line, which at the moment is anonymous, though. However, it is possible to give advice based on the information provided by the patient. An information technology solution for identifying persons who need counselling is also under development, and this would also allow to look up the health records of a person in the health information system, if necessary. According to the estimation by EHIF, personalized counselling can be launched in the second half of the year. **Comment by the National Audit Office:** We agree that also today, patients have the opportunity to call the family physician advisory line before visiting ED, but in practice this is often not the case. In order to reduce the number of ED visits and, thus, the workload of EDs, with the help of phone counselling service, it is necessary to further develop this service. On the one hand, we should raise awareness among patients about the fact that it is recommended and useful to seek advise via phone service before visiting the ED. At the same time, an opportunity to get information about the waiting times of ED in different hospitals would help patients decide if and which hospital to go for help. **Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund:** The Health Insurance Fund has begun reviewing counselling services in order to extend them on the basis of the current family physician advisory line, 1220. We are making preparations for a procurement in order to start personalized counselling from 1 August 2019, the extent of clinical work required is being agreed upon with the Estonian Family Medicine Society and other affiliated organizations.
Medical care for uninsured individuals ▪ find a solution that allows uninsured people to receive disease prevention and primary care services, thereby preventing their health condition from getting so serious that they need emergency care, which leads to higher medical expenses; cl. 43–51	**Response of the Minister of Health and Labour:** The Ministry of Social Affairs commissioned a study on the reasons for not having health insurance coverage among uninsured persons, and the next step would be to consider the possibilities of extending insurance coverage. Solutions depend to a large extent on the possibilities of the state budget, as well as on political preferences. Until now, insurance coverage has been extended to individual problematic target groups that have been without health insurance (for example, creative people, persons working under several contracts under the law of obligations, etc.). At the same time, it should be kept in mind that in many regions, uninsured individuals are being provided free primary health care, which is possible thanks to the support by local municipalities. Tallinn municipality, the largest municipality in Estonia, has provided uninsured individuals with an opportunity to receive limited outpatient and inpatient health care services; several smaller municipalities have made agreements in co-operation with family physicians to provide family physician services to uninsured individuals, offering family

Recommendations of the National Audit Office	Responses of the auditees
	physicians more favourable rental conditions or other solutions to compensate for their work. **Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund:** It is known to the Health Insurance Fund that the Ministry of Social Affairs is preparing a study on the reasons for the lack of health insurance, which also includes considering of the possibilities of extending insurance coverage. In cooperation with the Ministry of Social Affairs, we will review the rules on the extent and scope of supplementary insurance coverage.
Nurse appointments at EDs ■ amend the Minister of Social Affairs Regulation no. 9 „Guidelines for triage operation in Estonian departments of emergency medicine“ of 19 January 2007 and its Appendix 26 in such a way that makes it possible to use independent nurse’s appointments without consequent physician appointment. This would reduce waiting times and make more efficient use of resources (including money and time) **cl. 21**	**Response of the Minister of Health and Labour:** At present, hospitals can provide independent nurse’s appointments. Independent nurse’s appointment service is also included in the EHIF list of health care services, which is used as the basis for funding. It is rather a matter of organisation; the guidelines will not create any additional rights here. When a triage nurse has examined a patient and rated the triage category as green or blue and instructs the patient to see his or her family physician on the next day, then this is, in our opinion, fully consistent with both the legislation and the guidelines. However, specifications to the guidelines by its authors, if necessary, may be appropriate. **Comment by the National Audit Office:** The current guide determines the time spent on a patient before the physician’s appointment. Therefore, according to the current guidelines, a patient cannot be attended by a nurse only. Independent nurse’s appointment without a subsequent physician appointment in ED would help shorten the waiting times for patients with less severe complaints and use the physician’s time more efficiently.
Funding of ED services **56 Recommendation of the National Audit Office to the Chairman of the Management Board of the Health Insurance Fund**: modify the funding of the departments of emergency medicine so that the availability of planned treatment would not depend on ED treatment cases due to contract terms. **cl. 27–35**	**Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** The work of emergency departments is largely based on readiness, which means that the availability of personnel and equipment and associated costs are necessary regardless of the number of patients. As a result, the EHIF has started discussions with the Estonian Society of Emergency Physicians to consider paying for the work of emergency departments based on a fixed monthly fee that would cover the costs of EDs’ preparedness and initial handling of patients. This way, the treatment provided by the ED and the availability of planned treatment would not be directly linked. The analysis carried out by World Bank in September 2018 will also provide an evaluation of various proposals and possible implications associated with them.
Financial incentive for family physicians **136 Recommendations of the National Audit Office to the Minister of Health and Labour in cooperation with the Chairman of the Management Board of the Health Insurance Fund:** ■ create a financial incentive for family physicians to act to ensure that the patients in the physician’s practice list visit their family physician before anyone else for minor health problems. In doing so, ensure that funding is not reduced for those family physicians who have provided high-quality healthcare services and their availability in the event of an emergency, but the patient still visits ED with a minor health problem (recommendation should be implemented in conjunction with recommendations in cl. 137); **cl. 58–67**	**Response of the Minister of Health and Labour:** In case of a sudden health problem the decision about where to turn for help is made primarily by a patient. The patient’s choices are related to both awareness as well as trust in the service provider. To raise awareness, the Estonian Society of Emergency Physicians has, in collaboration with family physicians, developed the patient guide "Family Physician or ED?" that explains in plain language where it is appropriate to turn for help depending on a symptom. The guide is available both electronically and in hard copy. In order to increase trust in the primary care level, we are implementing a health centres project that brings family physicians in the centres with modern facilities, better options and support services, and one of the characteristics of a new health centre will be longer opening hours (at least in larger centres). At present, it is not possible to expect or request extended office hours to the extent necessary or services comparable to ED from the family physicians who are mostly having sole practices. According to the current EHIF list of health care services, the basic allowance is paid to the centres that are open on weekdays from 08:00 to 18:00 and where at least one family physician receives patients during opening hours, who ensures the reception of all patients in the health centre practice list in case of acute health problems. It is also expected to be a financial incentive, as the basic allowance of a family physician operating in the health centre is significantly higher than the basic allowance of a family physician who has not joined the health centre. **Comment by the National Audit Office:** The financial incentive outlined by the Ministry of Social Affairs is related to the concentration of family physicians in health centres. The State Audit Office supports longer opening hours of primary care centres in order to improve the availability of primary care. However, the above recommendation of the State Audit Office is aimed at all family physicians and not just those who have their practices in health centres. The National Audit Office also refers to a financial incentive that would be directly related to how

Recommendations of the National Audit Office	Responses of the auditees
	effectively a family physician can ensure care for patients in his or her practice list in case of urgent problems and thus help prevent their visits to the ED. **Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund:** Different types of models have been implemented in primary medical care and the different level and capacity of the service providers are known to the Health Insurance Fund. The Health Insurance Fund has started drafting a new framework contract, which ensures better maintenance of the agreed minimum base level and motivates to achieve a higher level. The mentoring system is being developed in co-operation with the Estonian Family Physicians Association and the World Bank. The system is expected to be implemented from 2020 as an integral part of the new primary care framework agreement. Participation in the system is mandatory for practice lists that need mentoring. **Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** Current funding model for family physicians sets out the reception times for family physicians and family nurses and the opening hours of the practice. Health centres have a higher basic allowance, which guarantees the requirements for longer opening hours. Patients are still accustomed to turning to the ED in case of an sudden health problem. We believe that raising awareness among patients through various campaigns could help the situation. The extension of various counselling services based on the current family physician advisory line (1220) would also be useful. We are working on launching personalized counselling starting from August 1, 2019.
Family physician's out-of-hours appointments ▪ if necessary, extend the family physician's opening time until 20:00 on weekdays once health centres have been completed. Also provide a shortened appointment time on weekends. In doing so, systematically start collecting data on out-of-hours service by regions and assess whether patients in the practice lists of centres offering out-of-hours service are less likely to attend the ED and, if necessary, adjust appointment times based on patient visits. **cl. 77–84**	**Response of the Minister of Health and Labour:** see the previous answer. **Comment by the National Audit Office:** The National Audit Office believes that in order to plan appointments outside working hours it is important to start collecting data on the attendance rate of out-of-hours appointments, and then to extend the opening hours, if necessary. As family physicians do not have an obligation to provide data on the number of out-of-hours cases handled, they do not have an exact record of how many people use this service and if it helps decrease ED's workload. **Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** Family physicians have three different types of practice: solo practice, group practice and practice at a health centre. Health centres are subject to requirements for longer opening hours: ▪ health centres are open on weekdays from 08:00 to 18:00; ▪ during opening hours, there is at least one family physician in the health centre who receives patients and ensures the reception of all patients in the health centre practice list in case of acute health problems. ▪ During the opening hours of the health centre, there is at least one family nurse who receives patients.
Raising awareness among patients ▪ concentrate patient information on various symptoms and conditions, medical services, health promotion and disease prevention, etc. in a single website (which may be included, for example, in a patient portal or EHIF website), so that people can find reliable and systematic information. Among other things, such a website should provide support to the patient on deciding when to turn to the ED and when to a family physicians, and which problems the patients could handle by him/herself and how. **cl. 124–125**	**Response of the Minister of Health and Labour:** The above-mentioned patient guide "Family physician or ED?" is available, for example, on the websites of the Estonian Family Physicians Association and larger hospitals, which are definitely reliable sources, but additional digital information channels under public control could also be considered. This, unfortunately, does not prevent other information channels from operating. **Comment by the National Audit Office:** The patient guide "Family physician or ED?" is the first step in explaining to the patient where to turn for help based on a symptom. However, the issue of the patient guide was not followed by systematic communication. In order to find the guide on the Internet, you must either be aware of the guide or know the correct keywords. Distribution of the guide on paper depends on the healthcare provider, whether she or he is willing to print the guide. In the opinion of the National Audit Office, the effect of the guide without increasing the patient's awareness is rather modest. **Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** The proposal is absolutely relevant. The information that helps patients make better health choices could/should be available from a single source. The Health Insurance Fund will further analyse the proposal.
Working e-health solutions	

Recommendations of the National Audit Office	Responses of the auditees
137 Recommendations of the National Audit Office to the Minister of Health and Labour in cooperation with the Managing Director of Health and Welfare Information Systems Centre: ▪ create an IT solution by 2020 that would allow family physicians to receive daily information on who on their practice list has visited the ED or called an ambulance during the previous day. **p-d 130, 133**	**Response of the Minister of Health and Labour:** We are familiar with the family physicians' desktop problem and we have together discussed possible solutions. It should be taken into account that family physicians as private legal entities communicate with their IT system developers independently, and the state can only have a supporting role here, including the compatibility with the Health Information System. To our knowledge, the development of Perearst 3, a new IT system solution for family physicians, is in progress and its user-friendliness depends also on the cooperation between the developer and family physicians. **Response of the Managing Director of Health and Welfare Information Systems Centre:** The technical solution that allows a family physician to make inquiries about new documents received about patients on their list (and also receive notices dependent on the software the physician uses) is developed by the Health and Welfare Information System Center (HWISC) (standards were published in December 2016). At the moment, it is necessary to change the legislation in order to implement services to the extent desired. Today, the legislation area allows to use the service only for obtaining information about newly arrived documents for patients with an open treatment case (for example, for a patient who has been issued a referral or for whom a treatment case has been opened). According to current judicial area, the fact that a person is included in the practice list does not constitute the basis for a family physician to make inquiry from the Health Information System to obtain the person's health information. A change to the legislation is needed for the family physician to be able to inquire any new records across all his or her listed patients. It is also necessary to implement and deploy the service in the family physician's software. **Comment by the Chairman of the Management Board of the Estonian Health Insurance Fund:** The Health Insurance Fund agrees with the proposal of the State Audit Office. Health data is a special type of personal data that have to be processed in accordance with the precise requirements of Article 9 of the GDPR. Normally, processing can only be carried out with the consent of the data subject. Paragraph 2 subsection (h) is particularly important..."processing is necessary for the purposes of preventive or occupational medicine, for the assessment of the working capacity of the employee, medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services on the basis of Union or Member State law or pursuant to contract with a health professional and subject to the conditions and safeguards referred to in paragraph 3". In other words, when developing IT solutions, one must comply with the principles of personal data protection. An agreement is concluded between the patient and the healthcare provider for the provision of the service. In accordance with § 759 of the Law of Obligations Act, a contract is also deemed to have been entered into upon commencement of the provision of services. The family physician and his or her listed patient have not signed an agreement for the provision of service for an unlimited term. Therefore, at present, the family physician has no legal basis for reviewing the data on his or her listed patient without the patient being informed. To implement the proposals, respective legal regulations need to be established. Viljandi Hospital initiated a pilot project aimed at optimizing the processes of providing different services and improving the exchange of information between the healthcare and social welfare systems, which avoids incidental activities and duplication, reduces costs, and ensures that the service is provided in the right place. The project involves different service providers (family physician, hospital, ambulance, home nurse, pharmacist, social worker), as well as family members or people close to the patient.
Family physician advisory line ▪ develop a family physician advisory line in such a way that, with the consent of the patient, the medical staff would be able to access his or her previous medical history, as this makes it possible to verify the accuracy of the advisory line recommendation. The notification system should be developed to ensure that, in the event of more serious cases, the person's family physician is notified of	**Response of the Minister of Health and Labour:** Respective additional capacity of the family physician advisory line is being developed and the new service is being processed with regard to the supplementation of the healthcare services list of the current year. **Response of the Managing Director of Health and Welfare Information Systems Centre:** As for the family physician advisory line, HWISC has been cooperating with Arstliku Perenõuandla PLC on these topics. Arstliku Perenõuandla PLC is introducing Perearst 2 software, which enables to link the Health Information System with the Digital Prescription Centre. To identify a caller of the advisory line, an ID-card and mobile-ID-based system will be introduced, which provides the basis for making inquiries about the caller to the

Recommendations of the National Audit Office	Responses of the auditees
the health issue and the proposed solution; **cl. 131**	health information system (information received from Arstliku Perenõuandla PLC).
Real-time operating Health Information System ▪ create a digital information exchange environment in which it would be possible to monitor entries made by the medical staff upon the diagnosis and treatment of a patient in real time. For example, this would allow the physician who takes appointments in the ED to immediately see the family physician's activities in the diagnosis and treatment of a patient, including examinations and procedures performed. **p-d 132, 134**	**Response of the Minister of Health and Labour:** An option of creating such capacity has been considered in the discussions on the long-term goals of the Health Information System. However, creating this kind of online solution that covers the entire work of the healthcare system is not likely in the coming years. **Response of the Managing Director of Health and Welfare Information Systems Centre:** Real-time healthcare information in the Health Information System requires, in addition to technical developments in the Health Information System and in the software used by physicians, a fundamental change in the physician's work processes. Today, all healthcare providers are obliged to submit to the Health Information System a summary of treatment, as well as data from examinations, tests and procedures performed during the treatment process. According to the current legislation, healthcare providers are obliged to submit the summary of outpatient treatment to the Health Information System within 1 working day after approval of the document and a summary of in-patient treatment within 5 working days after approval of the document. At present, the Health Information System does not receive patient treatment data, for example, if the healthcare professional has not approved the document (for example, the patient has been called back to the physician's appointment) and the treatment case is left open for a longer period. In order to ensure that health information is received by the Health Information System in real-time even if the healthcare professional has not closed the treatment case, a fundamental change in the healthcare system is needed.
Quality and availability of primary medical care **138 Recommendations of the National Audit Office to the Chairman of the Management Board of Health Insurance Fund:** ▪ create a mentoring system for family physicians who consistently receive low results according to the quality indicators. **cl. 89–91**	**Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** The mentoring system is being developed in co-operation with the Estonian Family Physicians Association and the World Bank. **Response of the Managing Director of Health Board:** The Health Board supports the idea of introducing a mentoring system to help family physicians who are rated at a lower quality level.
▪ design a funding model for primary care so that it can, if necessary, supplement family physician's medical staff with a clinical assistant. Involve medical professionals in the development of a professional standard and training plan for a clinical assistant. **cl. 103–104**	**Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** Family physician funding model is constantly evolving and should meet more the needs of various service providers, as well as the determination of various non-clinical roles at primary care level. We will conduct respective discussions in cooperation with the Estonian Family Physicians Association in the purchasing model working group of the Health Insurance Fund.
▪ oblige all family physicians to participate in the assessment (audit) of the implementation of the quality management system in order to obtain a comprehensive overview of the level and shortcomings of all family physicians. **cl. 91–93**	**Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** The Health Insurance Fund has participated in the auditing of the Estonian Family Physicians Association practices since 2016 and has clearly expressed its wish to audit the practices of every level. From 2019 onwards, all practices will be assessed on a random sample basis, regardless of whether the family physician has previously asked for it or not. **Comment by the National Audit Office:** Since 2009, two thirds of the primary care centres have participated in evaluations carried out by the Estonian Family Physicians Association. The National Audit Office finds it important that an evaluation is given to a third of the practices for which the level of quality is unknown. Evaluation based on a random sample basis does not guarantee this.
Supervision of primary medical care **139 Recommendation of the National Audit Office to the Managing Director of the Health Board:** supplement the methodology for assessing the availability of primary care so that it can assess the actual availability of primary care. In doing so,	**Response of the Managing Director of Health Board:** One of the tasks of the Health Services Department is to advise people on the availability of family physicians. Majority of the callers are people who are living or temporarily residing in Tallinn. We also receive quite a few requests on the change and selection of family physicians, and in order to provide people with prompt and operative information on primary care, we have created a special counselling

Recommendations of the National Audit Office	Responses of the auditees
analyse whether the principles of family physician's work organisation (maximum number of persons on a practice list and prescribed appointment time) correspond to the actual needs. **cl. 71–72, 74**	position. We will also register complaints concerning the availability of primary care and, if necessary, initiate a supervision procedure. Pursuant to the instructions for the family physician and healthcare professionals working with him or her, a primary care provider (health centre) is obligated to enable a patient to have an appointment in the event of an acute illness on the day patient turned to the practice and in other cases within five working days. In order to comply with this deadline, the family physician must, if necessary, extend his or her opening hours. A health certificate that is not related to the provision of healthcare services must be issued to the patient within 15 days. Thus, the family physician is already obliged to extend the admission hours in order to ensure the availability of primary care based on the law. **Response of the Chairman of the Management Board of the Estonian Health Insurance Fund:** The availability of primary care is monitored by visiting family physicians' practices on-site without prior notice. The purpose of the inspection is to assess the compliance with the availability requirements based on the terms and conditions set out in the legislation and in agreement with the Health Insurance Fund. The control of the availability of primary care services is carried out by the health inspectors of the Health Insurance Fund, who have been using updated methodology since October 1, 2016. From October 1, 2016 to June 30, 2018, on-site inspections of primary care were carried out in 742 practice lists (i.e., 93.7% of all lists according to the number of lists as of June 18). All sites were checked, including secondary sites, in addition to the main location of the family physicians. During the abovementioned period, inspectors visited 807 sites. Results. In a quarter of inspected sites, all availability requirements were met. In 13.5% of the inspected site, more than 10 deficiencies were found. The availability requirements are as follows: display of information (information is visible to patients at the family physicians' facilities and on the Internet), notification about changes (informing the Health Insurance Fund about changes in reception times, vacations, or staffing), access to an appointment (enabling the registration for the family physician's appointment, getting an appointment within required time, etc.). Most of the deficiencies identified during inspections were related to the display of information (for example, information about opening hours, price list of paid services, etc.). Notifying of changes (for example, work arrangements during holidays) was performed properly in most locations. Patients with acute conditions were able to get an appointment on the day they contacted the family physician (approx. 99%) in most locations inspected. The Health Insurance Fund will continue to carry out on-site inspections based on the current methodology, until the main locations of all the practice lists and at least one secondary site have been inspected. We clarify the reasons for any identified deviations and agree on corrective measures. **Comment by the National Audit Office:** In our opinion, the current methodology does not allow to assess the availability of primary care with necessary accuracy, as it does not reflect the actual time a patient has to wait to get an appointment.
Improving the availability of planned treatment **171 Recommendations of the National Audit Office to the Minister of Health and Labour:** ▪ fully implement digital referrals to prevent the patient from registering with several medical specialists at the same time; **cl. 166–168**	**Response of the Minister of Health and Labour:** The transition from paper referrals to digital ones is planned in stages. In order to quarantee smooth transition, the Ministry of Social Affairs, the Estonian Health Insurance Fund, the Health and Welfare Information Systems Centre, the Estonian Family Physicians Association and the Estonian Hospital Association are working closely together. The timetable for switching to digital referrals is as follows. During 2018, it is planned to switch entirely to digital referrals in primary medical care. The development activities focus on the introduction of digital referrals from one medical specialist to another. In 2018-2019, the development activities are focused on the introduction of digital referrals for tests and procedures and for admissions of non-medical specialists. In 2019, digital referrals will be developed and implemented for nursing care and hospitalization.
▪ Introduce a digital registry across multiple hospitals that would allow for a	**Response of the Minister of Health and Labour:** Implementation of nation-wide digital registration has, indeed, taken longer than planned. As a part of a pilot project, the North Estonian Regional Hospital will join the digital registration in November this year, and other hospitals will join the next year. In order to

Recommendations of the National Audit Office	Responses of the auditees
better management of waiting lists by the end of the first quarter of 2019; **cl. 168**	motivate medical institutions to join digital registration, we have planned to include in the treatment funding contract we sign with hospitals a requirement of joining the digital registration within in a year after the completion of the nationwide digital registration solution, in other words by 2020 at the latest.
▪ Determine whether the maximum length of waiting lists established in Estonia is justified and whether the patient's state of health does not generally get worse during the waiting time. **p-d 156, 170**	**Response of the Minister of Health and Labour:** Maximum lengths of waiting lists are approved by the Board of the Health Insurance Fund as an administrative limit and these are not intended to replace a medical evaluation. Every waiting list includes patients with different conditions although their formal diagnosis might be the same. The physician will assess a patient's health status and how urgently he or she needs treatment. A patient can never be registered in a waiting list mechanically, but based on the maximum allowed length of the waiting list. Thanks to increasing provision into the health insurance budget for non-working pensioners in coming years, we can gradually increase the number of services and reduce waiting lists, and it would certainly be relevant to review the maximum length of waiting lists. **Comment by the National Audit Office:** Current system of waiting list registration does not take into account the level of severity of a patient's condition. In case of a long waiting time, there is a risk that the patient's condition deteriorates significantly, while the actual waiting time may not be longer than allowed. Thus, the criteria seem to be met, but the patient may already need more expensive, more complex and time-consuming care.

Audit characteristics

Purpose of the audit

The purpose of the audit was to determine whether 1) patients who visit the ED are in need of emergency care; 2) patients who visited the ED had received timely and necessary medical treatment before the visit; 3) patients received timely and necessary follow-up treatment after their visit to the ED.

Evaluation criteria

- ED mainly treats patients in need of emergency care.
- The funding of planned treatment is not reduced at the expense of funding ED visits.
- Patients are treated at the level of health care where it is most economical to do so.
- Family physicians are motivated to receive patients quickly and, if possible, assist in preventing the visit to the ED by a patient without the need for emergency care.
- Primary healthcare is available.
- Patients receive healthcare service of similar quality regardless of which family physician's practice list the patient is listed in.
- Patients first turn to their family physician (except trauma, poisoning and other cases requiring emergency assistance).
- After a visit to the ED, the patient will contact their family physician (if necessary) in order to make sure their disease is controlled or treated.
- Patients adhere to prescribed treatment regimen.
- Family physicians receive information promptly when their practice list patient has visited the ED.
- A physician in ED has information about the patient's prior visits, diagnoses, procedures, and the prescribed treatment regimen.
- Primary healthcare is available.
- The waiting lists correspond to the established requirements and that patients receive appointments within a permitted time period.

Audit scope and approach

The audited institutions included The Estonian Ministry of Social Affairs, the Estonian Health Insurance Fund and the Health Board. Audit period was 2010–2017.

For the scope of the audit, see section "Purpose of the audit".

Audit analyses have not addressed children's visits to the EDs or their family physicians. Visits to the ED related to trauma, accident and poisoning are also not considered. Audit has also not addressed ambulance calls.

Audit methodology

Audit analysed healthcare organisation and funding, research, reviews, opinions, development plans, laws and materials of the Government of the Republic on primary health care, specialised medical care and

emergency assistance. Analysis used data from the Estonian Tax and Customs Board, the Estonian Health Insurance Fund, Statistics Estonia, Eurostat and OECD. An overview of the most important materials used in the audit is summarised in Table 2. In addition, the team conducted interviews with different parties (for details, see Table 3).

The following analyses were carried out during the audit.

Expert analysis in cooperation with the Estonian Society of Emergency Physicians (ESEP) (see clauses 13–15, 94–96, 110–114)

The expert analysis was based on person-based case datathat was designed to analyse:
- whether patients received timely and appropriate medical care within up to one year (hypertension, back pain) or 2 weeks (lower respiratory tract infection) before the ED visit to avoid an ED visit;
- whether patients in need of emergency care attend the ED purposefully (i.e., their health status does not allow for seeking help from elsewhere);
- whether patients received timely and appropriate follow-up care within one year (hypertension, back pain) or 2 months (lower respiratory tract infection) after the ED visit.

While analysing treatment cases, the experts evaluated:
- whether patients visited a family physician or a medical specialist before and after the ED visit;
- whether they were referred to procedures/analyses as needed at the right time;
- whether they were prescribed, if necessary, a pharmaceutical and whether they purchased it;
- whether the activities of doctors and patients were sufficient before and after the ED visit;
- how the patient turned to the ED;
- whether the visit to the ED was unavoidable;
- whether the examinations and procedures carried out were necessary.

The analysis covered a period from 2015 until the first half of 2017. Eight HNDP hospitals were involved in expert analysis (East Tallinn Central Hospital, North Estonia Medical Centre, Ida-Viru Central Hospital, Tartu University Hospital, West Tallinn Central Hospital, Valga Hospital, Pärnu Hospital, Rakvere Hospital). The analysis included three disease groups: hypertension, back pain and lower respiratory diseases. The three disease groups were included as some of the most common ED diagnoses and the selection was based on the principle that various health problems should be represented: chronic illnesses, pain, specific episode of illness. Selection of the analysed disease groups was performed in cooperation between the National Audit Office and the ESEP.

Experts were 19 physicians from the same hospitals. Most of them were emergency medicine physicians.

The population of expert analysis consisted of visits to the ED with the following diagnoses: hypertension (ICD-10 diagnostic codes I10–I13, I15), back pain (ICD-10 diagnostic codes M54.0–M54.9) and lower respiratory tract infections (ICD-10 diagnostic codes J12–J18, J20–J22) in the first half of 2016. The aforementioned diagnostic groups were analysed with sub-diagnoses. Analysis of the visit was based on the treatment invoices of the Health Insurance Fund. There were 6,353 visits in the three disease groups in eight hospitals in the first half of 2016 based on the Health Insurance Fund database. Repeat visits were excluded from the analysis, and persons with and without health insurance were distinguished within the disease groups. The database contained 6,131 individuals with health insurance and 177 individuals without health insurance. A random sample from both groups was then taken. The selection was made so that at least 40 cases (or all cases where less than 40 were in the corresponding subgroup) were considered for each hospital and disease group.

Treatment invoices of family physician and specialised medical care visits and pharmaceuticals were collected on an individual basis and data from HWISC digital referrals in the period from 2015 until the first half of 2017. Family physicians and HWISC were then requested to submit medical records. Each expert examined the epicrisis of an ED visit in their hospital information system.

In total, out of those who were included in the selection and visited ED in the first half of 2016 (see Table 1):

- 335 were diagnosed with hypertension;
- 334 were diagnosed with back pain;
- 331 were diagnosed with lower respiratory tract infection.

Table 1. Sample pool of expert analysis by hospitals and diseases

Hospital	Hypertension	Infection of lower respiratory tract	Back pain	Total
Rakvere Hospital	40	40	40	120
East Tallinn Central Hospital	41	43	43	127
West Tallinn Central Hospital	40	44	41	125
North Estonia Medical Centre	50	53	45	148
Pärnu Hospital	40	42	42	124
Ida-Viru Central Hospital	41	38	42	121
Tartu University Clinic	40	40	40	120
Valga Hospial	43	31	41	115

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

Survey in the departments of emergency medicine (see clauses 10–12, 0, 12, 75, 120–121)

The survey was conducted from 15 September to 15 October 2017.

The purpose of the survey was to find out how many of the patients that visit the department of emergency medicine 1) should be treated by a family physician and 2) find medical care to be unavailable.

The survey was completed for patients who were given a yellow, green and blue triage category (regardless of the type of arrival). Children (0–18 years old), trauma, obstetrics and gynaecology patients were not included in the survey.

The survey was completed by the ED staff. The survey had 9 questions (see Appendix B). Questions 1–4 were filled out by a nurse or a doctor based on information given by the patient. Questions 5–9 were filled out by the doctor who examined a patient.

The survey was completed in the departments of emergency medicine of eight HNDP hospitals: East Tallinn Central Hospital[92], North Estonia Medical Centre Hospital, Ida-Viru Central Hospital, Tartu University Hospital, West Tallinn Central Hospital, Valga Hospital, Pärnu Hospital, Rakvere Hospital.

During the survey, 6022 questionnaires were filled out. Out of these, 5513 were selected for the analysis as 509 questionnaires had been filled out incompletely or presented conflicting information.

The National Audit Office also organised a survey in 2010 using the same methodology. The survey was conducted in the context of the audit “Organisation of the family doctor care" (2011). For details see: https://www.riigikontroll.ee/tabid/206/Audit/2172/Area/21/language/en-US/Default.aspx

The survey was conducted from 6 September to 26 September 2010 in the departments of emergency medicine in four hospitals: North Estonia Medical Centre, Tartu University Hospital, Pärnu Hospital and

[92] East Tallinn Central Hospital completed 103 questionnaires, but the actual number of patients who visited the ED was 1005, so the part of this hospital is underrepresented in the responses to the survey. However, in order to assess the necessity of visiting the ED, the Head of the Department of Emergency Medicine reviewed the analyses and tests of patients who had turned to the ED during this period and, based on these, gave an assessment on whether the patient’s condition required emergency assistance. This assessment has been taken into consideration in two questions: was visiting the ED was justified or could the patient have received help from their family physician, and at which times and on which days patients visited the ED. With regard to the other results of the survey, 103 completed surveys have been taken as a basis for West Tallinn Central Hospital.

Ida-Viru Central Hospital. The survey covered same triage categories and did not include children, trauma patients, and obstetrics and gynaecology patients.

Data analyses

Family physician visits before and after the ED visit (see clauses 108–109 and clause 116)

Analysis was based on the treatment invoices of the Health Insurance Fund for ED visits during the first half of 2016 (except trauma patients and children) and treatment invoices for primary care of the same individuals from 2015 to the second half of 2017. Analysis included only those family physician visits that took place up to one year before and one year after the ED visit. Based on treatment invoices it was analysed whether the patient visited their family physician before or after the ED visit and if so, whether the patient had been assigned the same diagnosis section. Visits by individuals with and without health insurance were also analysed.

Comparison of visits by individuals with and without health insurance (see Annex D)

The basis of analysis was The Health Insurance Fund summaries of ED treatment invoices for the period 2014–2016 containing information on insurance status, diagnosis, service providers, method of arrival, type of treatment, age group and financial costs.

On the basis of these, visits were analysed on the basis of insurance status and based on the ICD-10 categories and subcategories. A chi-squared test was used to assess the statistical significance of the difference between subcategory diagnoses. The significance level was 0.05, i.e. there is 5% probability that the relationship was due to a coincidence, meaning that there is a 95% probability that the difference between diagnoses of patients with and without health insurance is statistically significant. Certain subcategories where the total number of treatment invoices for three years was less than 5 were removed from the responses.

Summaries of EHIF treatment invoices for ED from 2014 to 2017 were used in order to analyse the average cost of treatment invoices.

Income analysis of individuals without health insurance (see47)

Treatment invoices for uninsured individuals (other than traumas) for ED visits in the first half of 2016 were received from the Health Insurance Fund. For the same individuals, income data for the first half-year of 2016 was requested from the Tax and Customs Board.

Comparison of recurring ED treatment invoices and analysis of family physician visits (see clauses 117–118)

Analysis was based on the Health Insurance Fund's treatment invoices for ED visits during the first half of 2016 (except trauma patients and children) and treatment invoices for primary care of the same individuals from 2015 to the first half of 2017. Analysis included individuals who visited ED for the same diagnosis several times during one year after their first ED visit in the first half of 2016. Analysis did not take into account visits within one week after the first visit, as it was necessary to exclude repeated visits by patients with the same health problem. For patients who visited the ED with the same health problem several times, it was examined whether they had visited their family physician after the first ED visit. Analysis did not include traumas.

Statistical indicators and overviews

Funding healthcare and demand (see clauses 142–154)

The following aggregated data were used for an overview of the funding and availability of specialised medical care:

- EHIF data on estimated, funded and unfunded demand in outpatient care, day care and inpatient care in 2014–2018. Earlier data is not directly comparable because the methodology for estimated demand has changed significantly;
- EHIF details on the work carried out in specialised medical care in 2011–2017 in excess of what has been agreed in the contracts entered into with hospitals by type of treatment and level of the hospital;
- Data of the National Institute for Health Development on doctor's appointments and visits to the department of emergency medicine (tables KE32 and AV20);
- Eurostat data on unmet health care needs (table hlth_silc_21);
- Financial indicators of the Health Insurance Fund in 2004−2017.

Statistics of hospitals in the Hospital Network Development Plan (see clauses 6–9, Appendix A)

In order to get an overview of ED visits, all HNDP hospitals were asked to provide information regarding ED visits and the provision of services set out in the contracts entered into with the Health Insurance Fund. Depending on the question, statistics were collected for either the period 2010–2017, 2014–2017, or 2016–2017.

Questions included the following aspects: visits by type of arrival, year and month, triage category, type of departure, time and weekday (based on first full week of November), average service times (based on first full week of November); procedures and analyses carried out in ED; proportion of uninsured persons and children; contractual terms of hospitals according to treatment cases and amounts, including the proportion of ED thereof.

Out-of-hours primary care appointments (see clauses 77–83)

In Estonia, a family physician does not have a statutory obligation to provide out-of-hours appointments (before 8:00, after 18:00 or on weekends), and therefore, the Health Insurance Fund does not collect data on how many people use the opportunity to visit a family physician outside working hours. The National Audit Office made an inquiry to all family physicians who, according to the Health Insurance Fund, offered an opportunity for an out-of-hours appointment in the first half of 2016 in order to determine the use of family physicians outside working hours. In the inquiry, the National Audit Office asked whether in their experience patients made fewer or more out-of-hours visits than during working hours. All family physicians (55), who according to EHIF offered out-of-hours appointments in the first half of 2016, responded to the inquiry.

Statistics of the family physician advisory line (see clause 131, Appendix C)

Family physician advisory line 1220 service is organised by Arstlik Perenõuandla PLC. Management reports of the PLC for the Health Insurance Fund were used in order to analyse the use of the advisory line and people's awareness of it.

Analysis of treatment waiting lists (see clauses 156–169)

The analysis used the data of HNDP hospitals on treatment waiting lists by type of treatment as well as the results of the study "Opinions of Estonia's residents on Health and Medical care" in 2014–2016 and OECD statistics.

Table 2. Important materials used in the audit

Type of data	Sources
Statistics	▪ Eurostat ▪ OECD ▪ National Institute for Health Development ▪ Statistics Estonia
Procedures, analyses, reports	▪ Anderson, Eva. Doctor's outpatient appointments and home visits, 2004–2014. National Institute for Health Development, 2016.

	▪ Anderson, Eva; Panov, Liisi. Outpatient visits to family primary care centres in the data of the Health Information System in 2015. National Institute for Health Development, 2017. ▪ Berchet, Caroline. Emergency Care Services. OECD Health Working Papers No. 83, 2015. ▪ Annual reports of the Estonian Health Insurance Fund, 2012–2017 ▪ Opinions of Estonia's Residents on Health and Medical Care, 2016. Ministry of Social Affairs, 2016. ▪ Implementation of ED services and correctness of coding in the first half of 2016. Estonian Health Insurance Fund, 2017. ▪ Analysis of the use of ED services. Estonian Health Insurance Fund, 2016. ▪ Annex to the memorandum submitted to the sitting of the Cabinet of Ministers "An analysis of the possibilities for additional health care financing and proposals for ensuring the sustainability of health care financing". July, 2016 ▪ Mets, Urve, Veldre, Vootele. A prospective view of the need for labour and skills: health care. Estonian Qualifications Authority, 2017 ▪ Health at a Glance 2016. OECD, 2017 ▪ Summary reports of the availability of primary care, 2013–2017. Estonian Health Insurance Fund ▪ Quality Guidelines for Estonian Primary Care Centres. Estonian Family Physicians Association, 2017 ▪ Tackling Wasteful Spending on Health. OECD Publishing, Paris, 2017 ▪ Analysis of the sustainability of financing health care. Ministry of Social Affairs, 2016. ▪ Availability of healthcare services in 2016, 12 months. Estonian Health Insurance Fund ▪ Memorandum of the Minister of Health and Labour to the Cabinet, 16 March 2017.
Development plans	▪ Emergency Medicine Development Plan for 2020 ▪ Primary Care Development Plan 2012–2020 ▪ Population Health Development Plan 2009–2020 ▪ Health care trends until 2020
Legislations	▪ Supervisory board of the EHIF decision no. 5 "Maximum length of treatment waiting lists" of 11 January 2013. ▪ Minister of Social Affairs Regulation no. 2 "Work manual for family physicians and the medical professional working together with them" of 6 January 2010 (RTL 2010, 3, 52) ▪ Minister of Social Affairs Regulation no. 46 "Requirements for the availability of healthcare services and the management of treatment waiting list" of 21 August 2008 (RTL 2008, 73, 1019) ▪ Appendix 26 "Guidelines for triage implementation in Estonian departments of emergency medicine" to the Minister of Social Affairs Regulation no. 9 "Procedure for the assumption of the payment obligation of an insured person by the Estonian Health Insurance Fund and methodology of calculating the remuneration to be paid to healthcare providers" of 19 January 2007 (RTL 2007, 8, 135) ▪ Minister of Social Affairs Regulation no. 103 "Requirements for types of hospitals" of 19 August 2004 (RTL 2004, 116, 1816) ▪ Health Services Organisation Act (RT I 2001, 50, 284)

Table 3. Persons interviewed in the course of the audit

Institution	Date	Name and profession
OÜ Meditiim	7 December 2016	Eero Merilind – family physician
North Estonia Medical Centre	13 January 2017	Vassili Novak – Head of the Centre of Emergency Medical Care Georg Männik – Chairman of the Supervisory Board
East Tallinn Central Hospital	31 January 2017	Märt Põlluveer – Head of the Centre of Emergency Medical Care
Health and Welfare Information Systems Centre	1 February 2017	Laine Mokrik – Lawyer Mari Asser – Standardisation Manager Mai-Liis Kullama – Digital Development Department of the Ministry of Social Affairs
Estonian Health Insurance Fund	14 February 2017 25 May 2017	Tanel Ross – Chairman of the Management Board Maivi Parv – Member of the Management Board

		Tiiu Rudov – Specialist at the Division of Contract Management Pille Banhard – Member of the Management Board Erly Feld – Head of Internal Audit Department Triinu-Kreete Mägi – Head of the Division of Controlling the Validity of Health Insurance Benefits Division Tiina Sats – Head of Division forSpecialised Medical Care Services
Ministry of Social Affairs	27 February 2017	Maris Jesse – Deputy Secretary General on Health Agris Koppel – Head of the Health System Development Department Anneli Taal – Head of Health Care Resources
Tartu University Hospital and the Estonian Society of Emergency Physicians	28 February 2017 30 March 2017 12 May 2017 9 February 2018	Ago Kõrgvee – Chairman of the Management Board of the Estonian Society of Emergency Physicians, Chairman of the Management Board of SA Tartu Kiirabi, Director of the Anaesthesiology and Intensive Care Clinic of Tartu University Hospital Kuido Nõmm – Member of the Management Board of the Estonian Society of Emergency Physicians, Head of the Centre of Emergency Medical Care of Tartu University Hospital Veronika Reinhard – Member of the Management Board of the Estonian Society of Emergency Physicians, Senior Physician and Lecturer of the Anaesthesiology and Intensive Care Clinic of Tartu University Hospital
Tartu University Hospital	1 March 2018	Raul-Allan Kiivet – Professor of Health Care Management at the Department of Public Health
Health Board	19 May 2017	Üllar Kaljumäe – Deputy Director General for Health Care Mihhail Muzõtšin – Deputy Director General for Supervision Juta Varjas – Senior Inspector at the Supervision Department Melita Sogomonjan – Senior Inspector at the Supervision Department Kaidi Usin – Chief Specialist at the Department of Primary Health Care
West Tallinn Central Hospital	22 May 2017	Imbi Moks – Chairman of the Management Board Anžela Popova – Head of the Department of Emergency Medicine Kai Zilmer – Head of the Clinic of Infectious Diseases Piret Veerus – Head of the Women's Clinic
Järvamaa Hospital	24 May 2017	Andres Müürsepp – Chairman of the Management Board Tiiu Aule – Head of Treatment Katrin Roosmaa-Tippi – Head of the Department of Emergency Medicine
Estonian Family Physicians Association	31 May 2017	Le Vallikivi – family physician, Chairman of the Management Board, Tallinn Family Physicians Association Karmen Joller – family physician Lembi Põlder – family physician, Member of the Management Board, Tallinn Family Physicians Association
Rakvere Hospital	9 June 2017	Aile Kaasik – Head of the Department of Emergency Medicine
Narva Hospital	12 June 2017	Olev Silland – Member of the Management Board Pille Letjuka – Chief Doctor, Head of the Emergency Medicine Clinic
Ida-Viru Central Hospital	13 June 2017	Aime Keis – Member of the Management Board, Chief Doctor Arnold Persidski – Senior Doctor of the Department of Emergency Medicine
Pärnu Hospital	15 June 2017	Veiko Vahula – Member of the Management Board Merike Lepp – Head of the Department of Emergency Medicine Marit Õun – Head of the Emergency Medical Care Service
Raplamaa Hospital	20 June 2017	Kaire Aadamsoo – General Manager Aili Laasner – Chief Doctor
Valga Hospital	13 July 2017	Marek Seer – Member of the Management Board Kristel Kivisild – Head of Treatment Anastassia Org – Nurse Manager

Põlva Hospital	14 July 2017	Margit Rikka – Chief Doctor
Läänemaa Hospital	25 July 2017	Tõnis Siir – Chief Medical Officer, Manager Kai Tennisberg – Head of Treatment Marju Lepmets – Chief Nursing Officer
Viljandi Hospital	August 2017	Priit Tampere – Chairman of the Management Board Margus Annuk – Member of the Management Board Krista Valdvee – Head of Communications Ülle Jaadla – Statistician Eve Pärnaku – Senior Nurse Ülle Kumm – Deputy Nurse Manager Mati Kallas – Chief Doctor Andres Anier – Head of IT and Development

Time of completing the audit

Audit activities were completed in May 2018.

Audit team

Head of audit was Mart Vain. The audit team included auditors Eva-Maria Asari, Pille Kuusepalu and Thea Teinemaa.

Contact information

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

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Previous audits of the National Audit Office in the field of emergency medicine

8 April 2011 – **Organisation of the family doctor service**

14 September 2004 – **Organisation of initial emergency medical care**

All reports are available on the website of the National Audit Office www.riigikontroll.ee

Appendix A. Overview of emergency care in Estonia

In Estonia, medical care is divided into three levels:

1) Primary care or family medical care;
2) Specialised medical care, including ED services;
3) Nursing care.

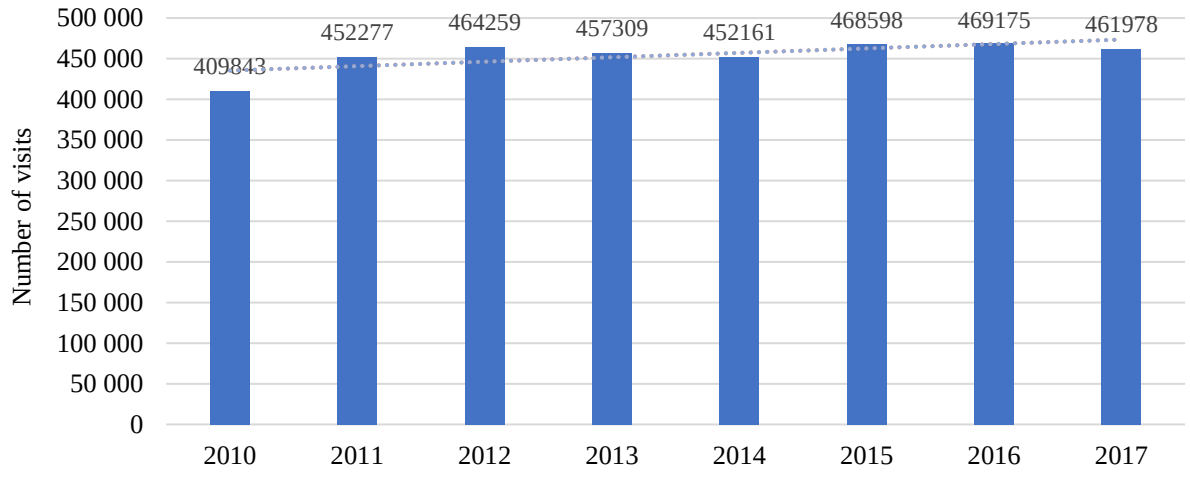
As a general rule, family physician should be first contacted to provide patients with counselling, necessary procedures and treatment and, if necessary, a patient is referred to the next health care level (specialised medical care or nursing care). In case of unexpected acute illness or trauma, a person can contact hospital's ED or call an ambulance.

Every person in the territory of Estonia is entitled to emergency care, i.e. health care provided by a health professional in a situation where a delay or a failure to provide medical assistance may cause death or permanent health damage to the person in need. Emergency care does not necessarily mean assistance given in the ED. Providing emergency care is also the obligation of, for example, a family physician. ED may ask a patient to pay a visit fee of up to €5 in case of emergency care.

There are a total of 19 departments of emergency medicine and emergency receptions, and they are located at the Hospital Network Development Plan (HNDP) hospitals (see Appendix G).[93]Each HNDP hospital must receive emergency patients within their competence and capacity. Regional hospital EDs must provide all emergency medical services. These are highest-level hospitals, which also provide neurosurgery and cardiosurgical treatment. Central hospitals must provide all emergency medical services, except neuro and cardiosurgical treatment. General hospitals provide emergency medical services based on the specialties represented in the hospital. In local hospitals, emergency assistance is provided within the competence of the doctor or until the arrival of an ambulance crew and the transport of the patient to a higher-level hospital

Approximately 462,000 patients visit ED annually. The number of visits has increased by about 13% in 2010–2017, but it has remained stable in recent years (see Figure 1).

Figure 1. Number of ED visits, 2010—2017



Source: Statistics of HNDP hospitals

[93] Outpatient care, day care and hospital care services are provided throughout Estonia by HNDP hospitals, and they have the obligation to provide emergency medical care. The Health Insurance Fund signs framework agreements with these hospitals for a five-year period. In addition, there are other healthcare providers in Estonia, i.e. selected partners of the Health Insurance Fund who complement the services provided by HNDP hospitals. In the first half of 2018, the Health Insurance Fund has 293 specialised medical care providers of whom 8 provide hospital care.

The proportion of ED spending out of health insurance costs has increased in recent years, reaching 13% in 2017 (see Table 1). In addition to ED costs covered by the health insurance budget, additional costs also accrue from the national budget for uninsured people who have received emergency medical care, which was about €5 million in 2017.

Table 1. Division of health insurance costs and ED costs, 2014–2017 (EUR million)

Source of funding	Type of expense	2014	2015	2016	2017	Proportion of health insurance costs, 2017 (%)
Health insurance budget	Expenses related to benefits for temporary work incapacity	103.9	117.0	130.3	141.3	12.6
	Costs of reimbursable pharmaceuticals	109.8	112.8	131.2	125.7	11.3
	Other expenses	29.7	30.2	31.9	37.0	3.3
	Costs of healthcare services:					
	Primary medical care	82.2	82.2	92.5	103.2	113.7
	Costs of other healthcare services (including nursing care, disease prevention, dental care)	52.8	58.7	61.8	70.3	6.3
	Specialised medical care	529.9	562.4	590.9	629.1	56.3
	...including ED (individuals with health insurance)	74.0	87.5	132.4	147.6	12.9
	Total expenses		**973.6**	**1,049.3**	**1,117.2**	**100**
National budget	ED (individuals without health insurance)	2.7	2.7	4.9	5.0	

Source: Estonian Health Insurance Fund

Costs of ED treatment invoices are divided into outpatient and inpatient costs. Cost of outpatient services increased from €17.2 million to 24.7 million, or ca 43%, between 2014 and 2017 (see Figure 2). Inpatient care expenses, that is, cost of treatment invoices for patients hospitalised from ED, have more than doubled, increasing from €56.7 million to €124.5 million. In addition to the payment of treatment invoices, the Health Insurance Fund also remunerates the work of ED staff by paying a preparedness fee, which is added to these amounts. Preparedness fee is paid by the Health Insurance Fund according to the services provided by physicians in different hospitals throughout 24 hours.[94]

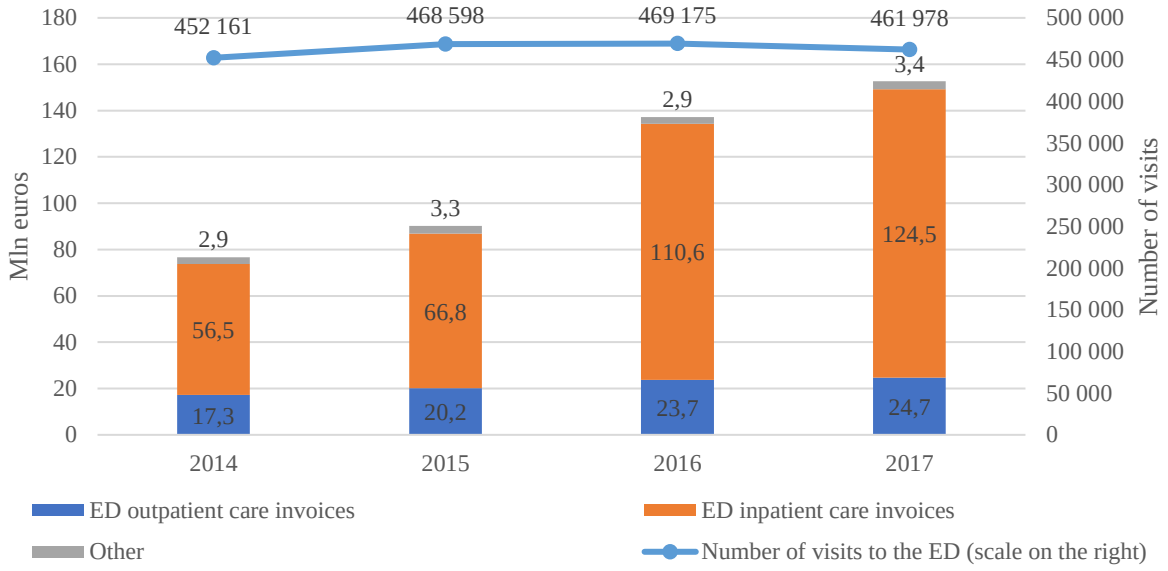
Increase in the cost of treatment invoices is primarily due to a faster increase in the cost of healthcare as a result of both technological development (including new treatment options and equipment) and accelerated salary growth.[95] For example, the average salary for doctors has increased by 23% during the period 2014–2017.[96] Since the number of visits to the ED has been fairly stable over the years, this is not a significant growth influencer. However, the condition of patients has become more severe in general terms. Although patients in red and orange triage category still account for a small proportion of ED patients, their number has increased by 98% and 51%, respectively, in this period. In addition, a new funding system introduced in two large hospitals in 2016 had an impact on the increase in ED expenses (for details see clause40).

[94] Minister of Social Affairs Regulation no. 103 „Requirements for types of hospital“ of 19 August 2004.

[95] Analysis of the sustainability of financing health care. Ministry of Social Affairs, 2016.

[96] Statistics of the National Institute for Health Development: average total hourly rate of doctors in specialised medical care institutions, which includes regular additional payment, additional payment for evening work, payment for night work, holidays and public holidays and additional payment in addition to basic salaries.

Figure 2. ED expenses and number of visits, 2014–2017[97]



Source: Statistics of the Estonian Health Insurance Fund and HNDP hospitals

In 2017, the proportion of outpatient treatment invoices was 84% of all ED invoices, and at the same time outpatient care treatment invoices accounted for 17% of the total ED costs (for ED treatment invoices, see clauses 40–42). Thus, the majority of complaints were resolved by ED and few patients were hospitalised, while financially the majority of ED costs accounted for hospitalised patients (see Figures 3 and 4).

Figure 3. Division of ED treatment invoices by type of treatment, proportion

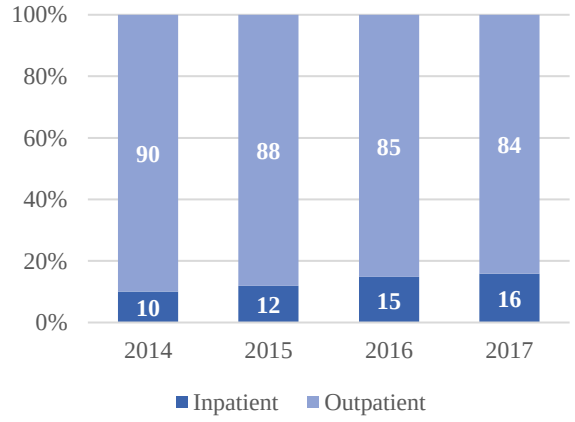
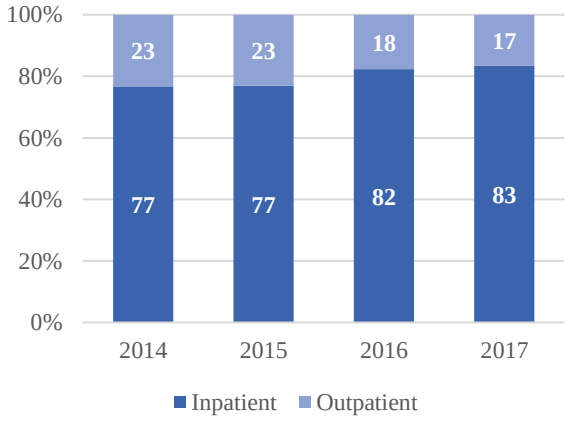


Figure 4. Cost of ED treatment invoices by type of treatment, proportion



Source: Estonian Health Insurance Fund

Patient triage

When arriving at ED, patients are assigned a triage category, regardless of whether the person was taken to the ED in an ambulance or arrived by himself or herself. Triage should be performed at the earliest opportunity, and at least 80% of patients who come to the department must reach triage no later than 10 minutes after arriving at the department. Triage is performed by a triage nurse who, if necessary, calls for a doctor on call to help. Triage category is determined on the basis of both the patient's complaints and

[97] Category „Other“ mostly includes preparedness fees paid to hospitals. According to the data of the Health Insurance Fund, there were 414,000 emergency treatment cases in 2014 and 439,000 in 2017. See footnote 23 on page 13 to see changes to the ED treatment invoices as of 2014.

their vital indicators. Triage category determines the speed of the patient's treatment, i.e. maximum time until the doctor's appointment and placement of the patient in the department of emergency medicine. The patients are assisted according to the triage category, not based on the order of arrival.

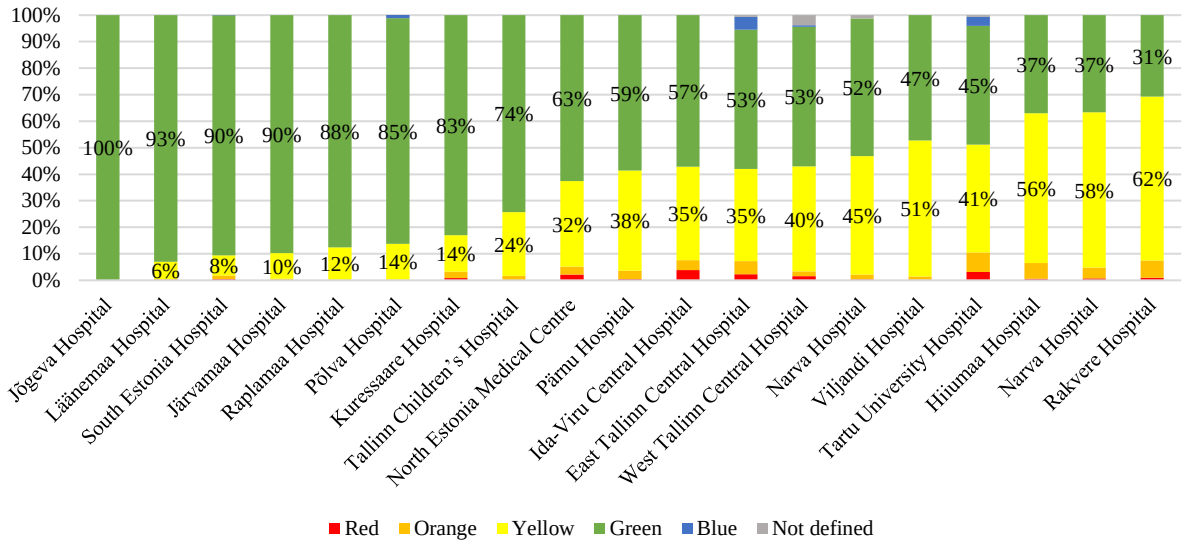
According to the Triage Guide[98], Estonian departments of emergency medicine use a five-stage triage system where patients are divided into "red", "orange", "yellow", "green" and "blue".

- Red (I) triage category denotes patients in a life-threatening condition whose life is directly in danger. These patients need immediate medical attention.
- Orange (II) triage category refers to emergency patients whose condition is potentially life-threatening. Time until the doctor's appointment is up to 15 minutes.
- Yellow (III) triage category refers to patients whose illness or trauma requires emergency care and diagnostics and/or treatment, but whose medical condition is stable and medical care can be delivered later. Time until the doctor's appointment is up to 60 minutes.
- Green (IV) triage category refers to patients whose problems do not require emergency care, and time until the doctor's appointment is up to 3 hours.
- Blue (V) triage category refers to patients whose health condition does not require emergency care and whose health status does not qualify for higher triage category. Time until the doctor's appointment is up to 6 hours.

Beginning of a medical examination for patients with a green and blue triage category may be delayed if ED is overloaded.

The proportion of triage categories differs significantly in hospitals (see Figure 5).

Figure 5. Proportion of ED visits by triage categories in 2017.[99,100]



Source: Statistics of HNDP hospitals

[98] Guidelines for triage implementation in Estonian departments of emergency medicine. Appendix 26 to Minister of Social Affairs Regulation no. 9 of 19 January 2007.

[99] All visits in Jõgeva Hospital are assigned a green triage category. In general, more severe cases are immediately directed to higher-level hospitals.

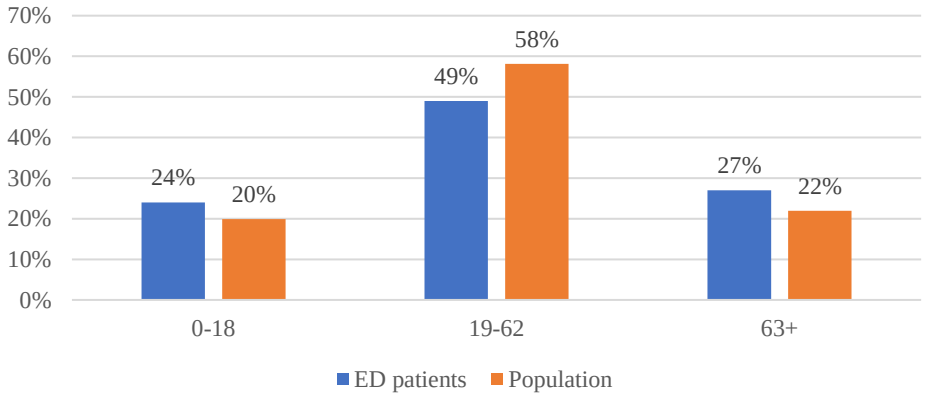
[100] Numbers of the East Tallinn Central Hospital do not include the data of emergency ophthalmology appointments. There is generally no triage, which is why the category is predominantly "undefined".

In 2017, the proportion of patients with a green triage category was between 31% (Rakvere) and 93% (Läänemaa), excluding Jõgeva Hospital where all patients were marked as green and the emergency ophthalmology in East Tallinn Central Hospital where patient triage system is generally not used. When comparing regional hospitals, the proportion of patients with the green triage category is 63% in North Estonia Medical Centre and significantly lower in Tartu University Hospital – 45%. One of the possible reasons is that Tartu University Hospital has separate reception points for ear, nose and throat specialist and for children, and that emergency appointments there are excluded from ED statistics. However, it does not explain the whole difference between hospitals, and more precise reasons need to be clarified.[101]In absolute numbers, the majority of patients in red and orange triage category (approximately 72% or 14,090) are concentrated to four hospitals: North Estonia Medical Centre, Tartu University Hospital, East Tallinn Central Hospital and Ida-Viru Central hospital.

Age distribution of patients

Nearly half of ED visitors are working-aged people (ages 19–62). The proportion of children among ED visitors is higher than their proportion in population (24% and 20% respectively). Similarly, ED services are used by people aged 63 and older relatively often – their proportion of ED visitors is 27% and their proportion of population is 22% (see Figure 6).

Figure 6. Age distribution of ED patients in comparison with population distribution in 2017



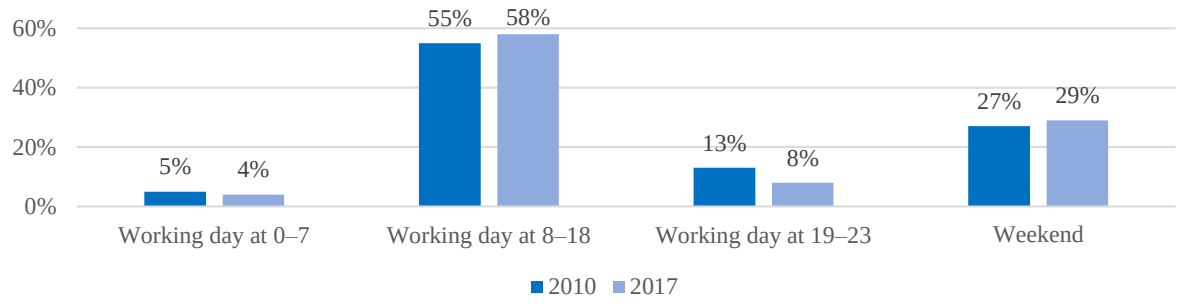
Source: Estonian Health Insurance Fund, Statistics Estonia

Characteristics of ED visits

Patients most often attend the ED with trauma and poisoning, musculoskeletal and connective tissue disorders (including back pain) and symptoms not elsewhere classified (including abdominal pain). See Table 1 in Annex D for more information on ED visits by diagnosis category. A significant proportion (57%) of patients with minor complaints (blue, green and yellow triage category) came to the ED on a working day and during working hours (08:00 to 18:00, see Figure 7). Compared to 2010, the number of visitors during working hours on a working day has increased, while the number of visitors in the evening of a working day has decreased. At night, the number of total visits is smaller (4%). At the same time, compared to the previous survey, the proportion of patients who visited the ED over the weekend has increased.

[101] Analysis of the use of ED services. Estonian Health Insurance Fund, 2016.

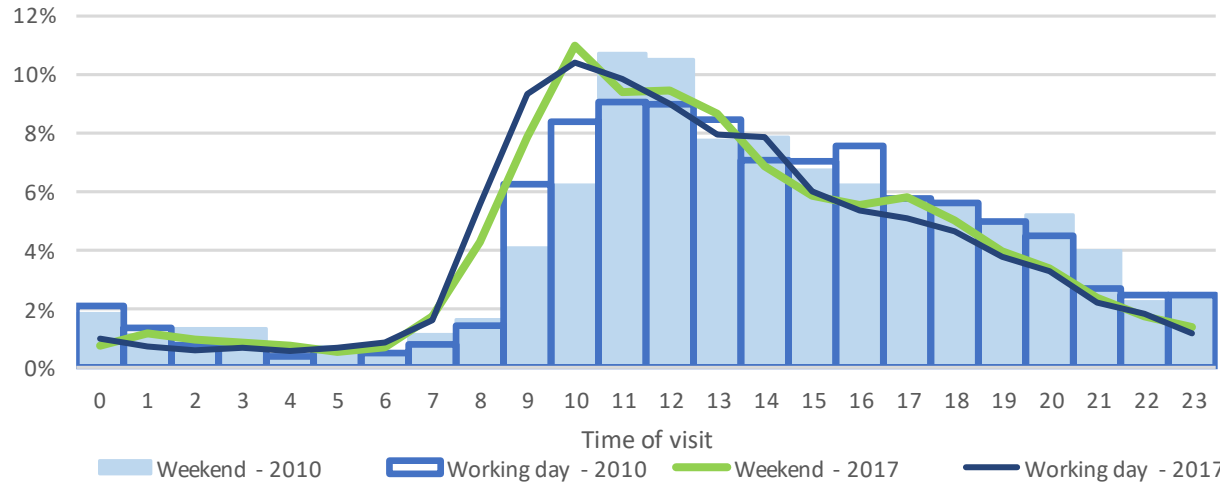
Figure 7. Distribution of patient visits by time in 2010 and 2017[102]



Source: Survey of the National Audit Office

Most frequent visits are from 09:00 to 12:00 on a working day (see Figure 8). On weekdays, 39% of patients in the yellow, green and blue triage category visited the ED during this particular period. In 2017, nearly a third (29%) of the patients with these triage categories visited during weekends. The most frequent visiting time on weekends is the morning from 10:00 to 13:00 (40% of weekend visits by patients in the yellow, green and blue triage category). The number of visitors who came to the ED on weekends at night and late in the evening has decreased compared to 2010.

Figure 8. Time of visiting the ED in 2010 and 2017[103]



Source: Survey of the National Audit Office

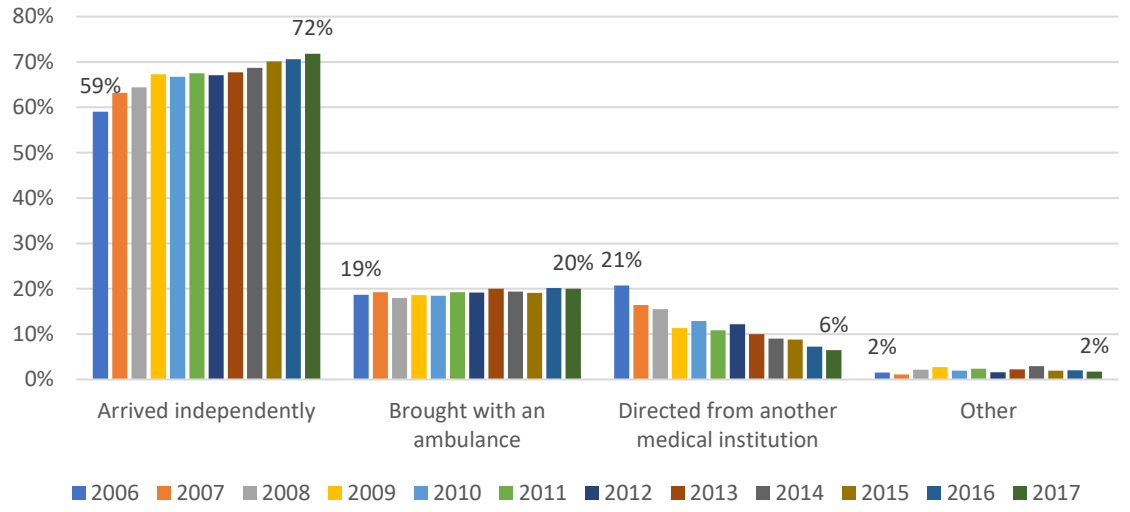
Most ED visitors arrive independently (see Figure 9). According to the statistics of the National Institute for Health Development, the proportion of visitors who came to the ED independently has grown from 59% to almost 72% in 2006–2017. Growth was fastest in 2006–2009. When looking at absolute values, the number of patients who arrive independently has grown by more than 113,000 in the period 2006–2017, i.e. by almost half.[104] The growth of the proportion of independent visits to the ED is mainly at the expense of the decrease in the proportion of ED referrals from other healthcare institutions – it has decreased from 21% to 6% during the same period.

[102] Figure shows data for patients with the triage category "yellow", "green" and "blue". Children (0–18 years old), outpatient trauma patients, obstetrician and gynaecology patients are excluded.

[103] See the previous footnote.

[104] Figures of the National Institute for Health Development differ somewhat from the figures sent to the National Audit Office by HNDP hospitals, see cl. 6.

Figure 9. ED visits by mode of arrival, 2006–2017[105]

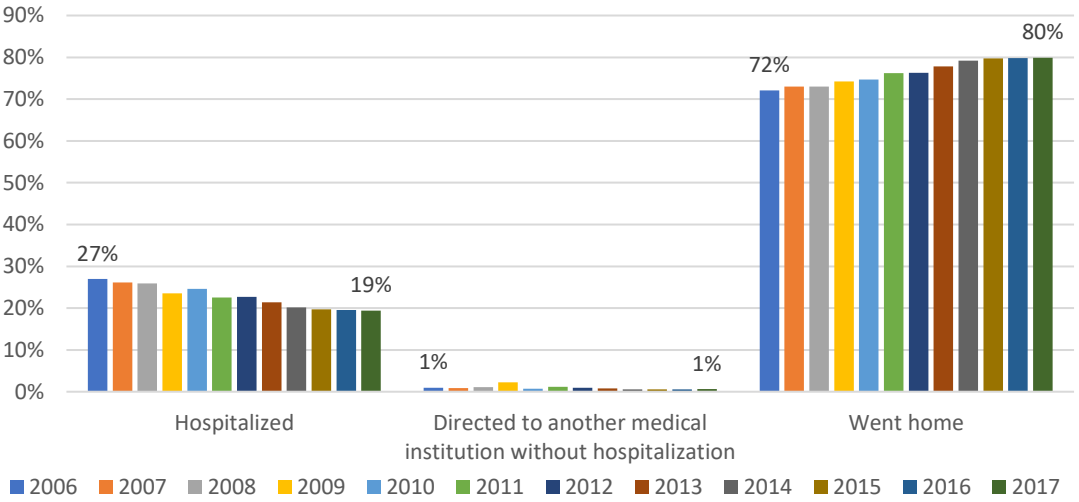


Source: National Institute for Health Development

The proportion of arrivals with ambulance has remained constant at 19–20% over the years. The proportion of visits has also been constant in other modes of arrival – those whose mode of arrival has not been included in the data as well as patients who have been brought by police or ED doctors are included in this category.

Most patients are sent home after the ED visit and some of them referred to outpatient care. Their proportion increased by 8% between 2006 and 2017. This has happened at the expense of hospitalised patients, whose number has decreased equally (see Figure 10).

Figure 10. Patients' departures from the ED, 2006–2017



Source: National Institute for Health Development

[105] Comment of the National Institute for Health Development: the methodology of accounting for the method of arrival of patients requiring emergency assistance was amended as of 2016: if previously referrals by health care professionals in the same hospital and recalls by the department of emergency medicine were also grouped under the identifier "Directed from another medical institution", these are now described under the identifier "Arrived with another method".

Appendix B. Questionnaire used in the survey

These data are filled in by the person registering patient (triage nurse, registrar, etc.).

1. Patient's personal identification number | | | | | | | | | | | | |

2. Date of ED visit (day, month) __ __.__ __ **and time** (h:m) __ __: __ __

3. Patient has health insurance □, Patient does not have health insurance □, Patient does not have health insurance. Patient pays for the visit □

4. Method of arrival □ Referred by a family physician □ Came (was brought) independently □ Sent by a hospital (both another or the same hospital)

5. Why did the patient come to the ED?
(Staff asks the patient, mark one answer – the main reason!)

a. <u>Patient came to the ED independently without first turning to the family physician.</u>

Family physician was not available

- □ Is located elsewhere
- □ Outside working hours
- □ Excessive waiting time for a family physician
- □ Other (add in case of extreme need) ……

Did not want to turn to a family physician.

- □ Does not receive the required medical help from their family physician quickly enough (for example, procedures not carried out)
- □ Does not receive enough medical help from their family physician (for example, procedures not carried out)
- □ Has visited their family physician with the same problem, but has not received any assistance (procedures have been carried out)
- □ Previous positive experience in ED, wishes to return to ED
- □ Other (add in case of extreme need) ……..

Lack of knowledge

- □ Patient is unaware that a family physician can help with this health problem or that a family physician is also available in case of a need for emergency assistance
- □ Other (add in case of extreme need) ……

b. <u>Patient has previously visited their family physician with the same health problem.</u>

Family physician has seen/examined the patient.

- □ Has given a referral to the ED
- □ Has recommended a visit to the ED without giving a referral
- □ Patient decided to visit the ED on his or her own
- □ Patient wishes to get another medical opinion
- □ Other (add in case of extreme need) ……

Family physician has not examined the patient.

- □ Has given a referral to the ED
- □ Has recommended a visit to the ED without giving a referral
- □ Other (add in case of extreme need) .....

c. ☐ Patient called the family physician advisory line, who recommended to go to the ED.
(This answer may also be specified if points (a) or (b) have already been marked.)

d. ☐ **Patient was not able to visit a medical specialist.**

These answers are written by the doctor who saw the patient in the ED.

6. Patient's complaints when visiting the ED (main complaint should be chosen)

- ☐ Headache
- ☐ Vertigo
- ☐ Weakness
- ☐ Chest pain
- ☐ Shortness of breath
- ☐ Cough
- ☐ Rhythm disorder
- ☐ High blood pressure
- ☐ Syncope
- ☐ Swellings
- ☐ Fever
- ☐ Boil or other local infection
- ☐ Abdominal pain
- ☐ Digestive disorders (constipation/diarrhoea)
- ☐ Nausea/vomiting
- ☐ Back pain
- ☐ Pain in limb
- ☐ Dysuric complaints
- ☐ Arthralgia
- ☐ Anxiety, panic disorder
- ☐ Cold
- ☐ Other (if none of the above is suitable) _____

7. Diagnosis code for the reason for the ED visit according to ICD-10: _____ .

8. Duration of the complaint (number of days) .....

9. Was it medically reasonable for a patient to come to the ED?
(Answer to the question is based on each patient's complaints, diagnosis and treatment given.)

☐ **Yes, ED visit was justified** (there may be several choices from the list below):

- ☐ There was a reasonable suspicion for a life-threatening illness.
- ☐ Patient's condition required diagnosis that cannot be performed by a family physician or cannot be performed quickly enough.
- ☐ Patient needed clinical or instrumental monitoring during treatment.
- ☐ Patient did not require emergency care but needed faster medical care than the planned waiting time to a medical specialist.
- ☐ Other (add in case of extreme need)

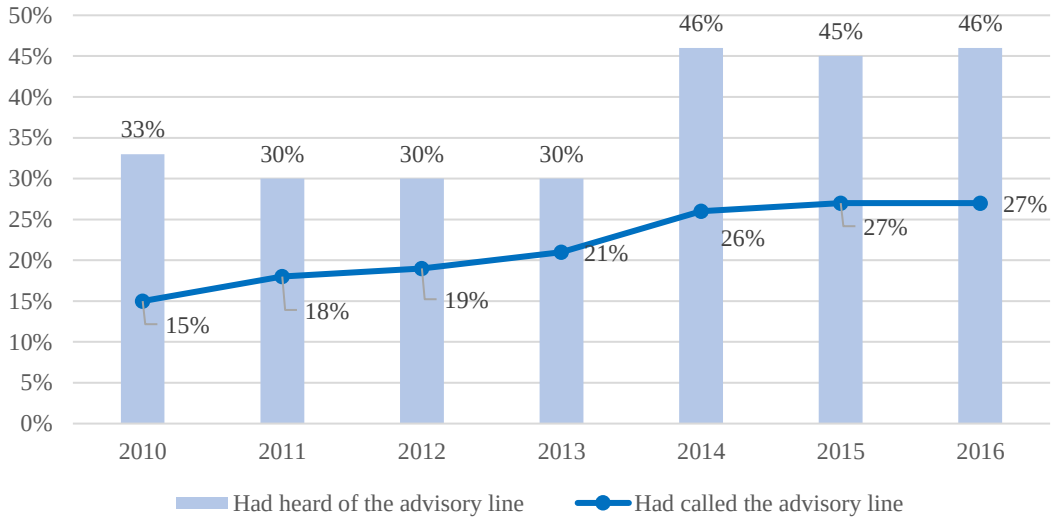
☐ **No, there was no reason to come to the ED; medical problem could have been addressed by a family physician** (select if the above criteria were not met).

10. Was the patient hospitalised? ☐ YES ☐ NO

Appendix C. Family physician advisory line

Family physician advisory line 1220 is a nationwide, daily medical advice line designed to provide assistance at a time when primary care is not available (for example, outside working hours, holidays or public holidays), or if the health problem does not require immediate medical attention. Advisory line counsellors help to analyse the person's medical condition and give instructions for initial care. Although the awareness of Estonian people of the family physician advisory line 1220 has increased over the years (see Figure 1), half of them have still not heard of it. While in 2010, one-third of Estonian people had heard of the advice line and 15% had called the number, nearly half of the residents of Estonia had heard about the family physician's advisory line and 27% called it in 2016.

Figure 1. Awareness of Estonian people of the family physician advisory line and its use in 2008–2016, proportion[106]

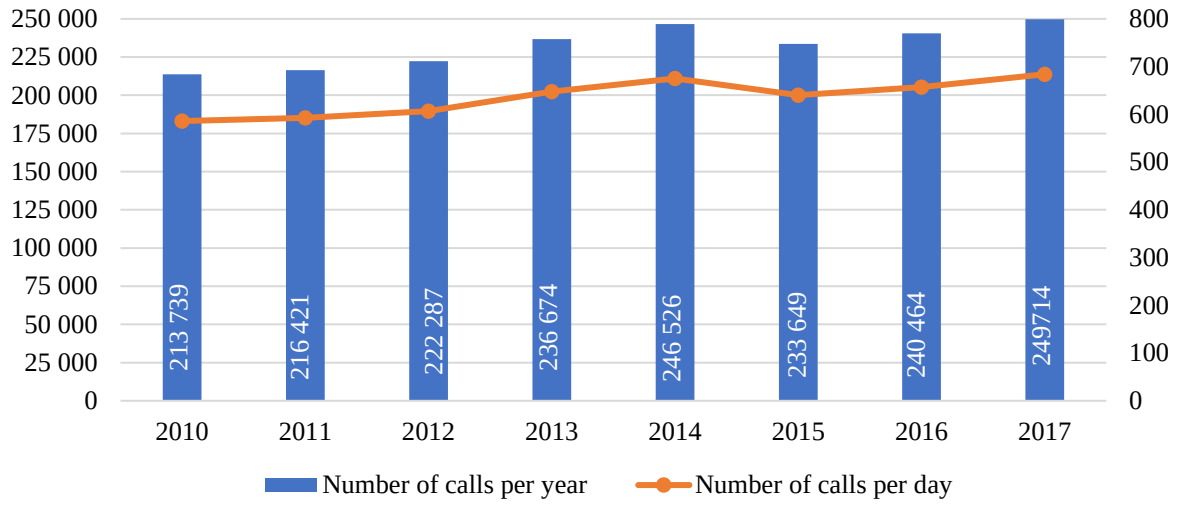


Source: Family physician advisory line report

The number of calls made to the family physician advisory line has also increased along with the growing awareness of the advisory line. In the period from 2014 to 2017, an average 240,000 calls per year were made on the advisory line (see Figure 2). This is an average of 640–680 calls per day. On average, the highest number of calls are made on Saturdays (approximately 720 calls) and on Sundays (approximately 700 calls). Lowest number of calls were made on Wednesdays in 2010–2017 (ca 560 calls). The number of calls on weekends is, on average, one-fifth higher.

[106] Respective study was not carried out in 2017.

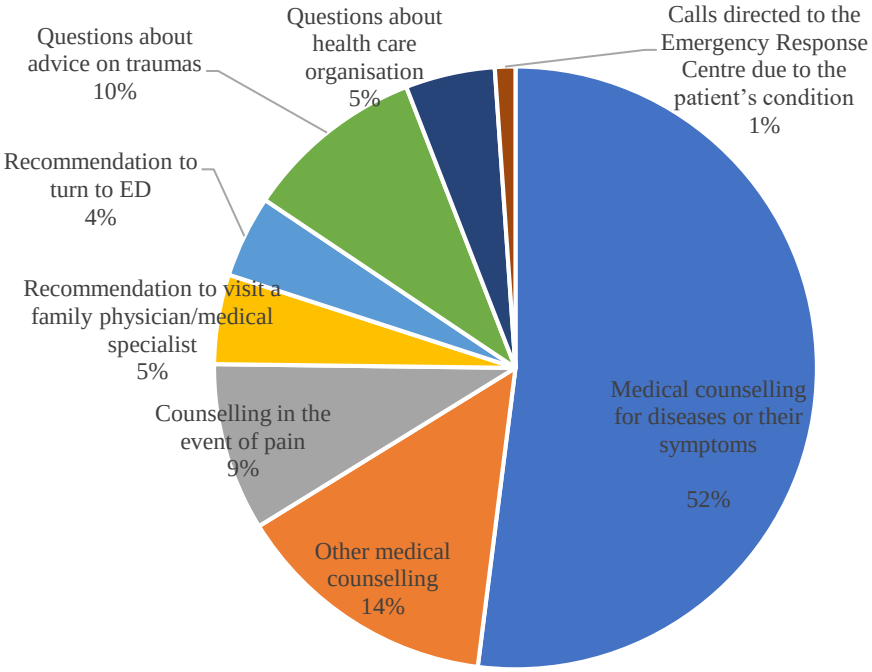
Figure 2. Number of calls made to a family physician advisory line, 2006–2017



Source: Family physician advisory line reports

In half of the cases, people seek medical advice for illnesses or their symptoms. This is the main reason for calling the advisory line. Counsellors advised turning to the emergency room in, on average, 5% (approximately 12,500 people in 2017) of the cases, and 1% (from approximately 2,500 in 2017) of the calls were directed to the Emergency Response Centre (see Figure 3).

Figure 3. Summary of questions and topics asked on the advisory line in 2017, proportion



Source: Family physician advisory line reports

If all patients referred to the emergency room were to attend the ED, they would have accounted for approximately 2.7% of all the visitors (462,000) in 2017. If all referrals to the Emergency Response Centre had been justified, they would have accounted for around 0.5% of ambulance calls in 2017.

Appendix D. ED visits by insurance status and diagnose category

The National Audit Office analysed whether uninsured and insured people's visits to the ED differed in 2014–2016. The analysis revealed that traumas accounted for about 53% of treatment cases of uninsured people, while the same was 36% for those who were covered by health insurance (see Table 1).[107] It was also observed that by analysing subcategories of the ICD classifications, 1% of cases of working-aged people with and without health insurance were statistically significant with a likelihood of 95%.[108]

Table 1. Proportions of visits of working-aged people with (I) and without (NI) health insurance by diagnosis categories of the International Classification of Diseases (ICD), 2014–2016

ICD code	Name	I 2014 %	NI 2014 %	I 2015 %	NI 2015 %	I 2016 %	NI 2016 %
A00–B99	Certain infectious and parasitic diseases	2.18	2.20	2.11	1.90	2.33	2.44
C00–D48	Neoplasms	1.14	0.52	1.15	0.59	1.28	0.70
D50–D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.21	0.16	0.22	0.20	0.24	0.31
E00–E90	Endocrine, nutritional and metabolic diseases	0.47	0.20	0.44	0.21	0.46	0.30
F00–F99	Mental and behavioural disorders	1.33	2.45	1.36	2.24	1.30	2.66
G00–G99	Diseases of the nervous system	2.26	2.28	2.31	2.22	2.40	2.33
H00–H59	Diseases of the eye and adnexa	4.92	3.16	4.51	2.89	4.45	2.24
H60–H95	Diseases of the ear and mastoid process	2.05	1.81	1.99	1.56	1.97	1.77
I00–I99	Diseases of the circulatory system	5.43	3.28	5.46	3.64	5.69	3.64
J00–J99	Diseases of the respiratory system	4.22	4.72	4.19	4.70	4.69	5.26
K00–K93	Diseases of the digestive system	5.31	5.79	5.32	5.79	5.50	6.00
L00–L99	Diseases of the skin and subcutaneous tissue	3.86	4.19	3.92	4.28	3.89	3.62
M00–M99	Diseases of the musculoskeletal system and connective tissue	7.68	5.89	8.08	5.23	7.89	4.65
N00–N99	Diseases of the genitourinary system	4.74	3.22	4.59	3.06	4.68	3.01
O00–O99	Pregnancy, childbirth and the puerperium	5.37	0.61	5.37	0.64	5.63	0.63
P00–P96	Certain conditions originating in the perinatal period	0.00	0.00	0.00	0.02	0.00	0.01
Q00–Q99	Congenital malformations, deformations and chromosomal abnormalities	0.04	0.01	0.04	0.02	0.05	0.09
R00–R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	7.41	6.00	7.59	6.29	8.30	6.95
S00–T98	Injury, poisoning and certain other consequences of external causes	36.11	52.11	35.93	53.47	35.86	52.57
V01–Y98	External causes of morbidity and mortality	0.00	0.00	0.00	0.00	0.00	0.00
Z00–Z99	Factors influencing health status and contact with health services	5.25	1.39	5.40	1.06	3.40	0.81
U00–U99	Codes for special purposes	0.00	0.00	0.00	0.00	0.00	0.00

[107] Proportions are similar in all three years (2014–2016).

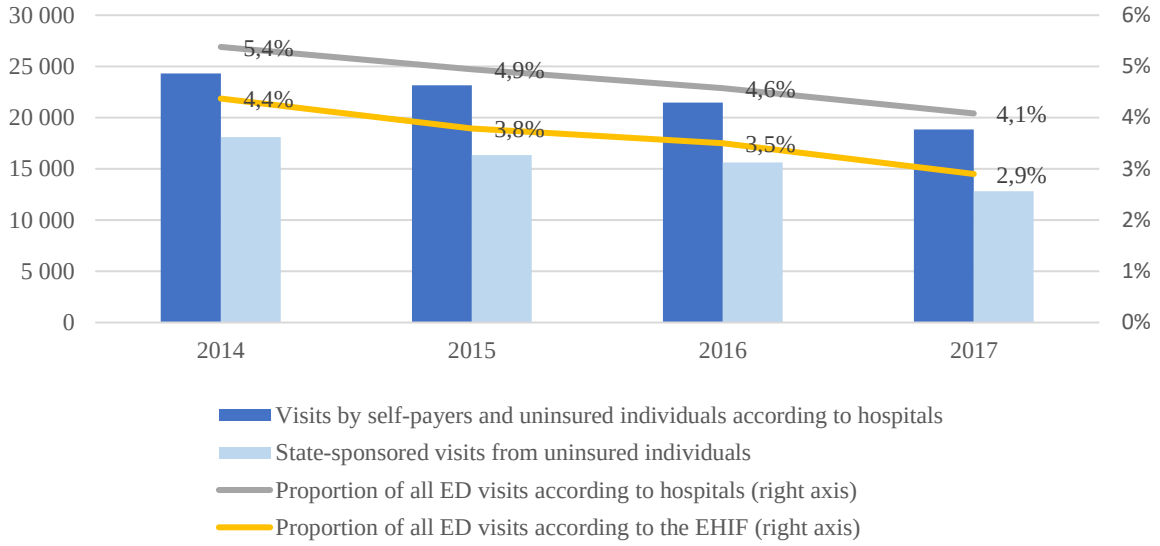
[108] In subchapters, a chi-square was calculated for three years. Statistical difference was present when p value was less than 0.05

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

Visits by uninsured individuals by years are shown in Figure 1.[109] Analysis revealed that the number of visits has decreased slowly but steadily; on average 3–4% of all visits consist of individuals without health insurance (according to the Health Insurance Fund).

Indicators in both Table 1 and Figure 1 illustrate the assessment made in clauses 48–49 that persons with health insurance have access to many more services provided by the department of emergency medicine, and a decrease in the number of visits by uninsured individuals suggests that the Ministry of Social Affairs pays strictly only for emergency care.

Figure 1. Number of uninsured individuals and proportion of their ED visits

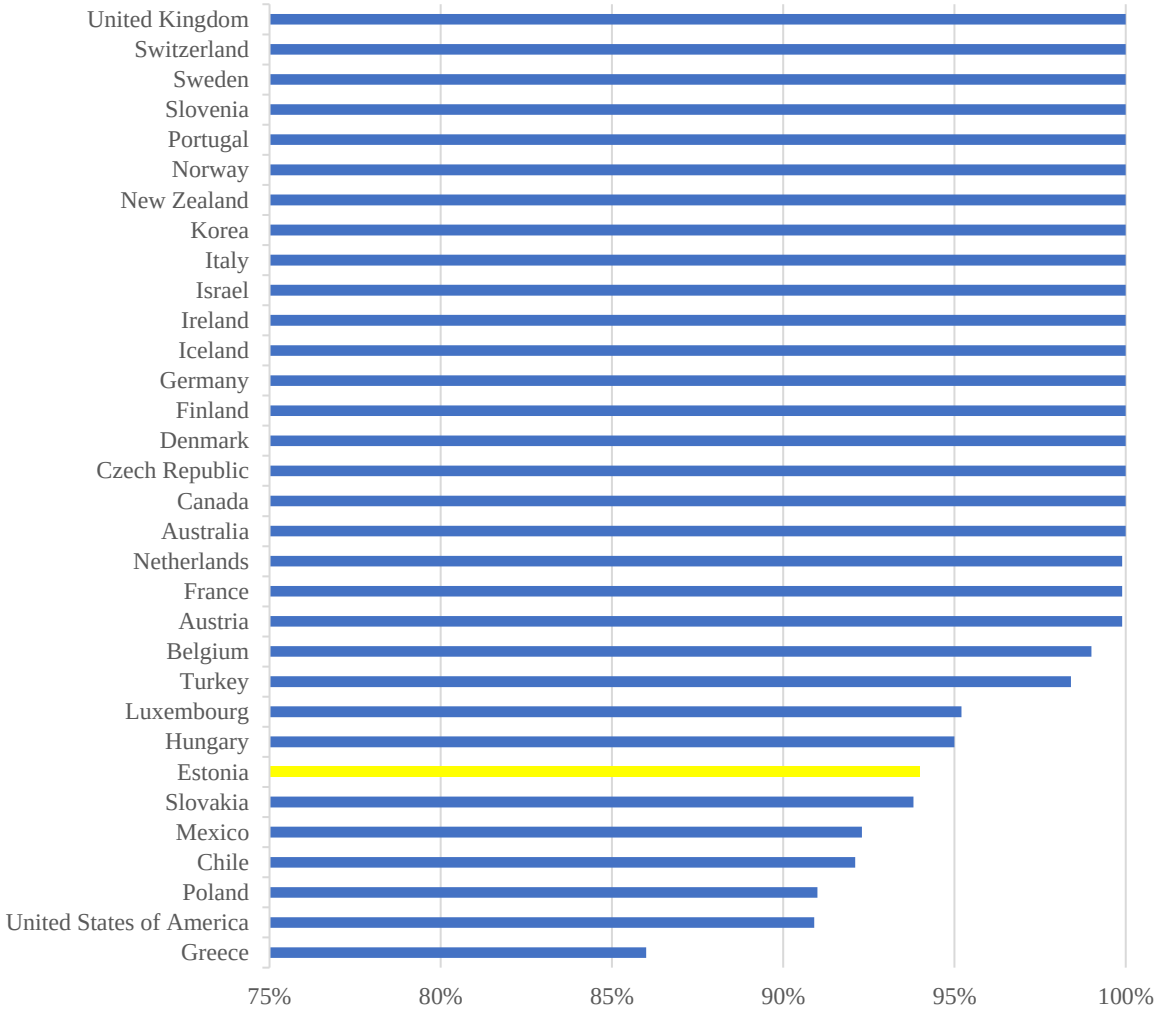


Source: National Audit Office based on the data of the Estonian Health Insurance Fund and HNDP hospitals

Estonia is one of the few countries that does not have health insurance for all individuals compared to other OECD countries. The countries are provided in detail in Figure 2.

[109] The data of hospitals and the EHIF are different; the data of the Health Insurance Fund only includes visits to the department of emergency medicine and uninsured people for whom the state has paid for the service. Hospital statistics also include patients in need of emergency care in other departments, and there are those who have paid for the service themselves among uninsured people.

Figure 2. Proportion of public and private insurance in total population in 2015



Source: OECD data

Appendix E. Availability criteria of primary health care

Basis for the availability of family physicians includes three requirements: 1) maximum number of persons on practice lists, 2) length of the appointment times, and 3) speed of organising appointments for various degrees of health problems.

1 According to subsection 8 (4^1) of the Health Services Organisation Act, the maximum number of persons on a practice list is 1,200–2,000 people. If the maximum number of persons on a practice list exceeds 2,000 (2,001–2,400 people), the family physician has an obligation to include at least one healthcare care professional qualified as a physician (for example, an assistant physician).

2. Pursuant to subsections 5 (1)–(3) of the "Instructions for the family physician and healthcare professionals working with him or her", a family physician's appointment time is at least 20 hours per week, and appointment time of an independent family nurse is at least 20 hours. Appointment hours must be available every working day between 08:00 and 18:00. Appointment hours must be available until 18:00 on at least one day per week. The primary care centre must be open and registration of patients' appointments must be guaranteed on weekdays for at least eight hours a day.

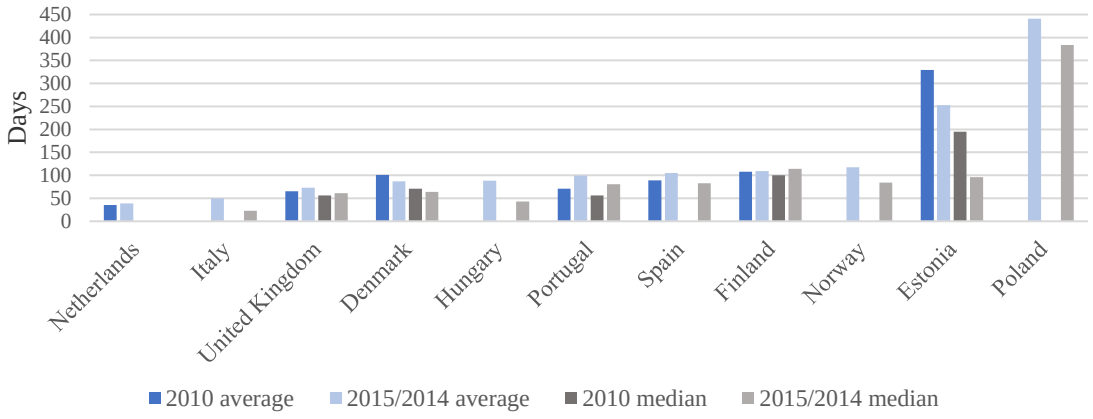
3. Pursuant to subsection 5 (4) of the "Instructions for the family physician and healthcare professionals working with him or her", a family physician is obligated to allow a patient to receive an appointment in the event of an acute illness on the day patient turned to the practice and in other cases within five working days.

According to the Quality Guideline of Estonian Primary Care Centres, the criteria for the assessment of availability are based on the following questions:

- Does the family physician provide an appointment for a patient with an acute health problem on the same day?
- Does a family physician provide appointment in other cases within 5 working days?
- Is the primary care centre open for at least 8 hours a day?
- Is the option to register for an appointment guaranteed to people with health insurance for at least 8 hours a day?
- Do people have the possibility for an appointment for at least four hours a day on five working days a week, with at least one day per week when appointment time is until 18:00?
- Does a family nurse have an independent appointment time for at least 20 hours a week?
- If there are two family nurses, does the family nurse appointment time account for a total of at least 40 hours a week?
- Has a family physician hired a full-time family nurse or several family nurses whose total working time equals at least one full-time job?
- Has a family physician hired another doctor who does not have a practice list if the number of persons on the physician's practice lists exceeds the maximum number of persons?

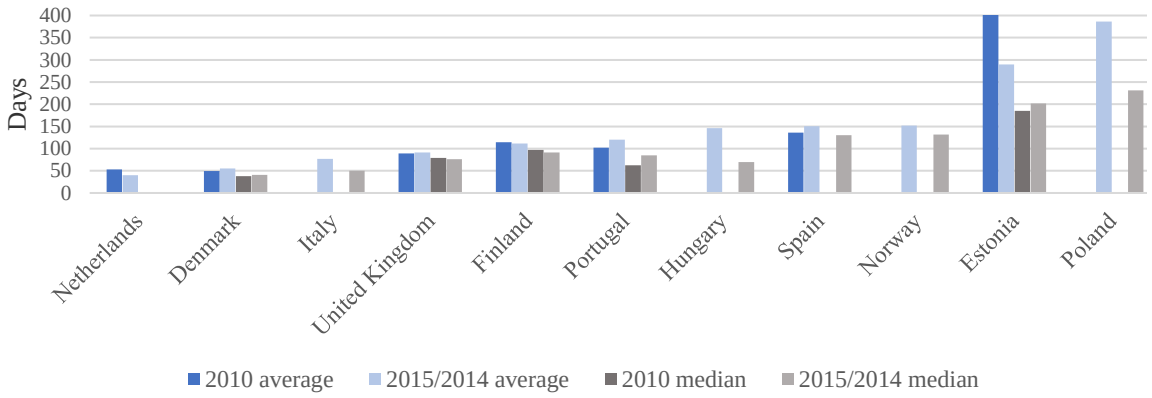
Appendix F. Waiting times for three operations in 2006–2014/2015 according to the OECD

Figure 1. Waiting time for a cataract operation from an appointment of a medical specialist to surgery



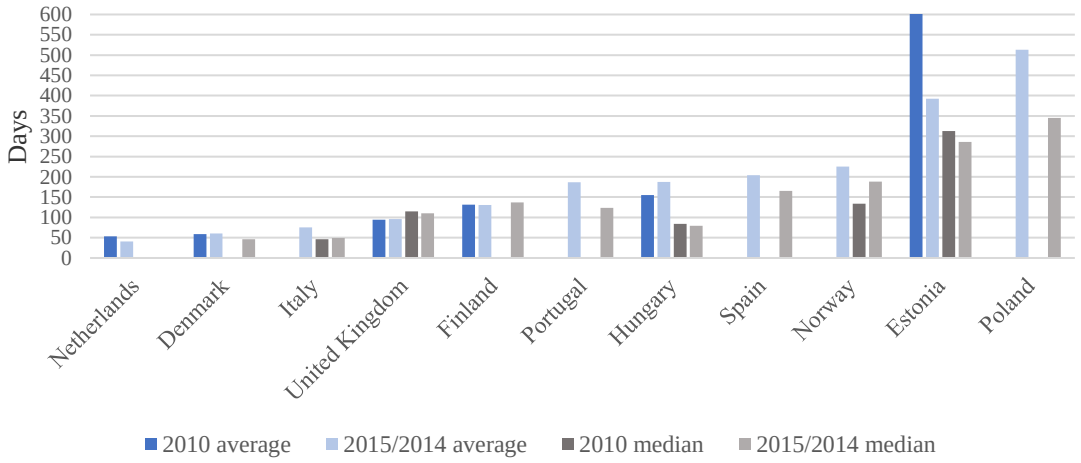
Source: Health at a Glance 2016. OECD, 2017

Figure 2. Waiting time for a hip replacement surgery from an appointment of a medical specialist to surgery



Source: Health at a Glance 2016. OECD, 2017

Figure 3. Waiting time for a knee joint replacement surgery from an appointment of a medical specialist to surgery



Source: Health at a Glance 2016. OECD, 2017

Appendix G. Departments of emergency medicine in 2017