

State's activity upon treating and maintaining the health of children

*Has the state resolved the issues of maintaining the
health of children and receiving health services?*

Dear readers,

Unlike the majority of slogans, the endlessly repeated slogan “Children are our future!” actually has substance. It foremost conceals responsibility – both the responsibility of parents and of the state in maintaining the health of children and standing up for their well-being.

Paying attention to the health of children is directly connected to the state's expenses. Illnesses and health problems that have not been discovered and treated in time pass on to the future and cause greater medical expenses. Children's health problems will also later be reflected in the lost years of life and work of the working-age population and the deterioration of living quality. Maintaining the health of children and establishing healthy lifestyles are therefore key issues in improving the capability and increasing the well-being of the state's labour force.

The state expects that in the future people work significantly longer than they do now. For example, the Minister of Social Affairs has proposed that as of 2026, the retirement age should increase in the same pace as the increasing life expectancy. It has been proposed previously that the retirement age should be 70 years by 2040. Irrespective of the policy choice, working longer presumes that the health behaviour of children and young people is conscious and illnesses are suffered from to a smaller degree.

Unfortunately, surveys indicate that children are overweight, falling ill with chronic illnesses is increasing, mental health problems are detected increasingly more, children smoke and consume alcohol earlier than in other countries and have a less active lifestyle. It is also reflected in the years of life still left to live healthily that have decreased by more than a year over the last five years.

Liability for the well-being and health of children lies with the parent, but the state cannot allow for children whose parents are unable to or do not know how to care for the health of their children to be left without attention or help. It is the duty of the state and the local government to establish an environment that protects the health where ill children are noticed and assisted in seeing a health care professional at the right time.

The audit indicated that the current health care administration is unable to ensure the prevention, timely discovery, systematic observation and consistent treatment of health problems affecting children.

In the case of the current health care system, everything depends on the parent – if the parent does not stand up for their child, does not recognise health problems and is not consistent in seeking help, the health problem affecting the child may become a severe or chronic illness. One reason for this problem is the lack of a well-functioning network of specialists. Irrespective of the fact that health services are generally offered to children, each specialist works independently and there is no information exchange and substantive cooperation.

The objective of the cooperation must be a happy and healthy child, not the budget of health services provided independently or achieving contractual treatment cases. The basis for successful cooperation is that one of the specialists is a case organiser who is constantly keeping an eye on the health of the child and, if necessary, sends the child to an appropriate health care specialist. There are currently no such specialists in the health care administration.

In order for the children to grow up to be healthy adults who wish and are able to work longer, we have to integrate family physician service, school health care service, specialised medical care, support services of counselling services for special educational needs and child protection into a well-functioning and coordinated network to a better degree than it currently is.



Alar Karis
Auditor General

On 2 November 2016

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Summary of the audit results

According to the Constitution, each child is entitled to the protection of his or her health. The primary right and obligation to care for the child's health lies with the parent. The state's obligation is to create an environment that protects the health of the child, organise the promotion of health and ensure necessary health services for maintaining and improving the health of children. In order to perform this task, the state has prepared the National Health Plan 2009–2020 that includes objectives and actions for maintaining the health of children and treating children. Actions are carried out foremost by school nurses, family physicians and nurses, specialist doctors, and health promotion specialists and counselling specialists.

What did we audit?

The National Audit Office of Estonia analysed whether the health care administration of children ensures that children with health problems and illnesses are found at the right time, whether the information exchange between specialists and parents is functional, whether children receive necessary help in case of identifying health problems and illnesses, and whether the parties responsible for maintaining the health of children and treating children form a functional network. The National Audit Office of Estonia also investigated the availability of health services to children on the basis of residence, age and social background.

Why is this important to taxpayers?

The health and welfare of children are the foundation of a healthy society. Today's illnesses and health problems affecting children will be reflected in the future in the loss of years of life and work of the working-age population, thereby affecting the overall functioning and coping of the state. This also means greater expenses for the health insurance budget in the future when today's children have grown up. There were approx. 258,000 children in Estonia in 2015, constituting 20% of the population.

In 2016, the budget for specialist medical care for children, health care in school and promotional activities for the health of children is 26.9 million euros, plus expenses for family health care and counselling services for special educational needs. In 2015, maintaining the health and treating children cost 46.1 million euros out of the budget of the Estonian Health Insurance Fund, plus the cost of counselling services for special educational needs.

What did we find and conclude from the results of the audit?

In the opinion of the National Audit Office of Estonia, the current health care administration of children does not ensure the prevention, timely discovery, systematic observation and consistent treatment of health problems affecting children. In order to resolve the situation, substantive cooperation shall have to be established between specialists offering family health care and specialised medical care, school health care service, child protection services, counselling services for special educational needs and health promotion services.

Important observations:

Monitoring the health of children and provision of health services does not function in a coordinated manner. The applicable administration does not ensure a systematic cooperation between family physicians and specialists doctors, school nurses and health promotion and counselling specialists upon noticing and resolving health problems affecting children. Neither family physicians nor school nurses always recognise (mental) health problems at the right time, because their training is different and, as such, the child is not sent to see another specialist.

The analysis carried out by the National Audit Office of Estonia indicated that half of the children in whom the school nurse had noticed a health problem did not make it to the doctor. Many educational establishments also lack necessary counselling specialists that could promptly help the child when the problems occur. There is also no certainty that children will adhere to the necessary treatment scheme after receiving specialised medical care. The reason for this is that the state does not have a case management approach, i.e. the current system does not ensure further consistent work with children who were in need of care. As a result, many patients lose touch with health care until their health deteriorates once more.

Less than 4% of 3–6-year-old pre-school children underwent medical examinations with the prescribed frequency. Although regular examination is the primary method for early discovery of health problems and illnesses, children underwent medical examinations irregularly, and it depended on the age of the child. 85–93% of children of up to 2 years of age underwent a family physician's medical examination. 52% of 3–6-year-old pre-school children never underwent a medical examination over a period of three years. Children undergo medical examinations the least when they are school-age: 8–20% of children underwent examinations, depending on their age. The share of those refusing vaccinations has also increased, having been 1.9–3.5% in 2014, depending on the vaccine. One reason for this is that the Ministry of Social Affairs has not been able to effectively make parents aware of the necessity of medical examinations and vaccinations. Family physicians, whose work load is generally high, also do not have enough opportunities to make sure that all children undergo medical examinations as prescribed.

All children are not receiving similar school health care services, and there is no supervision of the content and quality of the service. Because a school-age child spends a large part of their day in school, both health promotion and prevention of illnesses should be a part of the

school life for all children. The audit indicated that 14 schools lack school health care services. The established requirement of one school nurse per 600 students was not met everywhere, i.e. approx. 34,000 school children did not receive the required service. It was also revealed that the situation varied from school to school. For example, school nurses carried out health education classes in 70% of city schools; the respective indicator in schools in the countryside was 30%. One reason for the differences are the uneven opportunities of school nurses to get an overview of both the health and the learning environment of children. The audit indicated that in Ida-Viru County, for example, 5% of schools did not have a reception room, while the respective indicator in Lääne-Viru, Rapla and Järva County was 29%.

One source reason for the lack and varying experiences of school nurses is also funding for health services at school, which has increased slower than financing other health services in the period from 2006 to 2015. In addition, school health care services are also only paid for 11 months out of the year. At the same time, supervision of school health care services have been limited to checking formal requirements without assessing the content and quality of the service (excl. immunisation).

Treatment of children suffering from chronic illnesses has not always been timely and consistent. According to the expert assessment, 71% of children suffering from behavioural disorders and 63% of children suffering from eating disorders did not receive timely help. With regard to children suffering from eating and attention deficit hyperactivity disorders, the average time between the health problem occurring and noticing it is two years. The audit also indicated that after a child has been sent for treatment, the treatment is not always consistent. Among obese children, for example, over a period of four years, 30% of the target group received health services for two years, 8% for three years and 4% for all four years. Treating an obese child, however, presumes receiving regular health services. First illness among obese children has increased by 54% during a period from 2006 to 2014. The reason for this can be found both in the health behaviour of children and in the fact that services are not offered in a coordinated manner and the child does not reach all the necessary specialists at the right time.

Receiving health services and hospitalisation varied based on the place of residence of children. The analysis carried out by the National Audit Office of Estonia indicated that hospitalisation due to chronic illnesses varied based on the place of residence of children. For example, children living in the countryside were hospitalised due to type I diabetes twice as often as children living in the city. Hospital treatment in case of asthma in Ida-Viru County (1.55 children per 1,000 children) was nearly double than that in Lääne, Saare, Hiiu or Pärnu County (0.83 children per 1,000 children). Although in Ida-Viru County intensive industrial activity may be a contributing factor to illnesses of the respiratory organs, receiving health services varied based on the place of residence of the child also with regard to other illnesses. For example, obese children living in the city received services approximately 4.22 times and children living the countryside 3.11 times per one child, i.e. children living in the city received 26.5% more health services associated with obesity. One reason for this may be varied participation in medical examinations.

Medical examinations were attended the least by children living in Ida-Viru County (23 children per 1,000 children). However, the Estonian average was noticeably higher (34 children per 1,000 children).

Children who were hospitalised due to type I diabetes and asthma were more likely from families with low socioeconomic background.

In 2014, 31.7% of all people receiving wage income in Estonia earned minimum wages or less. The ratio among parents of children hospitalised due to type I diabetes and asthma was higher, i.e. 39.6% and 40.7% respectively. In addition to income, receiving social benefits also characterises the socioeconomic situation of the family: among families with children hospitalised due to diabetes, the share of those receiving subsistence benefit was more than double (8%) than that of the Estonian average (3.4%). The share of those receiving subsistence benefit was also higher than the Estonian average among families with children hospitalised with a diagnosis of asthma (5.5%). The state has not analysed separately whether children from poorer families or families with low socioeconomic background have a greater need for health services.

Resolving the problem is impeded by the lack of data on the health status of children. Although the state has the statistics of deaths and births and incidence cases, it does not have an overview of the health status of children by different target and age groups. The National Institute for Health Development is collecting statistics of incidences where one person with the same case may be registered with more than one service provider or where receiving health services with the prevalent disease cases are registered as incident cases. Both the main diagnoses and accompanying diagnoses are registered on health records, which is why it is possible that accompanying illnesses might be registered multiple times. Both the Ministry of Social Affairs and the National Institute for Health Development confirm that health data currently being collected does not enable planning health services or preventive or promotional activities aimed at target groups. According to the Ministry of Social Affairs, developing a statistics module for the examinations of children in the health information system planned to be commissioned in 2017 is improving the situation.

What did we recommend?

Main recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund:

- Develop and implement an integrated service concept for monitoring the health of children and treating children, as part of which family physician service, school health care services, specialised medical care, support services of counselling services for special educational needs and child protection are combined to form a functional and coordinated network.
- Consider giving an additional task to the family physician that obligates the family physician to observe that the child receives all the necessary services and, if necessary, inform and advise the parent in doing so, at the same time ensuring that expenses accompanying the additional task incurred by the family physician are covered.

- Analyse whether the current frequency of undergoing medical examinations is justified. Requirement for children to undergo medical examinations too frequently may be burdensome for the parents and the health care system and may not ensure cost-effective discovery of illnesses.
- Improve awareness among parents of the necessity of medical examinations; among others, implement a notification system based on mobile and e-solutions for promoting undergoing medical examinations and involve a child protection official in determining the causes and resolving the problem in case of continuous failure to adhere to notifications.
- Amend the organisation of financing school health care services so that the lack of school nurses decreases and the school health care services are ensured for all children; ensure through training school nurses and updating school health care manuals that the content of the service is similar irrespective of the place of residence of the child; and at the same time determine the content and regularity of the supervision of school health care services.

Response of the audited: Minister of Health and Labour and the chairman of the board of the Estonian Health Insurance Fund agreed with the recommendation to develop a concept of integrated services. The Minister of Health and Labour added that the concept also includes increasing the awareness of health among parents, for example offering a parental school. The chairman of the board of the Estonian Health Insurance Fund agreed that it is important to improve the awareness among parents and also promised to contribute to increasing thereof.

The Minister of Health and Labour believes that monitoring the provision of necessary health services to the child is the obligation of health care professionals. However, both the Minister of Health and Labour and the chairman of the board of the Estonian Health Insurance Fund pointed out the guideline for medical examinations for children is being updated, the objective of which is to monitor the development of children and to ensure the help necessary to the child through early discovery of health and developmental disorders. In the course of this, the frequency of undergoing medical examinations is reviewed.

The Minister of Health and Labour promised to better integrate school health care services with family health care. The chairman of the board of the Estonian Health Insurance Fund added that it is extremely important to ensure the availability of school health care services to all children, but this cannot be achieved simply with a price formation of the service.

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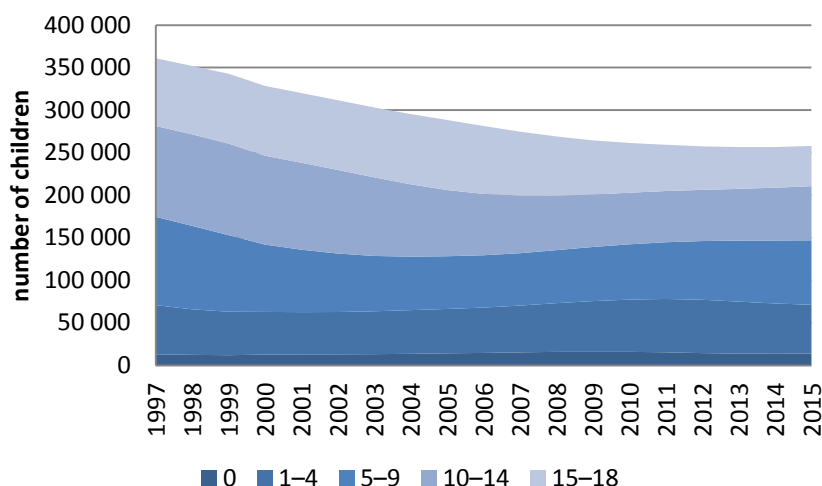
Overview of the area

Change in the number of children

Birth cohort – group of people born during a specific time period

1. According to the data of Statistics Estonia, approx. 258,000 up to 18-year-old children were living in Estonia in 2015. Over the last 10 years, the number of children has decreased by nearly 30,500 children, i.e. by approx. 11%. One reason for this trend is the number of births that has decreased by 3.1%. Another reason is large birth cohorts reaching adulthood. The number of children in the age group of 15 to 18 years of age has decreased the most, i.e. by 40% (see figure 1).

Figure 1. Number of children in 1997–2015 by age groups



Source: Statistics Estonia

Persons responsible for monitoring and maintaining the health of children

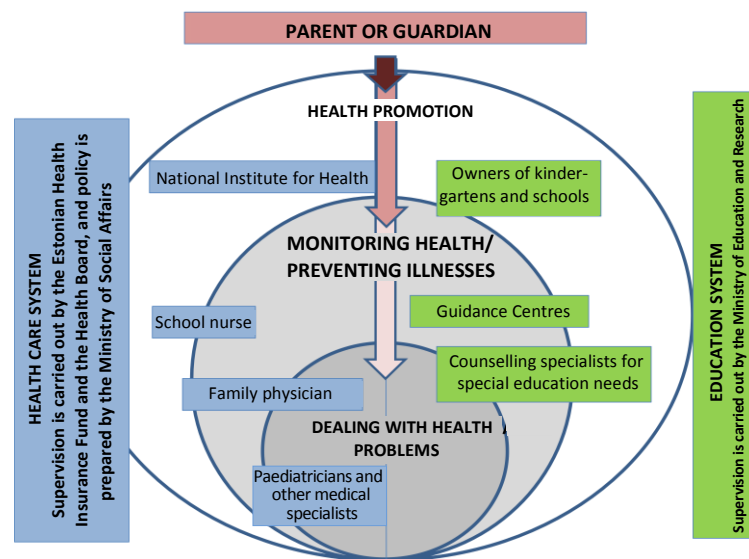
Health promotion – establishing behaviour and lifestyle that values and promotes human health, purposeful development of a living environment supporting health that would enable making healthy choices simple choices.

2. The Constitution and the Family Law Act of the Republic of Estonia leave caring for the child, incl. monitoring and ensuring the health, and raising the child to a parent who has the right of custody or to a guardian. According to the Public Health Act, one of the most important measures for monitoring the health of a child is undergoing preventive medical examinations, and it is the responsibility of parents to make sure that the child makes it to those.¹

3. In addition to the parent, the health care and education system also has duties associated with treating and maintaining the health of children (in the context of the audit, the primary attention is on the prevention and early detection of illnesses and health promotion). There are parties in both systems that are engaged in health promotion, monitoring the health of children and preventing illnesses and resolving health problems. Parties of the health care system (National Institute for Health Development, health care providers) are mostly engaged in health promotion and providing health services. Parties to the education system are mostly engaged in health promotion and prevention of illnesses. Summary diagram with regard to the responsibility of various parties has been provided in figure 2.

¹ The frequency and content of undergoing medical examinations has been specified in the treatment guideline "Guideline for a medical examination of children up to 18 years of age".

Figure 2. Parties responsible for the treatment and maintaining the health of children



Source: National Audit Office of Estonia

Prevention of illnesses – involving healthy people in medical examinations or receiving preventive health services with the objective of preventing avoidable illnesses. Prevention is vaccinating, carrying out screening tests, publishing patient guidelines, activities for preventing complications, etc.

Epicrisis – summary of the findings of a medical examination or a treatment carried out.

For your information

paediatricians are divided into general paediatricians and paediatricians with a minor specialty.

General paediatricians usually work in county hospitals and are engaged in out-patient and in-patient treatment.

Paediatricians with a minor specialty usually work in regional and central hospitals and have specialised on the diagnostics and treatment of illnesses of a specific specialty, for example paediatrician-allergist.

Source: Estonian Paediatric Association

4. In **preventing illnesses** affecting children, the state is supporting parents through the organisation of monitoring the health of children that the family physician is liable for. Among school-age children, the obligation to carry out medical examinations is divided between the family physician and the school nurse, depending on the grade that the child is studying in.² According to the guideline, the appointments of medical examinations are distributed so that the child generally undergoes a medical examination once a year (see more details in appendix A).

5. **Epicrisis**³ of medical examinations carried out by the school nurse, family physician and other doctors alike should be reflected in the health information system. This allows both parents and other health care professionals dealing with the health of the child to get an exact overview of which procedures and analyses have been carried out and what has the child's health status been in different periods.

6. In addition to medical examinations, the state has also prepared and established an immunisation plan that includes information on against which illnesses and how often children should be vaccinated (see also appendix B). Because the parent is the person holding the main responsibility for the health of the child, the parent has the right to refuse to vaccinate his or her child and refuse to have the child undergo medical examinations.

7. In case health problems occur, the family physician who will send the child to see a medical specialist if necessary should be contacted. Medical specialists specialised on children are mostly paediatricians or child's doctors who deal with the diagnosis and treatment of illnesses affecting children up to 18 years of age.

² Health services, incl. carrying out medical examinations, are not offered in kindergartens, but the local government has the opportunity to offer other services, for example the help of a speech therapist, as needed.

³ Epicrisis also mean notices sent by school nurses.

Counselling services – counselling in logopaedics, special needs education, psychology and social pedagogy

Source: Ministry of Education and Research

Guidance Centre is a centre offering career and counselling services for special educational needs that offers **level II** counselling support services free of charge, serving as a coordinator between different parties and supporting the specialist working in the school, and **level I** services for a charge within the context of which the centre will send a support specialist to the site.

Source: SA Innove

Supervision of health services and counselling services for special educational needs

Funding the treatment and maintaining of the health of children

8. In school, the health and well-being of children is monitored by the school nurse whose task is to observe the health status of students, help shape a healthy lifestyle among students, prevent students from falling ill and chronic illnesses from developing, monitor the implementation of a medically justified study load and the establishment of a healthy environment, and provide emergency care if necessary.

9. In addition to a school nurse, educational institutions also have support specialists of **counselling services** for special educational needs that help children foremost in case of learning difficulties and mental health problems. The obligation to offer and fund counselling support services lies with the school owner and it is organised by the educational institution. In addition to the school, counselling support services are also offered by **Guidance Centres** located in each county that fall under SA Innove.

10. Carrying out supervision of health services, incl. the activity of a school nurse, has been divided between the Health Board and the Estonian Health Insurance Fund. The Health Board issues activity licences to service providers and verifies the compliance of the service with the legislations. The Estonian Health Insurance Fund checks that service providers conform to the contract, incl. also the content of work. Supervision of the activity of school, incl. the provision of support services, is carried out by the Ministry of Education and Research and county governments.

11. School health care services, family health care and paediatrics are financed and organised by the Estonian Health Insurance Fund. Reference price of school health care services in 2016 per one child is 2.64 euros and per one special needs child 12.37 euros a month. School health care services are compensated for 11 months per calendar year. Such financing is due to the 3-month summer school holiday during which the school nurse cannot deal with children for at least one month. In 2016, the budget for school health care services is 4.6 million euros.

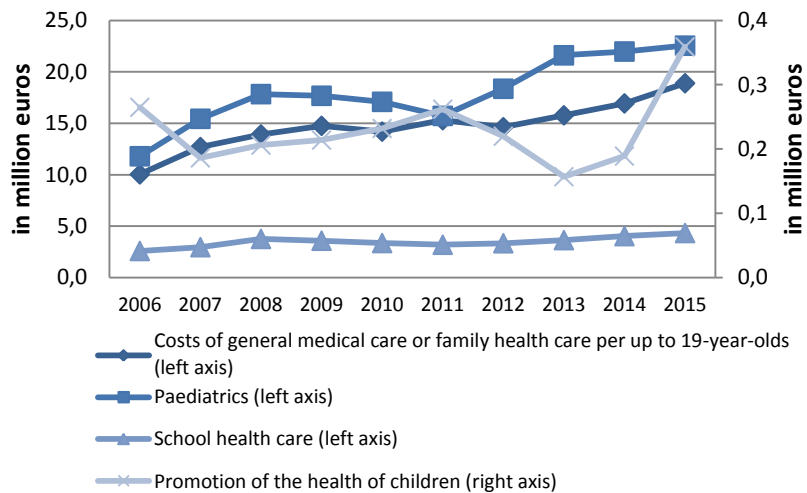
12. The budget of family health care in 2016 is 100 million euros (the budget includes the entire population) and the budget of paediatrics is 21.9 million euros. Additionally, the budget of health promotional activities aimed at the healthy development of children in 2016 is 405,000 euros in the budget of the Estonian Health Insurance Fund. In 2015, the health of children cost 46.1 million euros⁴ out of the budget of the Estonian Health Insurance Fund, plus the cost of counselling services for special educational needs.

13. Costs of the health services for the population have increased by a total of 109% during the period from 2006 to 2015.⁵ While the total costs of family health care have increased by 117%, the expenses of family health care on 0–19-year-olds have increased less, i.e. by 88%. Costs of paediatrics have increased by 91%, and within the context thereof, the share of hospital treatment has decreased and out-patient and day care has significantly increased. Costs of school health care services have increased by 67% and costs of health promotion aimed at the healthy development of children by 37% (see figure 3).

⁴ Only the cost on children in the expenses of family health care has been calculated.

⁵ The budget of health services is inclusive of all sub-budgets of health services, incl. family health care and paediatrics.

Figure 3. Expenses incurred by the Estonian Health Insurance Fund on the health of children by activities during the period 2006–2015



Source: Reports of the Estonian Health Insurance Fund

14. Guidance Centre offers level I services inclusive of the service of a psychologist, special education teacher and speech therapist for a fee. The price per hour of the service is 27.90 euros, and in case of small local government schools (there are fewer than 350 students in the local government), the state compensates 35% of the price per hour of the service of a speech therapist, psychologist and special education teacher. This is funded by SA Innove within the framework of the programme of counselling for special educational needs and career counselling, and the majority of the money is allocated from the European Social Fund.

15. The state can indirectly assess the health of children by way of various surveys and analyses, because accurate accounts are not kept with regard to illnesses by patients and exact statistics are not available through eHealth.⁶ General indicators of the health of children have improved in 2006–2014: the total number of deaths per year among children has decreased from 187 children to 98, and of those, death caused by accidents and traumas made up 38% of the causes of deaths of children in 2014.⁷ Life expectancy at birth has increased from 73 to 77 years.

Indicators of the health of children

[Read more](#)

Audit “Activity of the state in implementing eHealth” of the National Audit Office of Estonia published in 2014 that analyses the problems with eHealth more closely.

⁶ There are some disease-based national registries that provide detailed statistics on the occurrence of a disease, but these diseases affect children to a smaller degree. For example cancer, tuberculosis, myocardial infarction and infectious diseases registry.

⁷ Analysis with regard to 0–19-year-olds

Morbidity of children

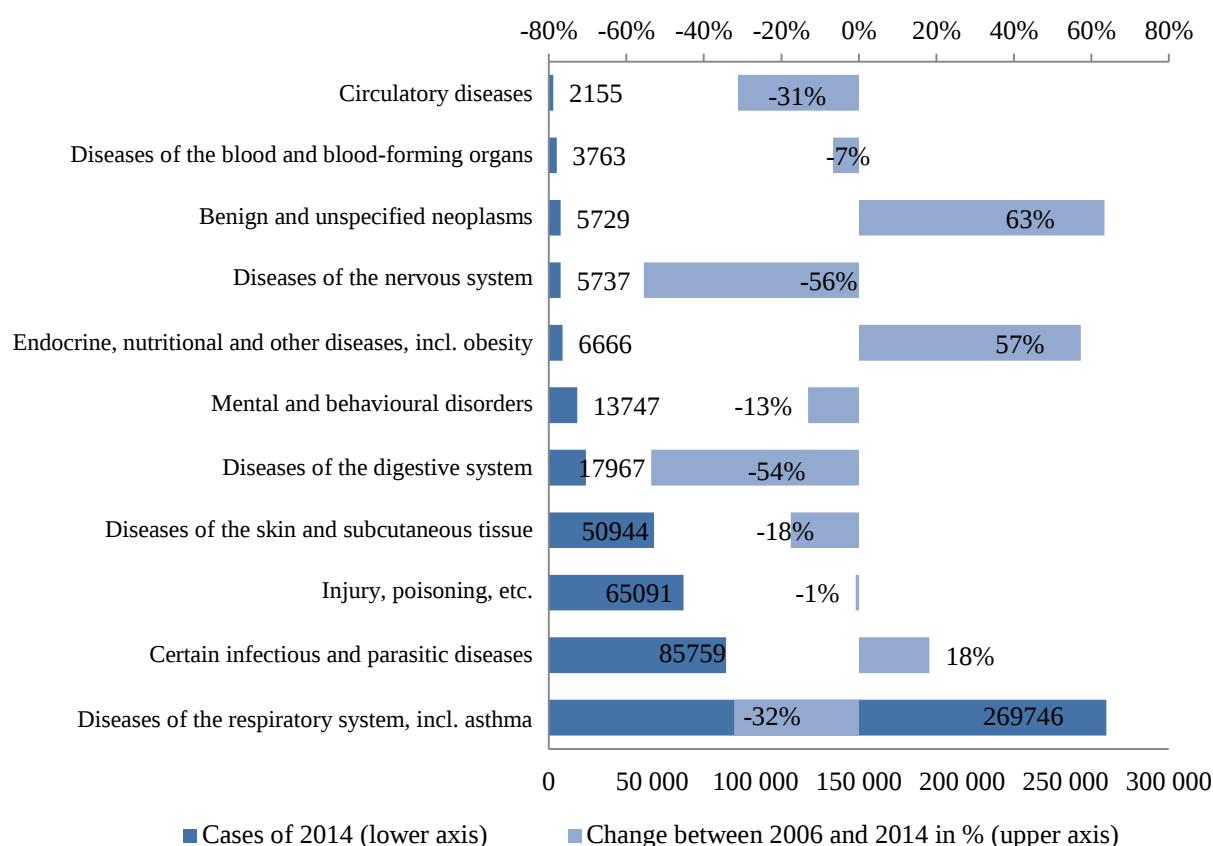
Lifestyle diseases – diseases that are mostly associated with the person's health behaviour (lifestyle). For the purposes of the audit, these primarily include diseases caused by an unbalanced diet and lack of an active lifestyle.

Source: National Audit Office of Estonia, U.S. National Library of Medicine, www.ncbi.nlm.nih.gov

16. The statistics of the National Institute for Health Development regarding incidences that partially reflects⁸ (see also cl 133) the trend of illnesses indicates that all in all, the number of incidences has decreased among children. At the same time, illnesses have become more frequent in certain disease groups.

17. Onset of benign tumours (63.4%)⁹, bronchial asthma (61%) and eating and metabolic disorders, incl. obesity and diabetes, (57.3%) among children have increased the most. Onset of obesity has increased by 54% (see figure 4). All in all, it could be said that the occurrence of diseases has become more frequent due to the so-called **lifestyle diseases** and chronic diseases.¹⁰ Incidence cases by all disease groups have been provided in appendix C to the report.

Figure 4. Incidence cases among children by disease groups in 2014 and the change thereof in 2014 in comparison to 2006¹¹



Source: National Institute for Health Development, analysis of the National Audit Office of Estonia on the basis of appendix C

⁸ Statistics of incidences is statistics of new cases of illnesses collected from service providers where one person with the same case may be registered with more than one service provider or where recurring incident cases are registered as incident cases every time. Both the main diagnoses and accompanying diagnoses are also recorded, which is why it is possible that accompanying illnesses are registered several times. This does not fully reflect the trend of illnesses.

⁹ Reasons for the increase in the onset of benign tumours are not clear.

¹⁰ Considering that the number of children has decreased during the analysed period, the share of illnesses among children may be greater than when analysing absolute numbers.

¹¹ See a more accurate classification of diseases together with diagnosis codes in appendix C.

18. The most frequently occurring chronic illness among children is asthma. Statistics collected in Estonia with regard to the onset of asthma is inaccurate, but the number of incidences of bronchial asthma has noticeably increased over the last nine years (see appendix C). According to the survey “Global Asthma Report 2014”, the prevalence of asthma symptoms among 13–14-year-olds is 5–10% in Estonia and the prevalence of severe asthma is 2.5–5%. Onset of the second chronic disease – type I diabetes – has also increased over the years. According to the analysis carried out by Estonian paediatricians, annual onset of the disease among children under the age of 15 years has increased less than 6.2% during the period from 1999 to 2014.¹²

International comparison

19. Generally, indicators of the onset of several chronic illnesses among children in Estonia are lower than in many other European countries. For example, there were 17.1 new cases of type I diabetes per 100,000 up to 14-year-old children, while the respective indicator in Finland was 57.6 but 11.1 in Slovenia.¹³ In 2009¹⁴, the share of asthma in Estonia was 4.8%, in Finland 7.7% and in Latvia 7.2%, but 2.5% in Lithuania. During the period 2006–2014, the share of overweight school-aged children has increased from 7.4% to 11.3% (see also appendix D).

Children's assessment of their health

20. Based on the international study *Health Behaviour in School-Aged Children* (HBSC)¹⁵, Estonian school-aged children generally assess their health to be good or very good (see figure 5). Although in comparison to other states, children have health complaints more than once a week to a lesser than average degree, the number thereof has increased in comparison to the study carried out in 2009/2010 (see appendix E). Additionally, UNICEF completed a study in 2016, according to the results of which children from the poorest families in Estonia have 28% more health complaints than children from the wealthiest families.¹⁶ Estonian children eat much less fruit than elsewhere, try alcohol, tobacco and marijuana earlier and are physically less active. The aforementioned factors may be one of the reason why the number of overweight children has increased (see appendix F).

¹² Kaire Heilman. Onset of type I diabetes among Estonian children under the age of 15 years in 2007–2014. Presentation at the congress of Estonian paediatricians, 2–4 June 2016.

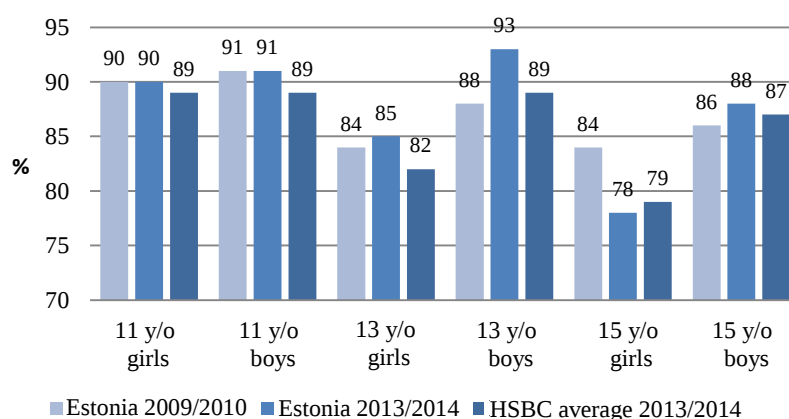
¹³ According to the OECD data of 2011.

¹⁴ Global Asthma Report 2014. Global Astma Network, 2014.

¹⁵ Health Behaviour in School-Aged Children. The study was carried out in 44 countries (European member states of the WHO and North-American countries) in 2013/2014. It analysed the health behaviour of 11, 13 and 15-year-old children.

¹⁶ UNICEF Office of Research. Fairness for Children: A league table of inequality in child well-being in rich countries. 2016, Innocenti Report Card 13, UNICEF Office of Research – Innocenti, Florence.

Figure 5. Share of children (%) who have assessed their health to be good or very good on the basis of HBSC studies among 11-15-year-olds, by gender



Source: HBSC studies in 2009/2010 and 2013/2014

Problems associated with the health of children and receiving health care

The problems formulated in the National Health Plan that became effective in 2009 are still partially unresolved

21. National positions and problems concerning the health of children are primarily included in the National Health Plan 2009–2020 (NHP).¹⁷

22. The National Audit Office of Estonia presumed that the objectives set for the promotion of the health of children in the NHP¹⁸ that became applicable in 2009 have been achieved or are being achieved (indicators regarding the performance of objectives are provided in appendix G, table 13) and that issues raised in the area of the health of children have been resolved or are being resolved. Problems that the state is working on or that have already been resolved have been described in table 1.

¹⁷ Government of the Republic order no. 325 of 17 July 2008 approved the National Health Plan 2009–2020 and its implementation plan for 2009–2012. It has been updated with of the Government of the Republic order no. 527 “Approval of the updated full text of “National Health Plan 2009–2020” and its implementation plan for 2013–2016” of 20 December 2012.

¹⁸ The NHP has been divided into five section; section II is “Safe and healthy development of children and youth”.

Problems resolved within the framework of the National Health Plan

Death rate – number of deaths in a year per 100,000 people of the same age

Source: Statistics Estonia

Age-specific abortion rate – number of abortions in a year per women of a certain age compared to the annual average number of women of the same age

Source: Eurostat

Infant mortality rate – number of deaths of under one year old children per 1,000 live births

Source: The National Institute for Health Development

Table 1. Problems specified in the NHP in the section “Safe development of children and youth” that have been resolved pursuant to the plan or the resolution of which is underway

Problem	Change in the situation	Activity of the state to improve the situation
High mortality of children and youths due to injuries and poisoning	During the period from 2006 to 2015, the death rate of up to 19-year-olds due to injuries has decreased from 30.5 to 13.3 (see also appendix G, table 13); at the same time, Estonian indicator is significantly higher than that of other European countries.	Work carried out by the injuries task force led by the Government Office: setting objectives for preventing injuries and deaths due to injuries, analysing the causes of injuries, agreeing on the tasks and responsibilities of various parties in the prevention of injuries (list of other activities is provided in appendix G, table 12).
Risky sexual behaviour (more frequent infection with HIV; lack of a decreasing trend in abortions among 15–19-year-olds)	During the period 2006–2014, the age-specific abortion rate among women of 15–19 years of age has decreased by 33%; Share of teenagers and youths investigated with regard to HIV has increased by 20%; Share of HIV cases has decreased by 95% in every age group ¹⁹ .	The Ministry of Social Affairs has implemented a national HIV and AIDS strategy, which included outreach, education and counselling carried out among target groups (list of other activities is provided in appendix G, table 12).
Necessity of developing an information environment reflecting the options for protecting and promoting the health of the child intended for the parents and (educational) specialists	By now, several online environments reflecting the options for the protection and promotion of the development and health of the child are operational: terviseinfo.ee, tarkvanem.ee, toitumine.ee, narko.ee, tubakainfo.ee.	The situation has improved thanks to the purposeful development of the information environment of the National Institute for Health Development.
Risks in the health behaviour of pregnant women (e.g. smoking during pregnancy); strong connection between the mother's low level of education and infant mortality; increased risk on the health of the child accompanying teenage pregnancy and increased illnesses among premature children.	During the period from 2006 to 2015, the infant death rate has decreased from 4.4 to 2.5 (see also appendix G, table 13); the share of smoking pregnant women has decreased by 3.1% (during the period from 2008 to 2014); the number of teenage new mothers has decreased by 58%. At the same time, there is still a strong connection between the mother's low level of education and infant mortality.	Reproductive counselling of youths financed with Norwegian grants and carried out by the Estonian Association of Sexual Health is functioning well, but the Ministry of Social Affairs does not have a strategic plan to deal with the causation between the mother's low level of education and infant mortality. In the opinion of the Ministry, the solution lies in family schools, but the effectiveness thereof has not been assessed (other activities are provided in appendix G, table 12).

Source: Ministry of Social Affairs, Estonian Health Insurance Fund, National Institute for Health Development, Statistics Estonia

Problems left unresolved within the framework of the National Health Plan

23. The results of the procedural acts revealed that while the NHP highlighted the problems, the state still has not addressed some of them or the activities have not achieved the desired result; see more in table 2.

¹⁹ Epidemiologic situation of HIV infections and accompanying infections in Estonia in 2000–2015. The National Institute for Health Development and the Health Board

Table 2. Problems provided in the section “Safe development of children and youth” of the NHP that the state still has not addressed or the activities have not achieved the desired result²⁰

Problem	Change in the situation	Activities of the state to improve the situation
Irregularity of medical examinations of pre-school children; delaying with immunisation; late discovery of developmental special needs	During the period 2009–2014, the share of people refusing immunisation has increased from 0.7 to 3.5%; in 2014, less than 4% of pre-school children underwent prescribed medical examinations during a period of three years.	The Estonian Health Insurance Fund has regulated medical examinations of up to 2-year-old children and one-time pre-school medical examinations, but undergoing examinations and vaccinations depends on the awareness and beliefs of the parents. Findings in the chapter “Share of undergoing medical examinations is small and varies according to the residence and social background of the child” also refer to thereof (see also appendix G, table 12).
Increase in the occurrence of diseases (asthma, diabetes) and the risk factors thereof (excess weight, increasing blood pressure); potential later diagnosis of chronic illnesses among children living away from centres	During the period 2006–2014, the share of overweight school-aged children has increased from 7.4% to 11.3% ²¹ (see also appendix C, table 13); The number of incidences of type I diabetes increased by 5%; the number of children developing asthma increased by 61%. Initial results of the Estonian population nutrition survey carried out in 2013–2015 indicated that there are 31% of overweight and obese children among 6–9-year-olds, 34.5% among 10–13-year-olds and 21.5% among 14–17-year-olds. ²² The state does not have data on the potential late diagnosis of diseases affecting children living away from centres.	The Ministry of Social Affairs recognised the problems in the NHP that became effective in 2009, but these have not been addressed in a coordinated manner since that time. See also chapters “Receiving hospital treatment due to asthma and diabetes varied according to the residence and social background of children” and “Share of undergoing medical examinations is small and varies according to the residence and social background of the child” (see also appendix G, table 12).
Tense family relations, inadequate communication skills, lack of educating and counselling system for children and parents; inadequate networking in order to reduce health risks affecting children in problematic families	During the period 2006–2014, there is no clear declining trend for the incidence rate of mental and behavioural disorders among 1–19-year-old children and youths: in 2006, it was 2,283 and in 2014 it was 2,092. All in all, the rate has decreased by 8.3%, but the decrease has only been 1.2% if we compare the average rates of 2005–2007 and 2012–2014. During the period 2008–2015, the number of support specialists in schools has decreased by 7%. As of 2013, the requirement for a school psychologist in schools is	The National Institute for Health Development has initiated several intervention projects (<i>Wonderful Years</i> and <i>VEPA</i> , descriptions in appendix P), but the activities have not helped to resolve the problem, which is also indicated by discoveries in the chapters “Children with eating disorders and attention deficit hyperactivity disorders receiving hospital treatment have not received medical care at the right time” and “Receiving hospital treatment due to asthma and diabetes varied according to the residence and social background of children” (see

Incidence rate – indicator that reflects the number of new cases per 100,000 residents of the same age

Source: The National Institute for Health Development

²⁰ The National Audit Office of Estonia did not assess how the problems “Lack of awareness among parents regarding the health and peculiarities of development (nutrition, safe environment, etc.) of infants and toddlers; the need to increase the share of infants being breastfed” or “Learning and treatment opportunities for special needs children have not been fully resolved” provided in the NHP were dealt with.

²¹ Share of overweight children among children examined by the school nurse in the course of preventive medical examinations

²² According to the Ministry of Social Affairs, differences in the data of preventive medical examinations and the population nutrition survey arise from the methodology (e.g. school nurses may weigh children throughout the year, but in order for the data to be comparable by years, they would have to be weighed at the same time, as the weight of children differs in the summer and in the winter).

Insufficient availability of care offered by child psychologists, teams specialising on psychiatric treatment and diagnosis of children, social workers, school psychologists and speech therapists	no longer clearly regulated with the law (see also appendix G, table 13). An educating and counselling system for parents has also not been established; an integrated service concept has been developed, but it has not been implemented to date.	also appendix G, table 12). The Ministry of Social Affairs has been working on the problem, e.g. children's mental health programme "Public health" carried out with co-funding from Norwegian and European Economic Area, but the continuation thereof with funding from the state is unclear. The fact that the state has not adequately addressed the problem is also indicated by discoveries in the chapter "Children with eating disorders and attention deficit hyperactivity disorders receiving hospital treatment have not received medical care at the right time" (see also appendix G, table 12).
Routinely collected aggregated health statistics regarding children and youths does not provide an overview by target groups and cannot serve as a basis for planning prevention aimed at target groups.	Aggregated health statistics that would enable carrying out analysis based on individual data are still not being regularly collected. As of 2010, there is an obligation to forward data to the health information system, but using thereof is not possible due to data acquisition and poor quality of data.	The Ministry of Social Affairs has not dealt with the resolution of the problem since describing thereof in 2009. This is also indicated by the audit findings in the chapter "Accurate data is necessary for the strategic management of the area" (see also appendix G, table 12).
High incidence of dental caries in pre-school children; increase in the frequency thereof as children's age rises ²³	Lack of adequate data to assess the magnitude of the problem	The Estonian Health Insurance Fund has established an index for assessing the health of teeth, but this cannot be used to assess the condition of teeth according to the Estonian Dental Association ²⁴ . At the same time, a small number of children go to a dentist's appointment and this is also indicated by the audit findings in the chapter "Share of undergoing medical examinations is small and varies according to the residence and social background of the child" (see also appendix G, table 12).

Source: Ministry of Social Affairs, Estonian Health Insurance Fund, National Institute for Health Development, Statistics Estonia

24. The Ministry of Social Affairs is of the opinion that the persistence of problems is partially connected to the fact that due to a rise in awareness, some diseases are diagnosed to a greater degree and the same trends are appearing in Estonia as in other developed countries (dominance of diseases due to lifestyle such as excess weight and increase in mental health problems). At the same time, the Ministry of Social Affairs has not specified the reasons for the aggravation of all problems.

²³ The National Audit Office of Estonia did not analyse how this problem is being dealt with due to the lack of data; according to the Estonian Dental Association, medical bills are not an adequate information to assess the presence of caries, because medical bills may not reflect the actual situation due to the established price list.

²⁴ Medical bills of the Estonian Health Insurance Fund can include a value 0–4 based on the DMF index to assess the health of teeth, although the actual index scale is 0–28. As such, the number that the dentist indicates on the bill does not provide an actual overview of the health of the children's teeth. Medical bills can also be registered without indicating a DMF index value.

Availability of health services – ensuring timely and high quality emergency care, general medical care, ambulance, specialised medical care, including dental care and nursing care, to the patient according to the medical necessity of health service, professional competence of the health care provider and availability of medical resources.

Availability of health services includes a timely, location-based and monetary perspective.

Source: Minister of Social Affairs regulation no. 46 "Requirements for the availability of health services and maintaining a waiting list" of 21 August 2008.

Timely availability of treatment for children affected by eating disorders and attention deficit hyperactivity disorders

Anorexia and **bulimia** are mental disorders caused by excessive worry over the figure and body weight. Anorexia is an intentionally caused starvation. Bulimia is excessive eating, i.e. eating a large quantity of food over a short period of time.

25. In the opinion of the National Audit Office of Estonia, there are deficiencies in the activity of the Ministry of Social Affairs upon resolving problems with the health of children, because the Ministry has not been able to find solutions to some of the problems and all the highlighted problems have not been addressed, i.e. no progress has been made regarding several problems since describing thereof in the NHP that became effective in 2009. In addition to that, the Ministry of Social Affairs has not been able to meet several initially set objectives and indicators formulated on the basis thereof (see the performance of indicators in appendix G, table 13). The experience of other countries provides that unresolved problems with the health of children will continue to deepen if no changes are made, and more money and medical personnel is required to resolve them at a later stage.²⁵

Children with eating disorders and attention deficit hyperactivity disorders receiving hospital treatment have not received medical care at the right time

26. In 2009, the Ministry of Social Affairs recognised in the NHP that the increase in the incidence of mental and behavioural disorders among 1–19-year-old children and youths is a problem (incl. part of the problem is the lack of specialists²⁶) and prescribed the need to improve the situation (see also appendix G, table 13).

27. Relying on the opinion of the Estonian Psychiatric Association, the National Audit Office of Estonia selected two disease groups – eating disorders and attention deficit hyperactivity disorders – to assess mental and behavioural disorders or mental health problems affecting children. The National Audit Office of Estonia presumed that eating disorders and attention deficit hyperactivity disorders affecting children have been discovered in time and that health services and support services have been offered to ensure a more effective treatment.

28. The National Audit Office of Estonia in cooperation with the Estonian Psychiatric Association analysed the treatment of children affected by eating disorders and attention deficit hyperactivity disorders who were receiving hospital treatment due to their health status:

- Medical bills of 16–24-year-olds suffering from **anorexia** or **bulimia** receiving hospital treatment in 2014–2015 and medical histories and other background data of the same persons retrospectively up until 10 years of age were analysed within the context of expert work (see a more detailed expert work section in the description of the methodology).
- Medical bills of hospital treatment of 10–15-year-olds suffering from **attention deficit hyperactivity disorders** in 2014 and their medical histories and background data retrospectively up until 5 years of age were analysed in order to determine whether children and youths receiving hospital treatment were discovered

²⁵ J. Caird, K. Hinds, I. Kwan, J. Thomas. A systematic rapid evidence assessment of late diagnosis. EPPI Centre, Social Science Research Unit, Institute of Education, University of London, London, 2012.

²⁶ Care offered by child psychologists, teams specialising on psychiatric treatment and diagnosis of children, social workers, school psychologists and speech therapists

Attention deficit hyperactivity disorder

— disorder in the case of which the child has difficulty with concentrating and following regular rules of behaviour. It is one of the most important mental disorders among children and young people, and it causes significant difficulties in coping with various areas of activity of a child, including learning, communicating with adults and children of the same age, hobby activity.

at the right time and whether they have received timely and relevant treatment.

29. The problem was not discovered at the right time in case of 2/3 of children affected by eating and attention deficit hyperactivity disorders. The results of the analysis indicated that 32% of children had received medical care on time, incl. 29% of children suffering from attention deficit hyperactivity disorders and 37% of children suffering from eating disorders.

30. Additionally, the results of the expert analysis indicated that the problem is not recognised in time and, on average, treatment commenced two years after the first documented symptoms. In case of children suffering from eating disorders, the problem occurred, on average, at the age of 16.5 years and treatment commenced at 18 years of age, and in case of children suffering from attention deficit hyperactivity disorders, the problem occurred, on average, at the age of 6.5 years and treatment commenced at 9 years of age.

Reasons for late discovery of eating and attention deficit hyperactivity disorders

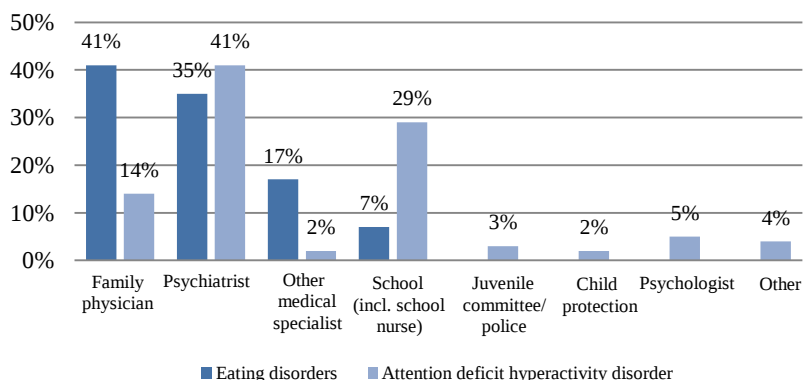
31. According to the experts, the main reason for the late intervention was that the family physician or the educational institution (neither the school nurse nor the support specialist) did not always recognise the health problem (incl. cases where patients did not seek their help in connection with the problem or the health disorder was not discovered at an appointment for another health problem). The other reason was the lack of knowledge on how to deal with the problem, and the child was not sent to a medical specialist at the right time. In the opinion of the Minister of Social Affairs, it is also associated with the general awareness of the disease, at least in case of eating disorders. A health care professional is able to notice advanced eating disorders when symptoms are visible.

32. The Ministry of Education and Research is of the opinion that the problem lies in the fact that family physicians do not carry out tests or examinations that they should be carrying out. Medical examinations are also only recommended and, as such, many children fail to undergo examinations (see also audit chapter “Share of undergoing medical examinations is small and varies according to the residence and social background of the child”).

33. The results of the analysis indicated that due to the varying practice of specialists, uneven in-service training received on the topic of mental health problems and the extent of mutual cooperation, but also due to the varying attitude and behaviour of parents, no one specialist who would, generally, be the first to notice the health problems affecting the child is outlined. While the family physician was the first to notice eating disorders in 41% of the discovered cases, the family physician was the first to notice attention deficit hyperactivity disorders in 14% of the cases²⁷ (see figure 6).

²⁷ In case of an eating disorder, the symptoms are generally more readily noticeable to the doctor than in case of an attention deficit hyperactivity disorder. If the school and kindergarten have been able to draw the parent's attention to it (see also reasons provided in cl 35), the parent will, in turn, be able to talk to the doctor about their concern.

Figure 6. Share of specialists who were the first to discover an eating and attention deficit hyperactivity disorder affecting the child according to the persons who noticed thereof



Source: Medical histories of health care providers, analysis and assessments of experts

34. According to the experts, 39% of families of children suffering from an attention deficit hyperactivity disorder had severe social problems, which also had an effect on the course of the disease. Social problems²⁸ detected in the families of such children included alcoholism, unemployment, divorced parents and repeated change of residence, inadequate parenting skills, mistreatment of children, negligence and consequences of problems such as being placed in a substitute home, limiting parental rights, changing schools, being placed in schools with boarding school facilities. These factors often occurred simultaneously, and it affected both the continuity of treatment and the support for the development of the child on a whole. Only some of the families had received counselling on how to cope with the child's illness. Social problems were not detected in families of children suffering from eating disorders.

35. In the opinion of experts, the more accurate reasons for children not receiving treatment in time included the following:

- Family physicians and school nurses are not sufficiently prepared to monitor the mental health of children, despite the fact that child psychiatrists have in cooperation with the National Institute for Health Development prepared a "Guideline for assessing the mental health of a student" for school nurses and organised a training programme for using thereof. The guideline for monitoring the health of children provides that family physicians have to also assess the development of the child, but the section concerning mental health in the manual is not adequate. The Estonian Health Insurance Fund has not approved the guideline for assessing the mental health of a student as an official treatment guideline. According to the [health card](#) form of a student to be completed by the school nurse in school, mental health problems should also be assessed, but it does not provide more details on what has to be monitored.
- A family physician's referral is currently not necessary to see a psychiatrist, but issuing it is not prohibited. In case of less active families, the referral may provide a supportive impetus to make it

Health card – principal document to be completed by the school nurse that includes the child's health data, medical examinations carried out, vaccinations received and the child's appointments with the school nurse.

²⁸ Analysed on the basis of medical histories of children.

to the psychiatrist's appointment. Children who are socially more active and healthier go to the psychiatrist on their own initiative more, but at the same time, they may not have had prior tests or evaluations done.

- However, the current system does not ensure subsequent continuous work with children that needed help in connection with complicated health problems and hospital treatment, because many patients lose contact with medical care until the next hospital treatment, i.e. there is essentially no case management where needs-based help is ensured for the child in a coordinated manner.
- There are no specific guidelines on how the school, child protection official of the residence and health care provider should cooperate with families who are not capable of complying with the treatment schedule themselves.
- Eating disorders that emerge in teenage years go unnoticed by school nurses, because school nurses mostly focus on primary school and early basic school children. The first symptoms of attention deficit hyperactivity disorders occur already in the kindergarten – this information does not reach the school, however, because the **readiness for school card** is not mandatory and may not have been completed properly. Additionally, the school who finally noticed the problem does not know how to inform the parents of their suspicions regarding the attention deficit hyperactivity disorder.
- Support specialists (special education teacher, speech therapist, psychologist and social pedagogue) who should be the first to notice mental health problems are not available in all schools. Whether schools offer support services depends on the school owner's (generally the local government) understanding and financial capability. Lack of qualified support specialists on the labour market is also a problem.

Readiness for school card – card to be completed in the kindergarten that is given to each child that has completed the curriculum of the preschool institution and is turning 7 years of age by 1 October. This provides development results in general skills, in schooling and education, offered support services and assessment on the readiness for school.

Cooperation between child protection officials and health care professionals

36. According to the Child Protection Act, officials of the local government (generally child protection officials) must ensure the rights and well-being of children or support parents in doing so if parents are unable to do so themselves. The experts did not separately analyse the work of child protection officials of local governments with families. In some cases, the experts were of the opinion that the first to notice the problem was the juvenile committee that, generally, operates next to the local government and in this case, the local government official must be aware of the problems concerning the child.

37. The families where problems occurred required the local government to intervene, incl. cooperation of child protection officials and health care specialists. Experts have highlighted as a problem that there is no guideline on how health care professional, specialists at educational institutions and child protection officials should cooperate with regard to such families (see cl 35). For example, in cases where the situation of the child requires so, only one third of school nurses always communicates with the child protection official (see appendix N). It is therefore necessary to improve cooperation between the social and health care

sector in protecting the rights of children. The health care sector cannot resolve the problems of such children on its own.

38. The need for cooperation is also confirmed by the Child Protection Act that became effective in 2016, according to which the local government must commence a case management with regard to a child in need. Need for assistance is deemed to be, among others, the health status of the child. It is currently too early to assess whether and to which extent the problems can be resolved with the support of the new law.

39. The Ministry of Social Affairs has noticed problems in the sector and has used the Norwegian financial mechanism 2009–2014 to finance several projects that addressed the mental health problems of children: establishing an integrated service concept to improve the mental health of children, developing online services for mental health and reproductive health and completing mental health centres for children. These projects will be completed in 2016, so it is not possible to give an assessment thereof just yet. These projects also require continued activities²⁹, because improving the situation of children affected by mental and behavioural disorders presumes consistency.

40. The integrated services concept recommends preparing a mental health policy and mentions the need for cooperation in the social, educational and health sector to maintain and preserve the mental health of children. The need to integrate the services, i.e. networking, manifests in both making sure that the treatment of children is not interrupted, the needs of the child are noticed, but also in that information reaches the necessary specialists and that services required by the child are received in a coordinated manner.

41. In addition to family physicians and school nurses, mental health problems should be first noticed and supported in schools by counselling support specialists for special educational needs. During the 2015/2016 academic year, support services are available only in some of the 518 general education schools³⁰. The analysis shows that less than one third of schools have, for example, psychologists and special education teachers and less than half of the schools have other support specialists (see table 3).

Availability of educational support specialists

Table 3. Number of support specialists and the share thereof in general education schools in the 2015/2016 academic year

Official title of the support specialist	Total number of support specialists	Number of general education schools that employ a respective support specialist	Share (%) of all schools that employ a specialist
Special education teacher	176	144	28
School psychologist	166	156	30
Speech therapist	258	250	48

²⁹ The established concept must be implemented, websites must be updated frequently and it must be analysed whether the information reaches its target group. Established centres require money to treat children.

³⁰ Upper secondary schools for adults have not been taken into consideration.

Social pedagogue	230	198	38
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Source: Ministry of Education and Research

42. Support specialist are generally unable to substitute one another, and the qualification of specialists often does not meet the requirements. The Ministry of Education and Research has attempted to find a solution to the lack of support staff through Guidance Centres, but their activity does not substitute the service offered in the school. The school can purchase support services from them to offer in the school itself, but the Guidance Centre has not been able to find a specialist for every school that asked for help. Guidance Centres have been in existence for only a couple of years, so it is still too early to give an assessment of their activity.

43. In the opinion of the National Audit Office of Estonia, the state has commenced activities to notice the mental health diseases affecting children and to ask for help over the last few years, and these activities have been aimed at resolving important problems. At the same time, these have been project-based and definitely need continued activities. There is presently no information regarding whether and when the subsequent activities commence.

44. At this time, the onset of mental and behavioural disorders has not significantly decreased; these health disorders are not discovered in educational institutions and in primary medical care, which is why the condition may deteriorate and several of them may require hospital treatment as a consequence. The inadequate system has not ensured continuous work on complicated cases and connection is often lost with patients until the next episode of hospital treatment. Support services are not available in many schools and the cooperation between health care professionals and child protection officials is not systematic. As a result of implementing the new Child Protection Act that became effective in 2016, the situation should improve somewhat, but the results thereof are not available yet. Changes to the Child Protection Act were necessary, because the health care sector alone cannot resolve the problems of families with children affected by social problems.

45. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund:

- Develop and implement an integrated service concept for monitoring the health of children and treating children, as part of which family physician service, school health care service, specialised medical care, support services of counselling services for special educational needs and child protection are combined to form a functional and coordinated network.

Response of the Minister of Health and Labour: We agree with the recommendation. Within the framework of constructing the infrastructure of primary medical care centres, we are also in the process of reviewing the general medical care management. One of the objectives is to better integrate family health care and school health care as primary medical care that is, essentially, primary medical care.

The provision of integrated services to children is also addressed in the project “Preliminary analysis of integrating local health and social services and preparing an implementation plan for the pilot project” that is in the process of being prepared, because children are one of the most important target groups in the health care and social system. The objective of the project is to reorganise the provision of local health services and social services in a more human-centered manner.

In the course of the project, a model for the provision of service is prepared on the example of health care and social service providers in Viljandi County, the implementation of which would 1) improve the coordination and consistency of local services; 2) ensure a convenient, logical and optimal access to necessary local services from the perspective of the person and more efficient opportunities for the provision of services from the perspective of the service provider on the basis of the opportunity to pool resources; 3) optimise the processes of providing various services while avoiding unimportant activities and duplication and unreasonable costs associated with thereof.

According to the plans, the model and the plan for the test project will be completed in the spring of 2017, after which preparations can start for implementing the test project in the new health centre-hospital building in the centre of Viljandi.

We have also prepared an integrated services concept for supporting the mental health of children. The main proposal of the concept is to offer standardised and integrated services across sectors and administrative levels to children and families with children in order to ensure effective help to the target group. In order to achieve the objective, we have in cooperation with partners launched several test projects (e.g. provision of integrated social, educational and health services to disabled children, organising child protection cases crossing different sectors, etc.).

Response of the chairman of the board of the Estonian Health

Insurance Fund: We completely agree with the recommendation that it is necessary to prepare and implement a concept of integrated and uniform services to monitor the health and treat children that comprises family health care, special medical care, school health care services and also ensures psychological help, support persons and social rehabilitation to families with children suffering from chronic diseases.

- Consider giving an additional task to the family physician that obligates the family physician to observe that the child receives all the necessary services and, if necessary, inform and advise the parent in doing so, at the same time ensuring that expenses accompanying the additional task incurred by the family physician are covered (see also subchapter “Receiving hospital treatment due to asthma and diabetes varied according to the residence and social background of children” and recommendation in cl 74).

Response of the Minister of Health and Labour: Health care professionals already have the task of observing the receipt of services necessary due to the health status of a child, because it is a natural part of the so-called treatment plan.

So far, however, one of the shortcomings has been the fact that there are parents who do not submit an application to include their child in the register of a family physician, which is why a family physician may not have information about all the children living in his/her service area. To resolve the problem, the Ministry of Social Affairs in cooperation with relevant parties has prepared a draft amendment of the Health Services Organisation Act, which regulates that a new-born is automatically registered in the register of a family physician. As a result, family physicians will receive timely information about the child added to their register whose health they will have to monitor according to the preventive medical examination plan for 0–18-year-old children provided in appendix to the Minister of Social Affairs regulation no. 2 “Work instruction of the family physician and health care professionals working with the family physician” of 6 January 2010. The respective amendment is planned to enter into force on 1 January 2017.

Guideline for medical examination of children up to 18 years of age is also being updated. In the course of thereof, provisions on when, with whom and how often the medical examination of a child should take place and who exactly has to do what are also reviewed. We find that the counselling and outreach within one's competency is included among the duties of each health care professional, this is not extra work and does not presume additional funding.

Response of the chairman of the board of the Estonian Health

Insurance Fund: Updating the guideline for medical examinations of children is underway under the leadership of the Ministry of Social Affairs, and it is planned to be completed by the end of 2016. The guideline addresses carrying out a medical examination of 0–18-year-old children on uniform grounds and the objective thereof is to monitor the development of children and ensure medical care to the child through the early discovery of health and developmental disorders. The Estonian Health Insurance Fund is participating in the work of the working group and is taking the proposals arising from updating the guideline for medical examinations of children into account in updating health services.

It is also planned to update the code of conduct of school nurses after the updated principles of medical examinations of children have been completed.

- Decide whether to raise awareness among service providers of primary medical care and providers of school health care services with regard to mental health. One of the options available to the Estonian Health Insurance Fund is to commence preparing national treatment guidelines and updating existing ones, also giving out information materials and organising training programmes/information days.

Response of the Minister of Health and Labour: We agree with the recommendation to raise awareness regarding mental health. The guideline for medical examination of children up to 18 years of age that is presently being updated also addresses the field of mental health. Activities associated with information materials and outreach is one of the implementation activities included in the guideline. Regional mental health centres for children and mental health offices for children have been established in Ida-Viru County and South-Estonia within the

framework of Norwegian grants in order to raise awareness regarding the mental health of children. Mental health centres for children have, among others, trained specialists in affiliated fields (primary medical care, social and educational sector) and offered supervision in order to cope with complicated cases and thereby made the cooperation between fields more efficient. In order to ensure the consistency of what has been developed, the Estonian Psychiatric Association has submitted an application to the Estonian Health Insurance Fund to add a new service “Out-patient consultation of a child psychiatric team of mental health for a person up to 19 years of age (two members in the team: mental health nurse and social worker or mental health nurse and psychologist)” to the list of health services. We believe that adding the service to the list of health services is absolutely necessary and are supporting it.

Within the framework of integrated services concept, a curriculum has been prepared for specialists working with children. It is currently being trialled in two regions. The anticipated results include an increased and harmonised awareness of the needs of the child and risks associated with mental health among all specialists and improved networking. The training programme is carried out in cooperation with experts of mental health centres for children. If the test project is successful, the training programme could be offered to all local governments.

We are also supporting the recommendation that the Estonian Health Insurance Fund continues to prepare national treatment manuals and update existing ones and gives out information materials and organises training programmes and information days.

- Amend the guideline for medical examinations and school health card form so that it would also list important mental health areas and include prepared tests or screening methods that the school doctor and the family physician could use.

Response of the Minister of Health and Labour: As mentioned above, the guideline for medical examination of children up to 18 years of age is being updated, and it is being supplemented with provisions concerning mental health (incl. evidence-based intervention). After the guideline is completed, it is possible to review and update the data fields of the health card. We would also like to note that the guideline being updated includes recommendations for implementing screening tests according to the experiences of other countries and results of scientific research for early discovery of mental health problems affecting children.

Response of the chairman of the board of the Estonian Health Insurance Fund: In order to support the mental health of a child suffering from a chronic illness, the Estonian Health Insurance Fund has in cooperation of the National Institute for Health Development had a project “Health promotion in the kindergarten and school” since 2013, which will also continue in 2017. Mental health centres for children have been established next to Ida-Viru Central Hospital, SA Tallinn Children’s Hospital, SA Mustamäe Children’s Hospital and Pärnu Hospital and the Tartu University Clinic in order to develop and support the mental health of children. Additionally, the children’s department of the Psychiatry Clinic of Tartu University Clinic has carried out a project “Establishing a mental health centre for South-Estonian children and youth”.

The activities of the project include: 1) opening mental health offices for children and youths next to hospitals in South-Estonia, Põlva and Valga; 2) building a 12-bed in-patient ward unit for youths in the Psychiatry Clinic of Tartu University Clinic; 3) training staff; 4) promoting networking between different sectors; 5) planning and carrying out preventive activities; 6) introducing the work of mental health centres to the public at large; 7) carrying out studies to plan future work more effectively.

We agree with the recommendation to amend the guideline for medical examinations and school health card form so that it would also list important mental health areas and include prepared tests or screening methods that the school doctor and the family physician could use. At the same time, we are drawing attention to the fact that these must be nationally coordinated developmental activities.

46. Recommendations of the National Audit Office of Estonia to the Minister of Education and Research: implement minimum requirements for the number of counselling specialists for special education needs in schools and for the training thereof; instruct school owners (mostly local governments) to bring support specialists together under the management of the local government. It would enable to, on the one side, get a comprehensive overview of the needs of schools in the area and, on the other side, an overview of the capability to meet these needs; thereby ensure national supervision of the way that the school owner ensures the availability of support services. As a result, it would be possible to flexibly serve all educational institutions in the area according to the needs.

Response of the Minister of Education and Research: support services must be offered to the children, youths and families thereof as needed. Because the needs of the target group vary greatly in terms of both the intensity and volume of implementing the measure and there are also great differences in the need for services in different areas, we do not believe it to be justified to establish minimum requirements in legislations for the number of specialists in educational institutions. However, local governments together with Guidance Centres must analyse the needs of a specific local government by the volume of services offered by different specialists and ensure the availability of the necessary support services.

Owners of educational institutions have been proposed at roundtables organised in counties to consolidate primary medical care specialists at the level of the local government and share support specialists between different educational institutions, which would enable offering the service in a more flexible and needs-based manner. This would also improve information flow between specialists, decrease duplication in their activities and enable implementing necessary support and intervention measures more quickly.

The performance of requirements established with all legislations, including requirements for the provision of support services, are currently being audited within the context of state supervision. It is possible to pay separate attention to this area within the context of thematic supervision, and we are considering it upon establishing priorities of supervision for the next academic years.

Obese – children whose doctor had indicated a diagnosis of obesity (code E66 according to edition 10 of the International Classification of Diseases, excl. drug-induced obesity). The body mass index of obese children exceeds the recommended value. All obese children are overweight.

Overweight – children whose body mass index (BMI) exceeds the norms established for the age and gender

Offering health services to the obese

Cooperation in the treatment of obese children

The treatment of obese children is not consistent

47. The NHP has set the objective that in 2016, the share of **overweight** school-age children does not exceed 6.5%. In 2020, the target level is 6%. Additionally, the NHP also specifies the frequency of risk factors of chronic diseases (excess weight, increased blood pressure) among children and youths as a problem.

48. According to the NHP, the National Audit Office of Estonia presumed that all children who had been diagnosed with **obesity** had received continuous health service, i.e. received service at least once a year.³¹ Treating an obese child, however, presumes receiving long-term health service with a set regime.³²

49. The analysis carried out by the National Audit Office of Estonia included children that had been diagnosed with obesity in 2011³³ and data with regard to the treatment they had received in 2011–2014. The results indicated that the treatment of obese children was not consistent. Over a period of four years, 58% of obese children received health service³⁴ for one year, 30% for two years and 8% of obese children on three years. 4% of obese children received the service continuously, i.e. at least once in all four years.

50. The results of the analysis carried out by the National Audit Office of Estonia also indicated regional differences in how health services are received: children living in the city received services approximately 4.22 times and children living the countryside 3.11 times per one child³⁵, i.e. children living in the city received 26.5% more health services associated with obesity. Children living in North-Estonia (Harju County) and Central Estonia (Lääne-Viru, Järva and Rapla County) received the most health services and children living in South-Estonia (Jõgeva, Põlva, Tartu, Valga, Viljandi, Võru County, see appendix I) received the least health services. On average, an obese child received the service 3.9 times.

51. The treatment of obese children is more effective if the family physician has cooperated with a medical specialist upon treating the patient. The analysis revealed that 6% of obese children were treated by both the family physician and a medical specialist. At the same time, 29% of obese children received treatment only from the family physician or

³¹ There is no accurate criteria that would specify how often the patient has to see a doctor. The presumption was based on the importance of regularity in treatment, both in case of obesity and general chronic diseases, see also the treatment guideline of the United Kingdom: <https://www.nice.org.uk/guidance/ph47/chapter/1-Recommendations#recommendation-9-providing-ongoing-support-health-professionals>.

³² K. Ehala-Aleksejev. Rasvunud haige käsitus. Eesti Arst 2010; 89(3):180–184. <https://ojs.utlib.ee/index.php/EA/article/viewFile/10779/5964>.

³³ The basis for the analysis was a random selection, and the selection included mostly boys between the ages 12 to 13 years.

³⁴ Service of a medical specialist, family physician, family nurse, nurse or midwife, physiotherapist or psychologist

³⁵ Detailed explanation of rural and urban settlements is provided in the audit description. Urban settlement included all cities, cities without municipal status, towns and also selected rural municipalities: Harku, Saue, Saku, Kiili, Rae, Jõelähtme, Viimsi, Tartu, Luunja, Haaslava, Ülenurme, Tähtvere, Jõhvi, Kohtla, Toila, Audru, Sauga, Paikuse and Tahkuranna rural municipality. The selected rural municipalities directly surround the four major cities in Estonia. Rural settlement included small towns, small town-rural municipalities and villages. The division of rural and urban settlements differs from the division by Statistics Estonia.

family nurse. 15% of children were sent to a medical specialist by the family physician following the first appointment. 50% of all the analysed children were treated only by a medical specialist. The division of health services offered to obese children by the services (without tests and procedures conducted during the appointments) is provided in an appendix (see appendix J).

52. Similarly to children affected by eating disorders and attention deficit hyperactivity disorder, the main problem in treating obese children is that treatment may be interrupted if the parents themselves are not active and conscientious in making sure that the treatment plan is adhered to. In other words, there is no coordinated provision of service or case management in the treatment of obese children that would enable preventing an interruption in the treatment of the child.

53. Despite the increase in the share of overweight children among all children, no evidence-based intervention has been implemented in Estonia to decrease obesity. Different websites have been launched under the leadership of the National Institute for Health Development that offer necessary information regarding healthy diets and campaigns aimed at the entire population have been carried out³⁶, but there is no applicable treatment guideline that would provide clear instructions for treating obese children.

54. The Ministry of Social Affairs is leading the preparation of a Green Paper on nutrition and physical activity in order to reduce health problems (incl. foremost excessive body weight) caused by an unbalanced diet and lack of physical activity. The Green Paper is planned to be introduced to the Government of the Republic in March 2017.

55. It deserves to be mentioned that the research group of physical activity for health operating in the University of Tartu is currently leading two pilot projects in the selected schools that is aimed at changing the habits of physical activity among youths and that also affect the trend of obesity. These projects include *Liikuma kutsuv kool* and *Kehalise kasvatuse metoodika muutmise*.

56. *Liikuma kutsuv kool* is funded by the Gambling Tax Council, but the results of the project are not clear at this time. The Ministry of Education and Research wants to increase both the number of schools participating the project and the duration thereof. According to the Ministry's estimate, the project will take place at least until 2020. The Ministry of Social Affairs is planning to continue supporting the physical activity programme for children in the new period with the help of Norwegian grants. As such, it is planned to implement the programme on a project-basis also in the future.

57. The Ministry of Education and Research has also launched a reorganisation of physical education into a timely physical activity education, and it is planned to be implemented in 2019.³⁷

Liikuma kutsuv kool (School for physical activity) is a physical activity programme for children and youths, the long-term objective of which is to reduce the time Estonian children and youths spend sitting down and to increase physical activity during the school day by implementing measures that promote physical activity in the school environment

Kehalise kasvatuse metoodika muutmise (Changing the methodology of physical education) is a project that focuses on two directions: 1) developing a methodology that involves students in the learning process and 2) developing a concept of physical activity education.

Source: Institute of Sport Sciences and Physiotherapy of University of Tartu

³⁶ Additionally, the National Institute for Health Development is coordinating the process of updating national dietary and food recommendations.

³⁷ This is an obligation arising from the action plan of the Government of the Republic.

58. In the opinion of the National Audit Office of Estonia, obese children have not received continuous treatment, because health services have been insufficient for several years and receiving the health service varied among the target group regionally and in comparing rural and urban areas. The Ministry of Social Affairs has also not implemented any evidence-based intervention programmes for decreasing obesity yet, a treatment guideline has not been prepared for the harmonisation of treatment and there is no case management that would offer necessary services in a coordinated manner. It has, however, commenced with preparing a Green Paper on nutrition and physical activity, which could help to slow down the growth in the excess weight of children when adopted and implemented.

59. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour: analyse which organisation-based and individual-based³⁸ interventions and combinations thereof are the most effective in reducing the number of overweight children and preventing more from becoming overweight; and carry out suitable interventions based on the results.

Response of the Minister of Health and Labour: Measures preventing the excess weight of children are addressed in the Green Paper on nutrition and physical activity, the preparation of which is in its final stage, that is planned to be submitted to the Government of the Republic in March 2017. An overview of evidence-basis “Decreasing the consumption of beverages sweetened with sugar and health damage caused by thereof in Estonia” that focuses specifically on the health of children has been completed in cooperation with the WHO. The overview was submitted to the Government of the Republic on 29 September 2016.

60. Recommendation of the National Audit Office of Estonia to the Minister of Education and Research: include activities that require increased physical activity in the curriculum of the school and kindergarten based on the results of the pilot projects.

Response of the Minister of Education and Research: Physical activity, incl. activities requiring physical activity, are described in the national curriculum of a pre-school child care institution. Instruction manuals are prepared on the basis of the results of the pilot project to implement national curriculums of general education schools, which are used to launch activities that increase the physical activity of children in schools: active recesses that enable exercising and physically active playing, also physical activity breaks and developing active learning methods in lessons; environment promoting physical activity is being developed both indoors and outdoors in schools. The syllabus of physical education is updated in the course of preparing national curriculums to make it into a timely physical activity education.

61. Recommendation of the National Audit Office of Estonia to the chairman of the board of the Estonian Health Insurance Fund: initiate the preparation of a treatment guideline for treating obese children.

³⁸ Interventions with different directions are explained in appendix O.

Response of the chairman of the board of the Estonian Health

Insurance Fund: We support the recommendation with regard to preparing treatment guidelines. As a financier of treatment, we are explaining that the Estonian Health Insurance Fund has a coordinating role in the area of treatment guidelines in Estonia. We consider treatment guidelines to be very important in ensuring the quality of the treatment, and we are essentially the only one that finances the preparation of treatment guidelines.

The process of approving and preparing treatment guidelines itself, however, is significantly broader. The basis of preparing treatment guidelines is a respective methodology prepared in the cooperation of the WHO, University of Tartu and the Estonian Health Insurance Fund. The topics of new treatment guidelines that the Estonian Health Insurance Fund is financing are selected according to the submitted documents once a year. Medical professional societies or other associations can also prepare treatment guidelines on topics they consider to be important and these are also approved in the Treatment Guidelines Council if the methodology of preparing treatment guidelines has been adhered to upon preparing thereof (see the manual for preparing treatment guidelines <http://www.ravijuhend.ee/koostajale/kasiraamat/>).

The Estonian Health Insurance Fund is considering making proposals to the Treatment Guidelines Council for preparing a respective treatment guideline as an option.

Diabetes is a chronic metabolic disease that mostly occurs in two types. Children usually have type I diabetes, while adults have type II diabetes.

The reasons for the onset of type I diabetes are unclear: environmental factors that cause the illness, genetic predisposition and complications of viral diseases have been suggested as potential causes. However, it is certain that the illness is not caused by excessively eating sweets.

Type I diabetes cannot be treated, but it is possible to live with diabetes. A diabetic must have access to both insulin and a glucose meter (blood glucose monitor). A diabetic must also carefully monitor what he or she eats.

Source: Estonian Children's and Youth Diabetes Association

Receiving hospital treatment due to asthma and diabetes varied according to the residence and social background of children

62. In 2009, the Ministry of Social Affairs highlighted in the NHP the need to pay attention to chronic illnesses (**diabetes**, **asthma**) and the risk factors (excess weight, increase in blood pressure) thereof. The Ministry of Social Affairs also highlighted as a problem that children living away from centres may be diagnosed with chronic illnesses later. As part of the problem, the Ministry also mentioned tense family relations, lack of educating and counselling system for parents and inadequate networking in reducing health risks affecting children in problematic families. The aforementioned problems inhibit coping with and managing chronic illnesses.

Asthma is a chronic respiratory tract illness that in these days can usually be kept under control very well with treatment.

The onset of asthma is associated with more than 500 genes. Depending on the genetic variation, the same environmental factors in one child may decrease the risk of asthma while increase it in another child. Therefore it is not known why the frequency of asthma is increasing. Avoiding contact with tobacco smoke both as a fetus and later is the only proven recommendation for the prevention of asthma.

Successful treatment of asthma presumes good cooperation between the patient, his or her family members and the doctor and the entire medical staff. Asthma is attempted to be controlled with minimum treatment and, as such, minimal risk of side effects.

Source: Estonian Society for Immunology and Allergology

Connection between hospitalisation with asthma and diabetes and the residence

63. Relying on the provisions of the NHP and the opinion of the Estonian Paediatric Association, the National Audit Office of Estonia has selected two of the most common chronic illnesses among children – asthma and type I diabetes – to assess the problems of chronic illnesses affecting children. Because the Ministry of Social Affairs had recognised the problems, the National Audit Office of Estonia presumed that children receiving in-patient treatment with the specified illnesses does not vary in terms of the background of the child, i.e. the residence and income of parents.

64. The National Audit Office of Estonia analysed the data of the residence of children hospitalised in 2014 with asthma and type I diabetes and the data regarding the income and the receipt of social benefits by their parents in order to find out whether hospitalisation with asthma and diabetes varied according to the background of children. Neither asthma nor diabetes can be treated, but it is possible to live a fulfilling life with the correct treatment and lifestyle. Hospitalisation with these illnesses generally indicates an aggravated disease state³⁹, which in turn may bring about complications caused by the illness. Complications may significantly impair the prospects of the patient for a fulfilling life.

65. The result of the analysis revealed that the ratio of hospitalised children per 1,000 residents of the same age varied according to the residence. Diabetics living in the countryside were hospitalised more than diabetics living in the city. In case of diabetes, children living in the countryside made up 35.4% of all hospitalised children, while 22.9% of the entire 0–19-year-old population was living in the countryside in 2014.⁴⁰ Hospitalisation with asthma was nearly twice as high in Northeast-Estonia (Ida-Viru County) in comparison to the region with the smallest number of hospitalisations (West-Estonia: Lääne, Saare, Hiiu, Pärnu County) and significantly higher than the state's average (see table 4).

³⁹ Generally, children with an incidence of type I diabetes are first kept for in-patient treatment in order to establish their treatment plan, and as such, hospitalised patients with a diagnosis of an incidence of asthma and type I diabetes were left out of the analysis.

⁴⁰ Detailed description of rural and urban settlements is provided in the audit description.

Table 4. Hospitalisation with asthma and diabetes in 2014 per 1,000 up to 19-year-olds

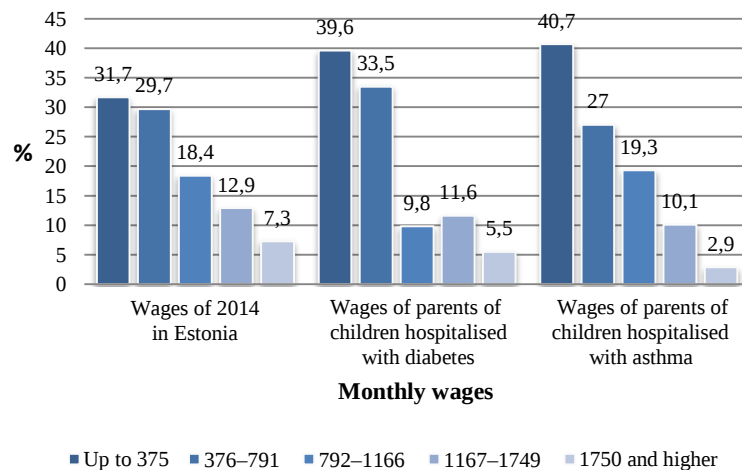
Residence of the child	Hospitalisation per 1,000 up to 19-year-old residents	
	due to asthma	due to diabetes
Region		
Central Estonia (Lääne-Viru, Rapla, Järva County)	0.90	0.68
Northeast-Estonia (Ida-Viru County)	1.55	0.37
South-Estonia (Tartu, Võru, Valga, Viljandi, Jõgeva, Põlva County)	1.08	0.68
West-Estonia (Lääne, Saare, Hiiu, Pärnu County)	0.83	0.87
North-Estonia (Harju County)	1.22	0.54
Type of settlement		
Urban	1.16	0.51
Rural	1.12	0.94
Average	1.14	0.61

Source: Data of the Estonian Health Insurance fund, analysis of the National Audit Office of Estonia

Connection between hospitalisation with asthma and diabetes and the wages of the family

66. Results of the analysis indicated that hospitalisation of children with chronic illnesses also varied according to the economic background of the family. Comparing the divisions of wages of the parents of hospitalised children and the population, it was revealed that the wages of parents of children hospitalised both with asthma and diabetes were smaller.⁴¹ In 2014, 31.7% of all wage earners in Estonia received slightly more than the minimum wage or less than the minimum wage⁴² (up to 375 euros), while the number was 39.6% for parents of children hospitalised with diabetes and 40.7% for parents of children hospitalised with asthma (see figure 7).

Figure 7. Division of wages of Estonian wage earners in 2014 and parents of children hospitalised with asthma and diabetes



Source: Tax and Customs Board, Estonian Health Insurance Fund, population register; analysis of the National Audit Office of Estonia

⁴¹ In 2014, the average wages were 772 euros per month. The average wages of parents with children hospitalised with chronic illnesses were 20% lower than that: the average wages of parents of children hospitalised with diabetes were 618 euros and the average wages of parents of children hospitalised with asthma were 619 euros per month.

⁴² In 2014, the minimum wages were 355 euros per month; it was not possible to specify an accurate division based on the statistics of the Tax and Customs Board, so the closest potential wages have been used here: 375 euros per month. Lower than minimum wages were earned in conditions where employment was part-time.

Connection between hospitalisation with asthma and diabetes and the receipt of social benefits

Needs-based family allowance – allowance paid to families with children living below the income limit of needs-based family allowance. In 2014, this limit was 299 euros per month for the first member of the family, 149.5 euros per month for each following family member of at least 14 years of age and 89.7 euros per month for each family member under the age of 14.

Subsistence benefit – state's financial aid for families in need. In 2014, the subsistence level was 90 euros per one member of the household. The subsistence level of each underage member is equal to the subsistence level of the first member of the household. The subsistence level of the second and each following adult member of the household is 80% of the subsistence level of the first member.

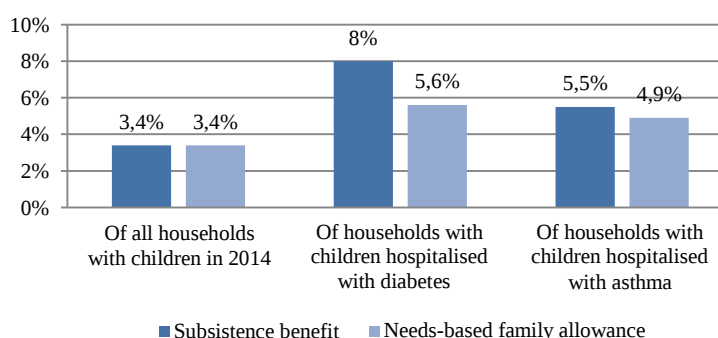
Source: Ministry of Social Affairs

67. The economic situation of the family is also characterised by the receipt of **needs-based family allowance** and **subsistence benefit**, i.e. the household receiving benefits is economically the least privileged. In 2014, 3.4% of all households with children in Estonia received both needs-based family allowance and subsistence benefit. The National Audit Office of Estonia investigated whether hospitalisation of children with chronic illnesses varied based on the economic situation of the families.

68. The results of the analysis indicated that among those hospitalised with diabetes in 2014, the share of households receiving subsistence benefit (8%) was more than double the share of households with children receiving subsistence benefit in the entire state. Among those hospitalised with a diagnosis of asthma, the share of those receiving subsistence benefit was higher (5.5%) than the overall indicator of the state, but it was significantly higher in case of diabetes (see figure 8).

69. 5.6% of patients hospitalised with a diagnosis of diabetes and 4.9% of patients hospitalised with a diagnosis of asthma received needs-based family allowance. Both indicators exceeded the Estonian overall indicator (see figure 8).

Figure 8. Share of households with children hospitalised with diabetes and asthma and all households with children according to the receipt of subsistence benefit and needs-based family allowance in 2014



Source: register of social services and social benefits, Estonian Health Insurance Fund, population register, Statistics Estonia; analysis of the National Audit Office of Estonia

For your information

The Health Board in cooperation with the University of Tartu organised a survey of health impacts of the oil shale sector in Ida-Viru and Lääne-Viru County in 2014–2015, the objective of which was to determine the impacts accompanying the mining of oil shale on the health of people.

In a comparison of three counties, there were more initial symptoms of asthma such as long-term dry cough and wheezing among school-age children in Ida-Viru County. Every sixth child in Ida-Viru County has an elevated indicator of respiratory tract infection, and this is an important characteristic of asthma and risk thereof.

Due to the detected high content of nitric oxide in the exhaled air of children in Ida-Viru County, it may be concluded that there also occurs untreated asthma.

Source: Health Board

70. The results received are also confirmed by several studies that indicate that the socioeconomic background plays a big role in living with and managing type I diabetes: Type I diabetics that have a lower socioeconomic level experience more complications arising from diabetes.^{43, 44} The main causes of complications include poor glycaemic control (complying with the treatment plan both in terms of medications and diet) and unhealthy lifestyle. As such, people with a poorer socioeconomic background may have less means to comply with the treatment scheme and diet and, as such, they have a higher likelihood of developing complications which cause them to be hospitalised. In case of asthma,

⁴³ A. M. Secrest, T. Costacou, B. Gutelius, R. G. Miller, T. J. Songer, T. J. Orchard. Associations between Socioeconomic Status and Major Complications in Type 1 Diabetes: The Pittsburgh Epidemiology of Diabetes Complication (EDC) Study. *Annals of Epidemiology* 2011; 05;21(5):374–381.

⁴⁴ A. M. Secrest, T. Costacou, B. Gutelius, R. G. Miller, T. J. Songer, T. J. Orchard. Associations between Socioeconomic Status and Mortality in Type 1 Diabetes: The Pittsburgh Epidemiology of Diabetes Complication (EDC) Study. *Annals of Epidemiology* 2011; 05;21(5): 367–373.

both the causes of the illness and hospitalisation are connected to the genetic variation and environmental factors (see also text on the left margin).

71. Endocrinologists of the Estonian Paediatric Association that were interviewed in the course of the audit confirmed the same: the child suffering from diabetes needs a co-functioning system – both a family network and specialists supporting and directing thereof. In addition to a family network, the psychologist's help, support persons and social rehabilitation are also important in caring for a child with a chronic illness. Coping with the child's illness is affected by the educational level of parents, time that parents have for their child and the parents' own abilities in coping with life. As such, hospitalisation is directly associated with the so-called family network (parents, grandparents, etc.) of a diabetic, because if the child is, so to say, left on their own and the illness becomes the child's concern, there is also a greater risk of hospitalisation.

72. Due to the fact that while the problem had been recognised, but no activities had been foreseen for the resolution thereof, the problem with the occurrence and management of chronic illnesses has not been resolved.

73. In the opinion of the National Audit Office of Estonia, the problems highlighted in the NHP in 2009 that concern inadequate attention to the frequency of chronic illnesses and the risk factors thereof are still unresolved. Lack of an educating and counselling system for parents and inadequate networking in order to reduce health risks affecting children in problematic families are also making coping with chronic illnesses more difficult. The frequency of hospitalising children with chronic illnesses varied according to both the residence (i.e. Ida-Viru County in case of asthma) and the income of parents and receipt of benefits. Coping with chronic illnesses is also affected by the social background, incl. health awareness, of the family. The treatment of complications of chronic illnesses is expensive – on the one side, it adds to the burden on the health care budget due to medical expenses and, on the other hand, it reduces tax income, because the ability to work among the future working-age people deteriorates.⁴⁵ State expenses on benefits (e.g. incapacity for work) may also increase.

74. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour the Minister of Social Protection in cooperation with the chairman of the board of the Estonian Health Insurance Fund:

- Raise awareness among parents and improve their skills to recognise different symptoms with continuous parental education programmes, because the main causes of hospitalisation are the failure to comply with the treatment plan, unhealthy lifestyle and poorer health awareness among parents. This may mean that parents do not notice that their child has a health problem and/or do not know in time that they have to turn to a specialist with the child.

⁴⁵ D E Bloom, E T Cafiero, E Jané-Llopis, S Abrahams-Gessel, L R Bloom, S Fathima, A B Feigl, T Gaziano, M Mowafi, A Pandya, K Prettnner, L Rosenberg, B Seligman, A Z Stein, C Weinstein. The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum, 2011.
http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf.

Response of the Minister of Health and Labour and the Minister of Social Protection: Integrated services concept includes a proposal for raising health awareness among parents – offer a parental school to parents of different age groups. It is possible to nationally harmonise the content of parental schools (e.g. infant school), but this can be organised in the cooperation of the local government and new health centres, e.g. group counselling sessions of midwives or parental school at kindergartens. The key issue is reaching those parents whose awareness level is low and whose options are limited. Versatile cooperation, motivating parents and creating necessary conditions should be a national development activity in the coming years.

We are continuing to support the contribution of the Estonian Health Insurance Fund into updating information materials and ensuring the availability of publications to the target group.

Response of the chairman of the board of the Estonian Health Insurance Fund: We agree that it is important to raise awareness among parents of the need for medical examinations. In order to raise awareness, we have published the topics of medical examinations on the health websites of the Estonian Health Insurance Fund and have included these in various publications concerning the healthy development of children that parents usually receive from the family physician.

In the coming years, we will continue to contribute to these activities by updating the formats of publications and ensure the availability of publications to the target group.

- Develop an integrated services concept upon treating and monitoring the health of children, the implementation of which ensures psychological help, support persons and social rehabilitation for families with children affected by chronic illnesses (see also subchapter “Children with eating disorders and attention deficit hyperactivity disorders receiving hospital treatment have not received medical care at the right time” and recommendation in cl 45).

Response of the Minister of Health and Labour and the Minister of Social Protection: Organising social services (incl. psychological help and service of a support person) for children in need (who may also include children suffering from chronic diseases) and their families continues to be the duty of local governments. As such, the local government is obligated to assess the need for assistance of a child and, if necessary, organise network-based case management. This cooperation must include areas according to in which area of well-being of a child (list in the Child Protection Act) and to which extent the deficiency has been identified.

In order to ensure the provision of a social rehabilitation service to children in great need, we are in the process of preparing several changes, e.g. integrating services to be provided to disabled children in the education and social sector and also in the health care sector to as great a degree as possible.

Response of the chairman of the board of the Estonian Health Insurance Fund: We completely agree with the recommendation that it

is necessary to prepare and implement a concept of integrated and uniform services to monitor the health and treat children that comprises family health care, special medical care, school health care services and also ensures psychological help, support persons and social rehabilitation to families with children suffering from chronic diseases.

The integrated services concept can function in cooperation of all relevant parties and under the leadership of the Ministry.

75. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the Minister of the Environment:

- Also consider the health impacts caused by the industry in the course of preparing the methodology of determining the monetary value of external impacts (negative impacts of exploitation of environment on the society)⁴⁶. Foremost pay attention to the impact of fine particles and odoriferous substances on the health of people.
- Develop and launch a national screening test programme for diagnosing asthma and other allergy diseases occurring in childhood in Ida-Viru County and Lääne-Viru County to a better degree and develop preventive measures to avoid the negative impact arising from the oil shale industry and other industries on health.

Response of the Minister of Health and Labour: We agree with the recommendation. In cooperation with the Ministry of the Environment, we have planned relevant activities for the implementation plan “National development plan of using oil shale 2016–2030”.

The following activities have been planned for in the “National development plan of using oil shale 2016–2030”: 1) developing and launching a national screening programme for diagnosing childhood asthma and other allergy diseases to a better degree in Ida-Viru County (2017–2018); 2) study of drinking water from public water supplies extracting water from the Ordovician and Quaternary aquifers with regard to potential chemicals from the oil shale industry (2018); 3) additional study of water quality of individual bore wells and shaft wells (2018); 4) carrying out biomonitoring among the population (workers and residents) coming into contact with the oil shale sector, first stage – determining biomarkers (2017–2018); 5) study of the data of the birth registry of children (comparison of the birth indicators of children born in different regions of Ida-Viru County with the data of children from other Estonian regions) and survey regarding their contact with pollution from the oil shale sector (2017–2019).

These activities are planned to be carried out through the Health Board and financed by the Environmental Investment Centre. The Health Board has previously (2014–2015) in cooperation with the University of Tartu organised a survey of health impacts of the oil shale sector in Ida-Viru

⁴⁶ In autumn 2015, the Ministry of the Environment launched a programme “Analysis of evaluating the external impacts of Estonian exploitation of environment in money”. As a result of the project, policy recommendations regarding which activities should be carried out in order to compensate or reduce the costs caused for the environment shall be prepared by the end of 2017.

County and Lääne-Viru County, the objective of which was to determine the impacts accompanying the mining of oil shale on the health of the population.

Response of the Minister of the Environment: I agree with the recommendation and confirm that we are taking the impact on health caused by the industry into consideration upon determining the monetary value of external impacts and will pay particular attention on the impact of fine particles and other important pollutants that endanger the life of people.

It is also necessary to establish measures for alleviating and preventing the negative effect arising from the oil shale industry and other industries on the health of people in cooperation with the Minister of Health and Labour.

Riigikogu approved the “National development plan of using oil shale 2016–2030” with its resolution of 16 March 2016. The development plan includes measure 2.3. “Alleviating the impact caused by the oil shale industry on the society (impact on the health of a person and social impact)”, for the performance of which health indicators are being monitored in Ida-Viru County and the assessment of negative social impact (incl. impact on the health of a person) caused by mining and processing oil shale and the option for reducing thereof is being planned. The Ministry of Social Affairs is responsible for the activity, and co-responsibility lies with the Ministry of the Environment.

76. Recommendation of the National Audit Office of Estonia to the Minister of Education and Research: ensure the skills and knowledge of school and kindergarten teachers necessary for dealing with children suffering from chronic illnesses. In order to do this, develop and integrate training for noticing and dealing with children suffering from chronic illnesses in the teacher training programmes.

Response of the Minister of Education and Research: Teacher training curriculums include education for supporting the health of children and children with special needs. Teachers are offered opportunities to participate in in-service training with help from the Ministry of Education and Research. Supporting children with special needs, incl. health problems, is one of the priorities of in-service training.

Medical examination of children and seeing the doctor

School health care services do not meet the set objective: their content and quality vary in regions and children sent to a doctor's appointment do not make it to see one within a year

77. Problems with school health care services have not been addressed in the NHP. At the same time, the child spends a large part of their day in school and if parents fail to notice the child's health disorder or do not go to a family physician, the next location where the health problem is noticed and the child sent to see a specialist is precisely the school.

Availability of the school nurse service

78. According to the code of conduct of school health care services⁴⁷, the objective of school health care services is to ensure the well-being of school-age children and support their normal development and growing. School health care services consist of promoting the health of school-age children, preventing diseases, monitoring health, providing first aid and, if necessary, sending the child to see an appropriate health care specialist.

79. Based on the objective set for school health care services, the National Audit Office of Estonia presumed that the availability and content of the school health care services is the same throughout the country: there are up to 600 school-age children per one nurse; children whose problems have been noticed by the nurse have seen the doctor within at least a year; and the Estonian Health Insurance Board and/or the Health Board have supervised the service.⁴⁸

80. The National Audit Office of Estonia analysed⁴⁹ whether the school nurse service is available in every school. The results of the analysis indicated that as at 1 April 2016, school nurse is not available in 14 schools, i.e. in 3% of general education schools (total of 995 students in these schools).⁵⁰ The majority of these schools are situated in West-Estonia (Pärnu, Saare, Hiiu and Lääne County). According to the explanations of the Health Board, family physicians of these students are informed that these children are not receiving school health care services.⁵¹

⁴⁷ Code of conduct of health services at school. Eesti Õdede Liit, Eesti Haigekassa, Tallinn 2010. https://www.sm.ee/sites/default/files/content-editors/eesmargid_ja_tegevused/Tervis/Tervishoiusustee/koolitervishoiuteenuse_juhend_eesti_keeles.pdf.

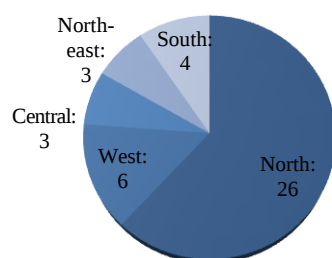
⁴⁸ Minister of Social Affairs regulation no. 54 "Activities of a nurse providing health services at school and requirements for the time, volume, availability and location of the activities of the nurse" of 13 August 2010. Health services at school for students with special educational needs were not separately audited in the course of the audit, as this service has different requirements as the service of regular schools.

⁴⁹ An online survey was carried out among school nurses and management reports of school nurses were analysed.

⁵⁰ As at 2 May 2016, 20 schools (1,651 students) do not have a contract for the provision of health services at school.

⁵¹ The Estonian Health Insurance Board has requested the lists of students in schools not covered with health services at school from the Ministry of Education and Research in order to inform the family physicians of the children of the temporary interruption of the preventive activity. Family physicians receive notification letters through the regional administrators of the Estonian Health Insurance Fund, specifying the names of the children in the register who are studying in schools without a provider of health services at school.

Figure 9. Number of schools where the workload of the school nurse is greater than provided for, by regions



Source: reports of school nurses, analysis of the National Audit Office of Estonia

Financing of the health services at school

Referring children to see a doctor and making it to see a doctor

81. The report of school nurses to the Estonian Health Insurance Board indicated⁵² that there was one school nurse per 600 or more students in 42⁵³ of the 379 schools, and this exceeds the requirements established for school health care. Most of such schools were situated in North-Estonia (Harju County) (see figure 9). The average number of students in these 42 schools was 812, i.e. approx. 34,000 children and not receiving the appropriate service. There may be more of those schools that do not comply with the requirements, however, because all schools did not submit appropriate requirements to the Estonian Health Insurance Board.⁵⁴

82. One reason for the lack of school nurses is due to the fact that the Estonian Health Insurance Fund finances the school health care services only for 11 months out of the calendar year, i.e. the school nurse is only paid for 11 months. For example, if in March 2015, a full-time school nurse earned, on average, a salary of 1,008 euros inclusive of additional remuneration (per year in total 11,088 euros), the average salary inclusive of additional remuneration of a nursing employee (all full-time nurses) was 1,140 euros (per year in total 13,680) in the whole country. In the opinion of the Ministry of Social Affairs, school nurses can work as a substitute nurse at a family physician's office for one month of the year.

83. Financing of the school health care services is also characterised by the fact that over the last 10 years, the budget has increased less than other budgets associated with health services (see also figure 3). Additionally, in case of small schools, a problem has occurred with finding a provider of school health care services, because the service provider is required to have a separate activity licence for each place of business and obtaining ones costs a state fee⁵⁵ of 87 euros. It is not financially expedient to apply for an activity licence in small schools with perhaps 20–30 students, because the limit price of health service per one child is 2.64 euros per month. It is therefore difficult to find a service provider for small schools.

84. Additionally, the lack of school nurses may be aggravated in the future due to their age composition. According to the online survey, 60% of school nurses are already over 50 years of age. This is also confirmed by the data of the National Institute for Health Development, according to which the average age of school nurses in 2014 was 50.7 years.

85. The National Audit Office of Estonia analysed health cards and medical bills filled in by school nurses in order to see how many of the children referred⁵⁶ to see a doctor by the school nurse in 2014 had made it to see one within a year.

86. The results of the analysis indicated that 23% of all analysed children required medical care. Children requiring medical care were

⁵² Large number of school nurses failed to specify their workload.

⁵³ In total, 8% of all general education schools

⁵⁴ The respective information field in the report was not filled in.

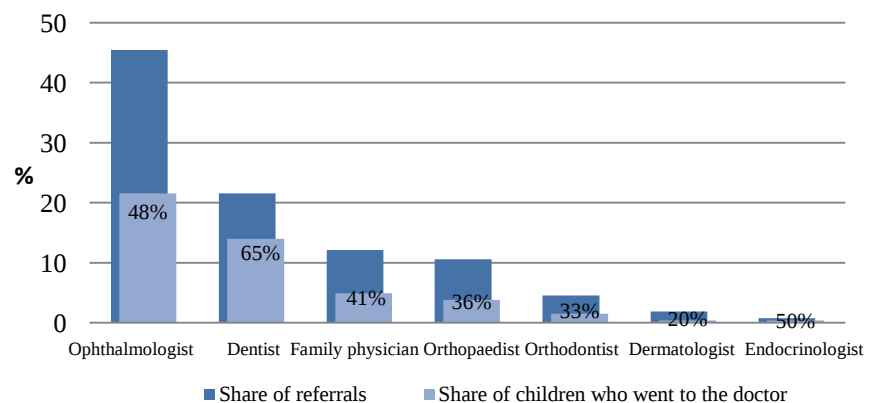
⁵⁵ Activity licences are granted by the Health Board, while the health services at school are financed and organised by the Estonian Health Insurance Fund. Activity licence is without a term, but a contract of the Estonian Health Insurance Fund for the provision of service is entered into every year.

⁵⁶ A school nurse cannot refer the child directly to see a medical specialist and will instead notify the parent if the child requires medical care due to a health disorder or suspicion thereof.

referred to see an ophthalmologist (45%) and the dentist (21%) the most. In the opinion of school nurses, significantly fewer – 12% of the children – required family health care.

87. 49% of children referred to see a doctor made it there. Children referred to see a doctor went to see the ophthalmologist (48%) and the dentist (65%) the most. At the same time, children didn't see several doctors that they should have seen. For example, one fifth of the children referred to see a dermatologist and one third of the children referred to see an orthodontist made it to see one (see also figure 10).

Figure 10. Share of children referred to see a doctor by a school nurse in 2014 and children who saw a doctor within a year



Source: school health cards, data of the Estonian Health Insurance Fund, analysis of the National Audit Office of Estonia

For your information

- the school nurse referred 7% of overweight children (19% of children) to see a medical specialist or family physician;⁵⁷
- the school nurse referred 14% of children with gait disorders (33%) to see a medical specialist or family physician.

Source: analysis of the National Audit Office of Estonia

88. There may be different reasons for failing to see a doctor. For example, in the opinion of doctors interviewed in the course of the audit, one of the reasons for this share of children who made it to see an ophthalmologist and a dentist (see more detailed in subchapter “Share of undergoing medical examinations is low and varies according to the residence and social background of the child”) may be poor availability of specialised medical care (distance, long waiting lists), also lack of knowledge and/or disregard among parents and also inadequate information flow between different specialists and parents (see also subchapter “Information flow between different specialists and parents must be improved and awareness must be raised among parents”).

89. Activities of school nurses also include organising health education lessons and health promotional counselling and training sessions and, if necessary, making proposals to school owners in order to change the school environment. In order to find out to which degree these activities were carried out, the National Audit Office of Estonia analysed the management reports submitted by school nurses and conducted an online survey among school nurses.⁵⁸

90. The analysis revealed that the activity of school nurses differs both by the five regions and by rural and urban schools. According to the online survey, 16% of urban school nurses and 63% of rural school

Regional differences in school health promotion

⁵⁷ Guideline “Body weight of a school-age children, psychological aspects thereof and counselling on nutrition and physical activity” composed in 2007 does not include a specific recommendation on when it is crucial to refer a child to see a doctor.

⁵⁸ In the analyses, schools were not distinguished based on the number of students.

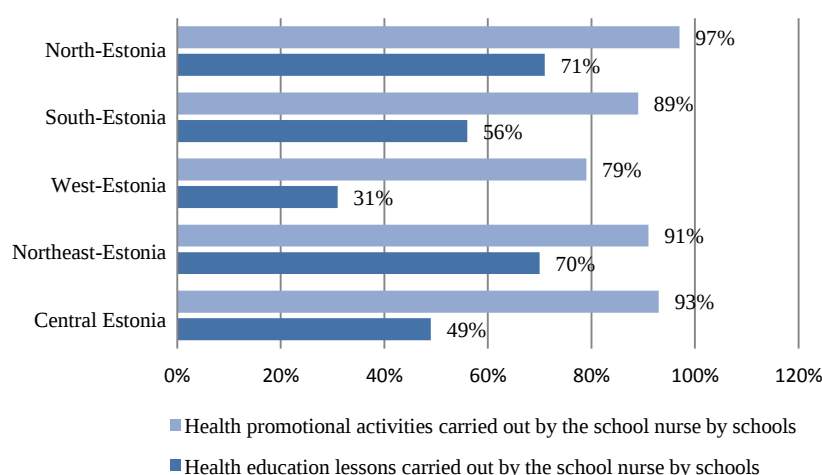
nurses had not made any suggestions to the school management.⁵⁹ If the school nurse had made a suggestion, the management had taken the suggestion into consideration in 90% of the cases. The majority of suggestions were made with regard to the prevention of traumas and illnesses, canteen menus, weight of the backpack and equipment used in the physical education lesson.

91. The National Institute for Health Development has in cooperation with different specialists developed a free online tool together with surveys for pre-school child care institutions that enable kindergarten employees and parents to give an assessment of the psychosocial environment of the kindergarten. Both the National Audit Office of Estonia and the National Institute for Health Development are of the opinion that a similar instrument could also be used in schools and it would make it easier to make suggestions to the school management.

92. According to the report of school nurses, 50% of nurses⁶⁰ had given health education lessons in schools, 70% of these in urban schools and 30% in rural schools. In rural areas, the school nurse is often the family physician or family nurse of the same region that has to simultaneously fulfil several roles and, as such, the service may differ in comparison to schools where the school nurse is at the school at all times.

93. Results of both analyses also indicated that carrying out health promotional activities varied in different regions. For example, most activities associated with health promotion and prevention of illnesses (in 97% of schools) and health education lessons (in 71% of schools) were carried out in North-Estonia (Harju County). On the other hand, the same indicators in West-Estonia (Pärnu, Saare, Hiiu and Lääne County) were 79% and 31%. Schools nurses are not required to perform their work in exactly the same way, but regional differences indicate that school nurses have not understood what is expected of them in the same way (see figure 11).

Figure 11. Health promotional activities of school nurses regionally by schools during the 2014/2015 academic year, %



Source: online survey reports and reports of school nurses, analysis of the National Audit Office of Estonia

⁵⁹ A large number of rural school nurses are not working in the school full-time and are also working as a family physician/nurse at the same time.

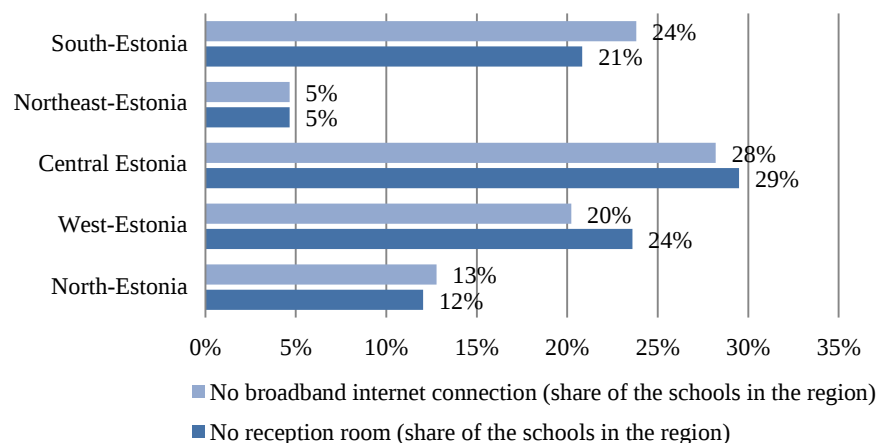
⁶⁰ Large number of nurses did not specify these answers.

Availability of internet and reception room in the school

94. One reason for the aforementioned regional differences are the uneven opportunities of school nurses to get an overview of both the health and the school environment of children. For example, according to the reports, 29% of Central Estonian (Rapla, Lääne-Viru, Järva County) schools did not have a reception room (see figure 12). Among schools in rural settlements, only 27% of schools had a reception room⁶¹, i.e. in many cases, the reception room was situated outside the school. This is not a violation of requirements, because school health care services may be provided outside the school if fewer than 200 students are studying in that school or if the location of providing school health care services is situated at a reasonable distance to be crossed by the students on foot. However, if the reception room is situated outside the school, the school nurse does not have such a good overview of the school environment and the health status and behaviour of students compared to a situation where the school nurse is constantly in the school environment.

95. Despite the fact that all service providers must have a connection to the health information system, 41% of school nurses working in Central Estonia were unable to enter data in the system in the 2014/2015 academic year according to the online survey. In comparison, only 16% of all school nurses were unable to enter data in the health information system. The reasons probably lie in the lack of connection with the health information system or the fact that there were technical issues with using thereof. For example, 28% of school nurses working in Central Estonian (Lääne-Viru, Rapla and Järva County) schools and 5% of school nurses working in Northeast-Estonian (Ida-Viru County) schools did not have internet connection⁶² (see more details in figure 12).⁶³

Figure 12. Share of all schools by regions that did not have a reception room for a school nurse and broadband internet connection during the 2014/2015 academic year



Source: reports of school nurses, analysis of the National Audit Office of Estonia

96. The results also indicated that in 2014, only slightly more than half of school health care epicrises and e-notices were sent to the health

⁶¹ The information is provided on the basis of school nurse reports; large number of school nurses had not included this information in the report at all.

⁶² Based on the reports of school nurses

⁶³ Pursuant to subsection 43 (2) of the Basic Schools and Upper Secondary Schools Act, the owner of a school ensures the existence of the rooms and non-medical equipment in accordance with the requirements established on the basis of subsection 25 (2) of the Health Care Services Organisation Act and bears the related expenses.

information system⁶⁴. At the same time, Estonian eHealth Foundation does not have the opportunity to analyse how much the doctors and school nurses look at epicrisis of school health care. The availability of such information would be necessary, because it would make it possible for the Ministry of Social Affairs to manage health care in a more substantial manner. Because some school nurses do not have a connection (either there is no appropriate software or there is no respective merger agreement) to the health information system, they may not be able to find out whether the child made it to see the doctor and which treatment the doctor decided to use. This information, however, is important in terms of observing the child and recognising health problems.

97. In the opinion of school nurses⁶⁵, school health care services foremost require an operational information channel (incl. information system where all entered data is legible and visible), followed by greater financing (that would also manifest, for example, in tools such as high quality training materials, computer, reception room). As a third requirement, school nurses specified the need to raise awareness of the work of a school nurse among people. Many school nurses also felt that the requirements set for them are not consistent (e.g. smaller wages and inadequate in-service training).

Supervision of school health care services

98. Carrying out supervision of school health care services is first the duty of the Estonian Health Insurance Fund as a financier and one party to the contract. The Estonian Health Insurance Fund has analysed the school health care services for students with special educational needs in 2012, but has not carried out supervision of the service afterwards, so the content and quality of school health care services has not been carried out in all general education schools. In order to improve supervision, the Estonian Health Insurance Fund is planning to implement a new reporting system for school nurses that can be used to assess, for example, how many health education lessons the school nurse has given, how many health promotional counselling sessions the school nurse has carried out, etc.

99. Supervision of school health care services is also carried out by the Health Board. The Health Board issues activity licences for the provision of school health care services and in the course thereof inspects the compliance with the requirements established for the service provider. In addition to the aforementioned, the Health Board took a closer look at the compliance with the requirements of providing school health care services in 2012–2013 with regard to the six largest service providers.⁶⁶ Attention has been given to the content and quality of the school health care services upon inspecting how immunisations were carried out, most recently in 2015. With regard to the provision of school health care services, the Health Board has highlighted several problems, incl. lack of service providers and a decline in the share of immunisation.

⁶⁴ Approximately 27,000 school health care epicrisis were entered in the information system, but 50,000 children underwent medical examinations during the year.

⁶⁵ Based on the online survey of school nurses

⁶⁶ Undergoing required training programmes for health care professionals and forwarding data to the parents and to the health information system was assessed in the context of the prescribed inspection. In the opinion of the Health Board, requirements were complied with to a large extent. However, it was identified in the course of the inspection that school nurses did not have a phone or a computer in all schools; there were deficiencies in how health cards were filled in, one of the reasons for which was receiving inadequate information from family physicians. Data were also not always submitted to eHealth.

100. Assessing the content of the service does not fall under the competence of the Health Board. If necessary, an assessment of the quality of the service is requested from the expert committee on the quality of health service or from resident doctors of the Estonian Health Insurance Fund.

101. In the opinion of the National Audit Office of Estonia, all children are not able to receive a uniform school health care services, because the availability and the content of the service varied by regions and requirements established therefor have not been met. Proper activity of the school nurse also does not always mean that the child is receiving the necessary care, because many children whom the school nurse has referred to see a doctor never made it there. In regular schools, supervision of the compliance with the formal requirements of providing school health care services has only been carried out by the Health Board, but the content and quality of the service has not been assessed. The Ministry of Social Affairs in cooperation with the Estonian Health Insurance Fund has not been able to determine the reasons for a differing provision of service nor has it been able to harmonise the availability of services. However, it has been promised that doing so will commence with the help of a new reporting system.

102. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund:

- Amend the organisation of financing school health care services so that the lack of school nurses decreases and school health care services are ensured to all children; ensure through training school nurses and updating school health care manuals that the content of the service is similar irrespective of the region where the child lives; and at the same time determine the content and regularity of the supervision of school health care services.

Response of the Minister of Health and Labour: Within the framework of constructing the infrastructure of primary medical care centres, we are in the process of reviewing the general medical care management. We are planning to better integrate family health care and school health care services as primary medical care. In order to ensure a uniform content of the service, the Minister of Social Affairs regulation no. 54 "Activities of a nurse providing school health care services and requirements for the time, volume, availability and location of the activities of the nurse" of 13 August 2010 describes the activities of the school nurse in detail. Code of conduct of school health care services completed in the cooperation of the Estonian Health Insurance Fund and the Estonian Association of Nurses also describes the content of the service and provides instructions for the provision of service. Both the Ministry of Social Affairs and the Estonian Health Insurance Fund agree that the existing manual needs to be updated, and it is planned to do so in connection with updating the guideline for medication examinations of up to 18-year-old children.

We agree that training programmes for school nurses are necessary. We are planning the respective training programmes as an implementation activity of the aforementioned guideline. We consider the Estonian Health Insurance Fund (EHIF) to be an important partner in raising awareness whose continuous activity is preparing and distributing

relevant information materials and raising awareness among persons associated with health service and providers of health service. EHIF has also planned within the framework of its development plan 2017–2020 to continue developing the expanded primary medical care package, among other in the area of mental health services and school health care, in 2017. In the context of the availability of service, the EHIF is supporting the maximum coverage of school health care services, among others by updating contractual terms if necessary.

In terms of supervision, pursuant to section 88 of the Basic Schools and Upper Secondary Schools Act, the Health Board exercises administrative supervision over the provision of school health care services within the limits of its competence. Supervision in connection with contractual partners of school health care services is carried out by the Estonian Health Insurance Fund. Insofar as several issues have arisen in connection with the provision of school health care services, we have suggested to the EHIF to review its price of school health care services and principles of entering into contracts, which concurrently enables reviewing the requirements associated with the provision of service if necessary.

Response of the chairman of the board of the Estonian Health Insurance Fund: It is extremely important to ensure the availability of school health care services to all children. We confirm that the contractual terms are the same for all service providers. In the opinion of the Estonian Health Insurance Fund, price formation of school health care services alone is not enough to ensure school health care services and decrease the deficit of school nurses. The methodology of price formation ensures the availability of service irrespective of the region where the child lives.

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

- Initiate a draft amendment in order to support the process of finding a school nurse for small schools, as a result of which the service provider does not have to pay the full state fee for each place of business, or amend the procedure of granting an activity licence so that only the payment of a one-time state levy is required for different places of business.
- Improve the opportunities of using the health information system across Estonia in order to increase information exchange between different providers of health service.

Response of the Minister of Health and Labour: In connection with reviewing the organisation of the planned health centres and general medical care, we are planning to better integrate family health care and school health care services as primary medical care. Within the framework thereof, it is possible to also review matters concerning the activity licence of school health care services if necessary.

According to the Health Services Organisation Act, providers of health service (incl. school health care services) are obligated to document their activity. They are also obligated to forward data to the health information system (HIS) according to the Minister of Social Affairs regulation no. 53

“Compositions of the data of documents to be forwarded to the Health Information System and the conditions and procedure for the preservation of thereof” of 17 September 2008. It has not been regulated at the level of the legislation which computer program the health care provider should use to forward data. This has been left up to the service provider. However, the limit price of health services does, among others, include information technology expenses necessary for the provision of service.

Despite the aforementioned, there are deficiencies in the use of the health information system and information exchange, which is why we are working on resolving the problem. We have also commenced monitoring in order to ensure that data are forwarded to the health information system by the providers of health services.

104. Recommendation of the National Audit Office of Estonia to the chairman of the board of the Estonian Health Insurance Fund: ensure that school nurses fill in reports so that these could be used both for planning services and activities for supporting the health of children.

Response of the chairman of the board of the Estonian Health Insurance Fund: to date, the statistics of the Estonian Health Insurance Fund has been the only concise national dataset regarding the health status of children. Data quality thereof arises from the aggregated data. The Ministry of Social Affairs has commenced with developing a statistics module for the health information system in order to make the data of medical examinations of children visible and enable using thereof. An overall report on the health of children that includes all children is underway.

105. Recommendation of the National Audit Office of Estonia to the director of the National Institute for Health Development: establish an online solution for schools for evaluating the psychosocial environment in order to enable making suggestions with regard to improving the school environment more easily.

Response of the director of the National Institute for Health Development: In 2014, the National Institute for Health Development submitted a project application “Promotion of inclusive organisation of education and mental health in educational institutions“ to the programme “Children and Youth at Risk” of the European Economic Area financial mechanism in cooperation with six partners, incl. Innove, non-profit organisation Estonian Association of School Psychologists and others, one objective of which are the prepared and piloted surveys for assessing the psychosocial environment for schools. The project did not receive funding, however.

In the project, we highlighted that surveys for assessing the psychosocial environment are prepared for the school within the framework of the project and are published on the respective websites of the project and the National Institute for Health Development and a proposal is made to the Ministry of Education and Research or some other relevant institution for the development of a technical solution. This is necessary so that the schools would be able to carry out an assessment of the psychosocial environment as part of an internal evaluation and on uniform principles in some already operational uniform e-environment established for schools.

The National Institute for Health Development is prepared to participate in the process of preparing surveys and to share the experiences of the National Institute for Health Development with regard to the online solution for assessing the psychosocial environment aimed at pre-school child care institutions. Because schools are already using different online environments, the leadership role with regard to the technical solution has to lie with an institution that has an overview of technical solutions aimed at educational institutions and that leads the process of harmonising the principles of internal evaluation of educational institutions, because assessing the psychosocial environment must be integrated into the general internal evaluation system of an educational institution.

Share of undergoing medical examinations is small and varies according to the residence and social background of the child

106. The Ministry of Social Affairs has highlighted as a problem the irregularity of preventive medical examinations of pre-school children, delays in immunisation and late discovery of developmental special needs. The list of problems provided in the NHP does not specify the small share of undergoing medical examinations among pre-school children.

107. The National Audit Office of Estonia presumed that children have undergone a medical examination both at the appointment of a family physician and family nurse, also at the appointment of other medical specialists, and received vaccinations according to the guidelines for medical examinations, irrespective of their residence, income of parents and nationality. Medical examinations are one of the foremost methods for preventing or detecting illnesses (see the appointments for undergoing medical examinations also in appendix A).

Medical examinations of children at the appointment of a school nurse and family physician

108. Undergoing medical examinations depends on the awareness and responsibility of the parent. Appointments for medical examinations are divided between the school nurse and family physician or family nurse. According to the guideline for medical examinations, school nurses have to carry out medical examinations among school-aged children in grades 1, 3, 7 and 11. In 2014, 79% of them underwent a medical examination at the appointment of a school nurse (see table 5).

Table 5. Number of children who were prescribed to and who underwent a prophylactic examination at the appointment of a school nurse in 2014 according to the guideline for monitoring the health of a child

Grade	Indicated	Underwent a medical examination	Share (%) of the indicated who underwent a medical examination
Grade 1	16,937	12,923	76.3
Grade 3	15,150	12,798	84.5
Grade 7	14,058	11,864	84.4
Grade 11	15,088	11,048	73.2
Total	61,233	48,633	79.4

Source: reports of providers of school health care services, analysis of the National Audit Office of Estonia

109. 85–93% of up to 2-year-olds only underwent medical examinations arising from the guideline at the appointment of a family physician. As of 3 years of age, the percentage of undergoing medical examinations decreases every year, reaching 38% among pre-school children and 8–20% among school-age children, depending on the age (see table 6).

110. Because a small share of all children underwent medical examinations, the National Audit Office of Estonia analysed whether children have made it to see a family physician at all in a year. During the period of illnesses, the family physician has less time to assess the overall health status of children, but he/she will get at least a partial overview of the development of the child.

111. The results indicated that the share of children who went to see a family physician or family nurse for different reasons depended on the age of children. For example in 2014, 97% (3% i.e. 332 children did not make it to see a doctor in a year) of children under the age of one year saw a family physician.⁶⁷ The respective indicator was 90% for pre-school children, and approximately 63% of 11–12 and 15–16-year-old children did not make it to an appointment of a family physician or family nurse (see table 6). Youths of this age are not examined by the school nurse either.

Table 6. Share of children who underwent a medical examination and saw a family physician or family nurse for different reasons of all children of the same age in 2014⁶⁸

Age of the child, in years	Number of children born per year	Share (%) of children who underwent medical examinations of all children	Share (%) of children who underwent a medical examination at the appointment of a family physician or a nurse one time of all children
0	13,551	85	97 ⁶⁹
1	13,531	93	98
2	14,056	73	94
3	14,679	38	92
4	15,825	23	89
5	15,763	19	85
6	16,028	20	81
7	15,775	35	84
8	14,877	20	73
9	14,350	16	68
10	13,992	10	64
11	13,036	12	63
12	13,001	13	62
13	12,632	10	59
14	13,067	8	58

⁶⁷ Calculations were conducted without including children born in December.

⁶⁸ The age of the child is calculated so that children born in 2014 are under the age of one.

⁶⁹ 90% of up to one-year-old children have undergone medical examinations; if we deduct children born in December (because they might not have had time to make it to see a doctor yet), 97% of children have undergone medical examinations.

For your information

The guideline for medical examinations of children and treatment guideline for children must be updated after every five years. The guideline has entered into force at the start of 2010, but has not been updated so far. Family physicians have also confirmed the need to do so. The appointments for undergoing medical examinations are not specified in the guideline on the basis of an evidence-based principle, but rather on the principle of regularity. There is no study that could be relied on upon determining the frequency of medical examinations. The same problem exists in other countries as well.

The Ministry of Social Affairs has commenced with updating the guideline for medical examinations of up to 18-year-old children. A taskforce has been established that includes representatives of professional associations (paediatricians, family physicians, nurses, etc.). The guideline is updated according to the principles provided in the Estonian manual for preparing treatment guidelines.

15	12,425	11	61
16	12,167	12	66
17	12,577	9	67
18	13,242	7	70

Source: data of Statistics Estonia and the Estonian Health Insurance Fund, analysis of the National Audit Office of Estonia

Connection between undergoing medical examinations and the region of the place of residence and background of the child

112. The National Audit Office of Estonia also analysed separately whether undergoing medical examinations varied according to the residence of the child, nationality or socioeconomic background of the parents. It analysed how children born in 2009 (pre-school children of 3–6 years of age) underwent medical examinations during the period 2012–2014, during which they had to undergo medical examinations at the appointment of a family physician or nurse three times.

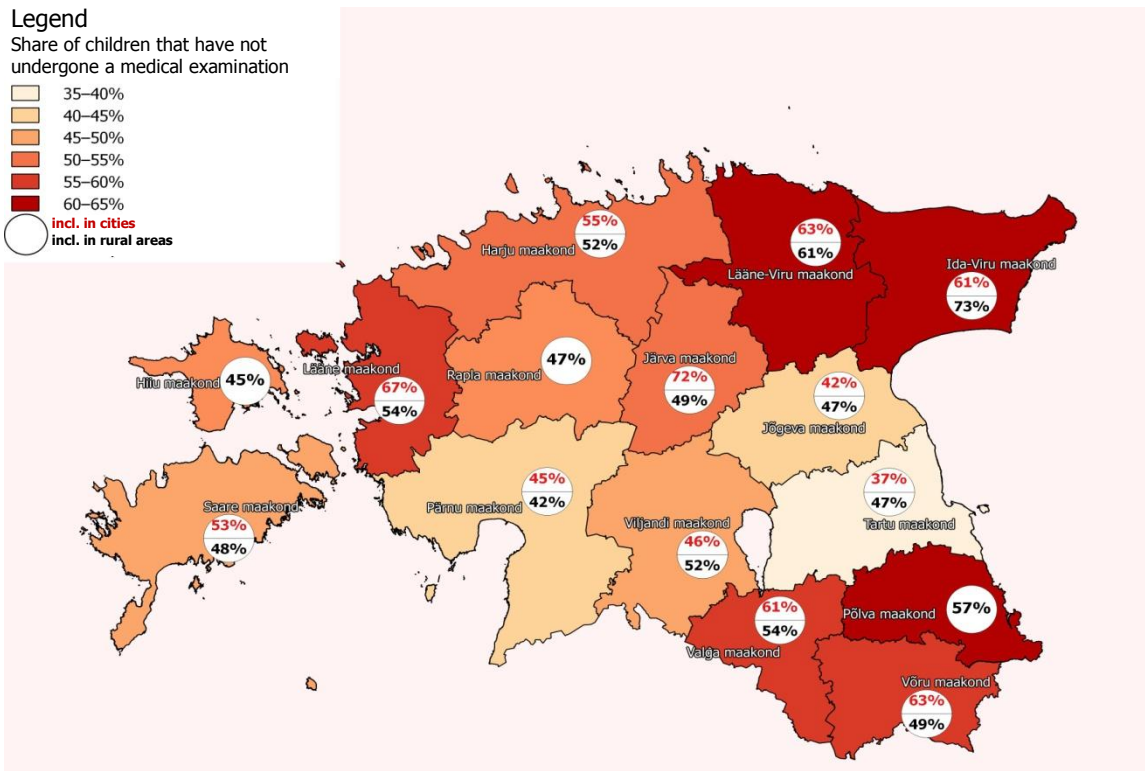
113. The results indicated that less than 4%, i.e. 523 children, of all the studied children underwent medical examinations according to the guideline. 12% or 1,890 children underwent medical examinations during the specified period two times and 32% or 5,005 underwent the examination one time. As such, 52% or 8,148 children did not undergo a single medical examination during a period of three years.⁷⁰

114. Children born in 2009 undergoing medical examinations did not differ in terms of the countryside and the city. On average, 34 children per 1,000 residents of the same age underwent medical examinations according to the guideline. At the same time, the way children underwent medical examinations varied by regions. Children underwent examinations according to the guideline the least in Northeast-Estonia (Ida-Viru County) and North-Estonia (Harju County), i.e. 23 children per 1,000 residents of the same age, and the most in South-Estonia (Jõgeva, Põlva, Tartu, Valga, Viljandi and Võru County), i.e. 52 children per 1,000 residents of the same age (see also appendix K, table 14). Similar results are also evident in case of undergoing a medical examination at least once: Northeast-Estonia has the smallest number (383 children per 1,000 residents of the same age) and South-Estonia has the highest number (554 children per 1,000 residents of the same age) of children who underwent medical examinations (see also appendix K, table 15).

115. The share of those who never underwent a medical examination was the highest in Lääne-Viru and Ida-Viru County, also in Lääne, Valga, Põlva and Võru County. Tartu County had the smallest share of children that did not undergo a medical examination (see figure 13).

⁷⁰ Children who use paid health services and may not use their own family physician in doing so have not been taken into consideration.

Figure 13. Residence of such children born in 2009 who did not undergo a medical examination once during three years by county and type of settlement⁷¹

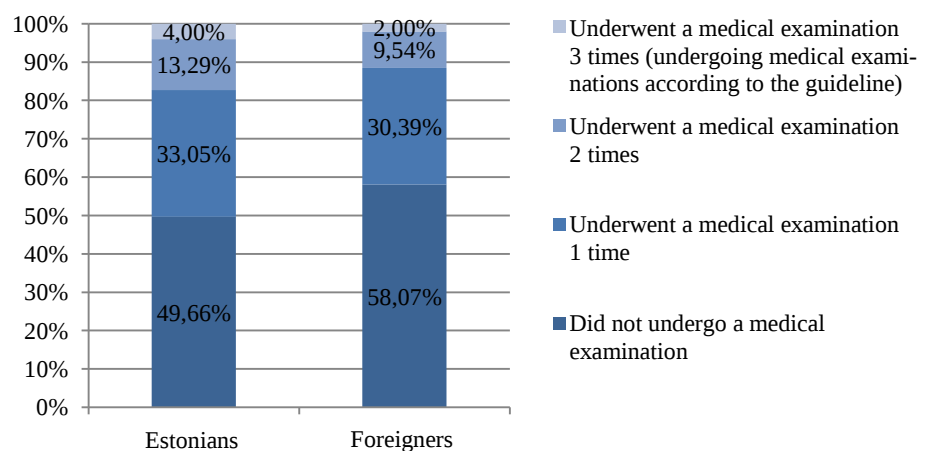


Source: Estonian Health Insurance Fund, population register; analysis of the National Audit Office of Estonia

Undergoing medical examinations among Estonians and foreigners

116. Children undergoing medical examinations varied by nationality (see figure 14). 4% of Estonians underwent medical examinations according to the guideline, while only 2% of foreigners underwent medical examinations according to the guideline. 99% of foreigners were Russians.⁷² If we look at children that did not undergo medical examinations once during a period of three years, we can also see that the share is smaller among Estonians (50%) than among foreigners (58%).

Figure 14. Shares of Estonians and foreigners that underwent medical examinations during a period of three years



Source: Estonian Health Insurance Fund, population register; analysis of the National Audit Office of Estonia

⁷¹ In counties with cities without municipal status, the share is given per the rural area.

⁷² Data are based on the nationality provided in the population register.

117. The analysis of the National Audit Office of Estonia also revealed that in regions where the share of foreigners was higher (82.7% of foreigners in Northeast-Estonia and 25.1% of foreigners in North-Estonia), there were no longer differences between nationalities when it came to undergoing medical examinations at least once during a period of three years. For example in Northeast-Estonia, 272 Estonian children and 271 foreign children per 1,000 residents of the same age underwent a medical examination (see table 7).

Table 7. Residence of children born in 2009 that underwent a medical examination at least once during a period of three years by regions

Region	Nationality	Division of children born in 2009 on the basis of nationality (%)	Children that underwent a medical examination at least once during a period of three years	
			share of children within the same age group (%)	share of children per 1,000 residents of the same age
Central (Lääne-Viru, Rapla, Järva County)	Estonian	96.1	45.9	306
	foreigner	3.9	34.8	239
Northeast (Ida-Viru County)	Estonian	17.3	33.1	272
	foreigner	82.7	40.2	271
South (Tartu, Võru, Valga, Viljandi, Jõgeva, Põlva County)	Estonian	94.8	56.8	348
	foreigner	5.3	43.2	290
West (Lääne, Saare, Hiiu, Pärnu County)	Estonian	96.2	52.9	343
	foreigner	3.8	46.3	296
North (Harju County)	Estonian	74.9	46.8	323
	foreigner	25.1	42.8	326

Source: population register, Estonian Health Insurance Fund; analysis of the National Audit Office of Estonia

For your information

9–19-year-old youths that exercise five or more hours per week have the opportunity to undergo a free medical examination for young athletes at the appointment of a sports medicine physician (every one or two years).

Family physicians may look at the date discovered in the course of a medical examination for young athletes, but they must have prior knowledge of the fact that the child has undergone one.

In 2014, 8,984 persons, i.e. 7% of children, underwent such examinations.

Children that underwent an examination of an ophthalmologist

118. As such, few children undergo medical examinations at the appointment of a family physician. It is possible that in some cases the family physicians do not specify an appointment as a medical examination, but in view of the share of children that went to the family physician with some problem, a large percentage of children never made it to the doctor within one year.

119. According to the presumption that children undergoing medical examinations is not dependent on the socioeconomic background of parents, the National Audit Office of Estonia also analysed whether the income and receipt of social benefits by parents affects how children undergo medical examinations. The results indicated that there were no differences arising from these factors and that both children of poorer and wealthier parents underwent medical examinations to a small degree.

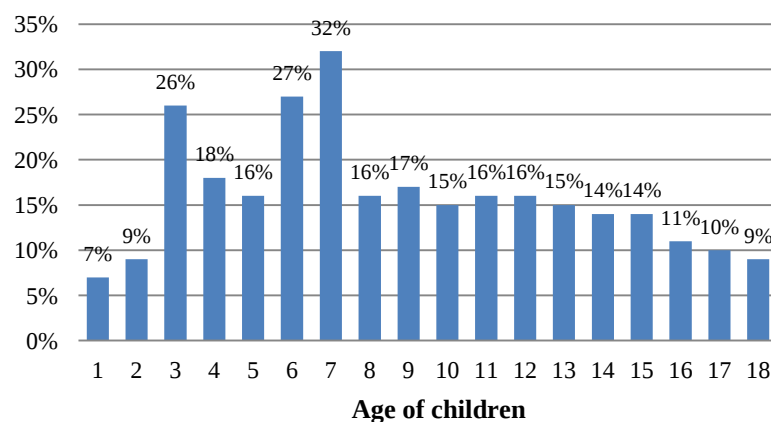
120. In addition to medical examinations at the appointment of a family physician or nurse, the National Audit Office of Estonia also analysed the share of children that went to the appointments and examinations of other doctors. According to the guideline, eyesight examination at the appointment of an ophthalmologist should be carried out for pre-school children

respectively at the age of 3 and pre-school eyesight examination at the appointment of a family physician or ophthalmologist at the age of 6–7.⁷³

121. The results indicated that 26% of 3-year-olds visited an ophthalmologist. Less and less children go to an ophthalmologist as they grow older (from 11 years of age). At the same, strain on eyes continues to grow together with the intensity of learning at the end of both upper secondary and basic school, and discovering the problem in time would enable avoiding complications in the future (see also figure 15).

122. The specified shares do not, however, provide a full picture, because there is no overview in the country of how often the children have gone to an appointment of an optometrist or a paid ophthalmologist. Ophthalmologists themselves have also recognised the problem and made a suggestion to the Ministry, suggesting that family physicians could also carry out an initial eyesight examination on their own. This, however, requires organising respective training programmes and compensating small-scale investments for purchasing equipment necessary for carrying out an eyesight examination. In case of visual disorders discovered in the course thereof, children would be referred to a consultation of an ophthalmologist. The Ministry of Social Affairs is in the process of discussing a review of eyesight examinations within the context of updating the guideline for medical examinations.

Figure 15. Share of children that saw an ophthalmologist in 2014 of all children of the same age



Source: Data of the Estonian Health Insurance fund, analysis of the National Audit Office of Estonia

Children that underwent an examination of a dentist

123. According to the treatment guideline of dental care, each child should see a dentist at least once every six months. The National Audit Office of Estonia investigated whether children have seen a doctor at least once a year.⁷⁴ Medical bills of the Estonian Health Insurance Fund reveal that 61% of children went to the dentist in 2015. Analysing a longer 5-year period revealed that 63% of children had seen a dentist at least once during this period. As such, all children do not make it to an

⁷³ In terms of an eyesight examination, checking 3-year-old children is the most important, because it enables discovering visual disorders that may cause amblyopia or the so-called lazy eye that can be effectively treated up until the age of 7. Pre-school eyesight examination is important because children have greater demands for vision both for reading and looking far in connection with starting their studies.

⁷⁴ It was not possible to conduct an analysis in another format, because medical bills do not differentiate between treatment and examination of teeth.

Children that participated in a hearing examination

Share of vaccinated children

examination according to the guideline (see also appendix L). In the opinion of the Ministry, prevention is important in avoiding dental diseases – it has so far supported one large-scale project for the prevention of dental diseases (see also appendix G, table 12).

124. According to the guideline, all new-borns should undergo a hearing examination, but only 97% of children underwent one in 2014. As such, 332 new-borns have not participated in this examination.

125. One component in maintaining the health of children is also timely vaccination according to the immunisation plan.⁷⁵ Based on the criteria of the World Health Organisation (WHO)⁷⁶, the share of immunisation of up to 2-year-olds in set for four vaccinations. These objectives have not been met by 0.5% in case of two vaccines (diphtheria, tetanus and poliomyelitis) and 1.5% in case of one vaccine (measles, mumps and rubella). Criteria have been met in case of pertussis vaccine.

126. At the same time, the share of vaccinating up to 1-year-olds among all children was slightly lower in 2014, i.e. on average 93–94%, depending on the vaccine.⁷⁷ The share of those refusing vaccinations has also increased in 2013–2014, being 1.9% to 3.5% in 2014, depending on the vaccine⁷⁸ (see more details on vaccinations in appendix R). While the share of vaccinations in Estonia is generally high, it is important to recognise that some children are vaccinated later than prescribed in the immunisation plan⁷⁹ (see more details in appendix M).

127. The Ministry of Social Affairs has recognised that a small number of pre-school children undergo medical examinations. The Ministry has considered the option of tying the payment of family allowances to undergoing medical examination, but this idea has been abandoned, because analyses reveal that this may not bring about the result aimed for. A draft legislation for automatically including new-borns in the list of the family physician has been prepared. The deadline for performing thereof is currently the third quarter of 2017. No more considerable activities have been carried out.

128. Within the context of the quality system of family physicians, the Estonian Health Insurance Fund is assessing the share of undergoing medical examinations among children in certain age groups (0–2 and 6–7-year-olds)⁸⁰. The results of the analysis confirmed that children undergo these medical examinations the most.

129. In the opinion of the National Audit Office of Estonia, the share of undergoing medical examinations is small, because less than 4% of 3–6-year-old pre-school children underwent a medical examination of a family physician or nurse according to the guideline during a period of

⁷⁵ Minister of Social Affairs regulation no. 2 “Immunisation plan” of 8 January 2014

⁷⁶ WHO Global Vaccine Action Plan, 2011–2020.

http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en/.

⁷⁷ In comparison, on average 97–98% in Finland, on average 92% in Latvia.

⁷⁸ Based on the report of complying with the immunisation plan

⁷⁹ One reason is that vaccinations are not carried out during illnesses.

⁸⁰ The Estonian Health Insurance Fund is monitoring in the quality system of family physicians how up to 2-year-old children undergo medical examinations and how 6–7-year-old children undergo pre-school medical examinations.

three years. The share of undergoing medical examinations both at the appointment of a family physician and at the appointment of an ophthalmologist and a dentist is small at every age. The Ministry of Social Affairs has not been able to make neither parents nor family physicians aware of the need of medical examinations, because a considerable number of children only undergo medical examinations in those years that serve as indicators of the quality system of family physicians. Additionally, participating in medical examinations at the appointment of a family physician or nurse varied by regions and nationalities. Undergoing medical examinations is, however, one of the main methods of preventing or early discovery of illnesses. The share of vaccinations is high, but the number of those refusing vaccinations has increased, which is why targeted outreach is becoming increasingly more important.

130. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund:

- Analyse whether the current frequency of undergoing medical examinations is justified. Requirement for children to undergo medical examinations too frequently may be burdensome for the parents and the health care system and may not ensure cost-effective discovery of illnesses.

Response of the chairman of the board of the Estonian Health Insurance Fund: The frequency and relevancy of medical examinations for children is also reviewed in the process of updating the aforementioned guideline for the medical examinations of children.

Response of the Minister of Health and Labour: The frequency of medical examinations is reviewed in the course of updating the guideline for medical examination of children up to 18 years of age.

- Improve awareness among parents of the necessity of medical examinations and, among others, implement a notification system based on mobile and e-solutions for promoting undergoing medical examinations and involve a child protection specialist in determining the causes and resolving the problem in case of continuous failure to adhere to notifications.

Response of the Minister of Health and Labour: We agree that awareness among parents of the need for medical examinations has to be improved. Respective outreach for both parents and health care professionals is also planned as an implementation activity of the aforementioned guideline for medical examinations. Although the implementation plan has not been completed yet, it is already possible to consider using existing information technological solutions to raise awareness among parents.

On the basis of the applicable Child Protection Act, all persons who have information about a child in need of assistance must notify the local government thereof. If the family physician is unable to reach the parent or a child is not taken to the doctor, the situation is handled as a case of a potential child in need of assistance and the family physician is obligated to contact a child protection official. In order to improve information exchange between family physicians and child protection officials, the

Ministry of Social Affairs is planning to develop a medical examination-based monitoring system for 0–6-year-old children in 2017 and within the context thereof supplement the existing area-specific information technological applications (incl. STAR, Health Information System, etc.).

Response of the chairman of the board of the Estonian Health

Insurance Fund: We agree that it is important to raise awareness among parents of the need for medical examinations. In order to raise awareness, we have published the topics of medical examinations on the health websites of the Estonian Health Insurance Fund and have included these in various publications concerning the healthy development of children that parents usually receive from the family physician.

In the coming years, we will continue to contribute to these activities by updating the formats of publications and ensure the availability of publications to the target group.

- Monitor the changes in undergoing medical examinations in time by creating respective e-solutions for family physicians.

Response of the chairman of the board of the Estonian Health

Insurance Fund: We are planning to supplement the data with school information in order to interface school health care services, but in stage II of the development, because the legal area – Statutes of the Health Information System – has to be amended first in order to request data from the Estonian Education Information System.

Response of the Minister of Health and Labour: We agree with the recommendation. It is possible to start monitoring the share of undergoing medical examinations among children on the basis of data submitted by the health information system in 2017 when the required development is completed in the statistics module of the health information system. Within the framework of the eHealth strategy, we are planning to update the information systems of family physicians, which would enable monitoring the treatment and health indicators of people in time.

- Develop a programme in the course of which parents are informed of the necessity of vaccinations and medical examinations, also taking regional peculiarities into consideration, incl. improve the availability of information.

Response of the Minister of Health and Labour: We agree with the recommendation. A taskforce for notifying of infectious diseases that, among others, engages in planning and coordinating outreach on immunisation has been established next to the Ministry of Social Affairs. The budget of the Ministry of Social Affairs also prescribes funds for outreach on immunisations, and in 2016 we have entered into a contract for carrying out immunisation lectures in family schools.

The priorities for this year include ordering the first edition and a Russian translation of the communication guideline for vaccinations *Räägime laste kaitsmisest* (*Let's Talk About Protecting Children*) and updating the website on vaccinations www.vaktsineeri.ee. We take regional peculiarities into consideration and have translated several materials that we have prepared into Russian, including the www.vaktsineeri.ee website. The Estonian Health Insurance Fund is also planning on printing

more health journals for students and the publication *Me saame lapse* (*We're Having A Baby*), which both also include the topic of vaccinations. The Estonian Health Insurance Fund continues to have the opportunity to include the topics of immunisation on health websites (six times a year, incl. in the Russian publication *Põhjarannik*). In addition to the outreach and educational activity of the Estonian Health Insurance Fund, we are also planning outreach concerning the necessity of medical examinations as one activity of the implementation plan of the guideline for medical examinations of children.

This summer, a vaccinations record was completed in the patient portal. Health care providers have been given a transition period of approximately one year to adopt the respective standard. As such, the patient will have an overview in the patient portal of vaccinations given to him/her as of the summer of 2017, incl. parents will be able to see the vaccinations given to their children. Developing an automatic notification system (vaccination reminder) is planned as a follow-up development.

Response of the chairman of the board of the Estonian Health Insurance Fund:

After the statistics module being developed by the Ministry of Social Affairs has been completed, it is possible to gather statistics through health notifications sent through the health information system that both school nurses and family physicians are sending, and the likelihood of covering all children is higher. The module will be interfaced with the Estonian Education Information System, but until such time, grade-based reports on health statuses will continue to be delivered to the Estonian Health Insurance Fund.

- Consider whether the family physician could start carrying out eyesight examinations according to the guideline and offer relevant training programmes to family physicians beforehand.

Response of the Minister of Health and Labour: Matters concerning the eyesight of children are also reviewed in the course of updating the guideline for medical examinations of children up to 18 years of age. Ophthalmologists have already submitted and explained proposals to the taskforce of the guideline requesting that the initial eyesight examination and determining the visual acuity is carried out by family physicians/nurses in the future and that children exhibiting declining visual acuity are referred to a paediatric ophthalmologist. The Estonian Society of Family Physicians will take on matters associated with the respective training programme and outreach. Ophthalmologists have expressed their preparedness to contribute to the respective training programme.

Response of the chairman of the board of the Estonian Health Insurance Fund:

Under the leadership of the Ministry of Social Affairs, eyesight examinations for children to be carried out by a family physician are addressed in the course of updating the guideline for medical examinations of children.

Required systematic changes to improve the health of children

Accurate data is necessary for the strategic management of the area

131. In 2009, the Ministry of Social Affairs raised an issue in the NHP, according to which aggregate health statistics routinely collected with regard to children and youths did not enable getting an overview of their health status by different characteristics (level of education, socio-economic situation, nationality). As a result, it was not possible to plan preventive activities for children and youths.

132. Due to the aforementioned, the National Audit Office of Estonia presumed that by 2016, the state will routinely collect health statistics with regard to children and youths that would enable getting an overview by different target groups and use the information in planning preventive activities and health services.

133. The audit revealed that the situation has not changed to date: although the state has the statistics of deaths and births and incidence cases, it does not have an overview of the health of children by different target and age groups.⁸¹ Incidence cases cannot be considered an adequate dataset for planning health care and prevention, because one person with the same case may be registered with more than one service provider or a recurring incident cases are registered as incident cases every time. Both the main diagnoses and accompanying diagnoses are also recorded, which is why it is possible that illnesses are registered several times.

134. In 2009–2012, the action plans of the NHP included the clear objective of the Ministry of Social Affairs to develop a central health information system that would enable planning both health promotion, prevention of illnesses and health services based on health data of children collected together in one location. As of 2013, this objective is no longer included in the action plan of the NHP and no uniformly operating health information system is available to date. The Ministry of Social Affairs is also aware of the problem and has admitted that, for example, the majority of health care providers do not submit data to the health information system.

135. In the opinion of the National Audit Office of Estonia, the Ministry of Social Affairs has, to this date, not contributed enough to the organisation and creation of a necessary health dataset that serves as a basis for planning activities. Managing and improving the area of the health of children requires a more accurate input in order to respond quickly and timely also in a situation where the so-called lifestyle diseases are increasingly prevalent.

Availability of data for the planning of measures

⁸¹ According to the Ministry of Social Affairs, a survey with personalised data has been carried out in the spring of 2016 in order to get an overview of all first-grade children in Estonia. It was a pilot survey with the following survey planned to take place in three years' time.

Information flow between different specialists and parents must be improved and the awareness must be raised among parents

136. Preventing diseases and discovering health disorders quicker requires information exchange to be established so that it supports communication between different specialists and also parents. As a result, information about a discovered health problem should reach the necessary specialists. Information exchange presumes the preparedness and ability of different parties for communication.

137. The National Audit Office of Estonia presumed that information exchange is established so that it supports communication between different specialists and also parents and assessed information flow on the basis of both various analyses⁸² and responses to the online survey of school nurses.

Flow of health information regarding the child between specialists and parents

138. Online survey of school nurses revealed that 70% of school nurses always notified the parents of discoveries concerning the health of the child.⁸³ As such, not all parents are able to receive feedback concerning the medical examinations of their child carried out in school. The Ministry of Social Affairs has also confirmed the existence of the problem.

139. In addition to the parent, it is important to share information with regard to monitoring the health of the child also with the family physician. In order to monitor the health of a child more successfully, it is important for school nurses to know which decisions the family physician has made in the course of treatment. The results indicated that only 55% school nurses have received feedback from the parent regarding the decisions or examinations of the family physician. At the same time, it is important that the information flow is operative and enables immediate intervention in case of noticing a health disorder. For example, in certain cases patients had the first symptoms already in the kindergarten, but this information never made it to the school. Additionally, the schools did not know how to inform the parents of their suspicions regarding the attention deficit hyperactivity disorder affecting the child.

140. According to the survey, 50% of school nurses sometimes communicate with the family physician in connection with the health problems affecting the child, while 8.6% of school nurses never communicated with the family physician and 40.4% always or mostly communicated with the family physician (see also appendix N). It was also revealed that 46% of school nurses sometimes communicated with a medical specialist. School nurses are not obligated to communicate with doctors, but information exchange helps to both assess the health status of the child and provide care if necessary. Even more so because an increasingly high number of children suffering from chronic diseases are studying in a regular school. One consequence of poor information flow may be that only half of the children referred by a school nurse actually make it to an appointment of a doctor (see cl 85–88).

Using the health information system

141. 69% of school nurses can always or sometimes see information about children in the health information system, and only 57% of school nurses

⁸² Expert analysis, report of school nurses

⁸³ Only 42% of school nurses that did not notify the parents entered a summary of the health status in the health information system.

can always or sometimes submit information themselves (see appendix N). In 2014, school nurses did not have internet connection that is a prerequisite for it in 19% of schools.⁸⁴ According to the data of the online survey, many school nurses highlight various problems with the health information system: lack of data on vaccinations, nonconformity between systems, for example epicrisis becoming illegible. Health information systems have also been established so that the state does not have information on whether and to which degree entered epicrisis are actually viewed.⁸⁵

Information exchange with support specialists

142. Not all school nurses communicate with other support specialists even if there is a need to do so. 48% of school nurses that filled in the online survey always communicated with a speech therapist or psychologist if there was a need to do so. 69% of the respondents communicated with a social worker if there was a need to do so (see appendix N).

143. Additionally, the Ministry of Social Affairs has not drawn up specific guidelines on how the school, child protection official of the residence and the health care provider should cooperate with families who are not capable of complying with the treatment schedule for a child with attention deficit hyperactivity disorder themselves. The Ministry of Social Affairs finds that there are no clear guidelines on how the cooperation should take place in case of other diseases (obesity, eating disorders, diabetes, depression) either.

144. In the opinion of the National Audit Office of Estonia, division of responsibility between different parties with regard to monitoring the health of children continues to be unclear, because children do not make it to a medical examination and, at the same time, information does not flow between specialists regarding whether the child underwent a medical examination and what where the findings concerning the child's health. Inadequate flow of information does not enable discovering health disorders in time and referring the child to a specialist.

145. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour: develop the health information system so that the providers of health services could use or exchange data regarding the results of medical examinations and treatment prescribed for the children; and ensure access to the health information system to school nurses that don't have access yet.

Response of the Minister of Health and Labour: Providers of health services can already use the health information system. The problem is that the providers of health services do not enter data in the health information system. To correct this, we are separately working on increasing data acquisition.

School nurses have both the legal and technical access to the health information system. When providing a service, they also have the obligation to submit notices (growth notice, examination notice), immunisation data and epicrisis to the health information system. Preparing a roadmap for data quality is in progress in 2016 within the

⁸⁴ Based on the reports of school nurses

⁸⁵ The problems with eHealth are available in more detail in the 2014 audit "Activity of the state upon implementing eHealth" of the National Audit Office of Estonia.

framework of the focus area 1 – high quality health data and data infrastructure – of the eHealth strategy. Following the completion thereof, specific activities are planned for 2017–2019.

Maintaining the health of children requires systematic management

146. The National Audit Office of Estonia presumed that a comprehensive analysis preceded the activities being carried out in the area of the health of children and that the strategy of the completed health promotional activities has been selected on the basis of the nature of problems requiring a solution and that it is supported by the continuous funding of health promotion.

147. The state has taken the direction to ensure that the providers of primary medical care (family physicians and nurses) could substitute the general paediatrician. Considering the observations made as a result of the audit with regard to noticing and treatment of various diseases, however, the whole primary medical care may not be ready for it and, in that case, children would be the ones to suffer.⁸⁶

148. At the same time, attention has to be paid to the fact that in 2013, six paediatrics per 10,000 children (see also appendix H) were working in Estonia, and this number is smaller in comparison to several other European countries. In the event that the state continues in this direction, there will be even fewer doctors specialised on the health of children. Children living outside Harju, Tartu, Pärnu and Ida-Viru County are the most at risk when it comes to missing out on high quality care.

149. The National Audit Office of Estonia is of the opinion that comprehensive analyses should be carried out before implementing the planned changes. The analyses should also account for the prevailing situation in the state where, for example, even the care of support specialists for special educational needs is not available to all children (see cl 41–42 and table 3).

150. Various **interventions** are used to achieve the objectives of health promotion. With regard to interventions, it is important that the new environment to be created is sustainable and the created impact can be sustained also once the intervention activities cease. The intervention activities can be divided into four levels on the basis of parties included in intervention activities and creating interventions: interventions based on changing the behaviour of an individual, changes to the organisation, changes to the community, and institutional change. See the description of levels in appendix O.

151. Health promotional activities and interventions provided in the activity reports of the NHP reveal that at the moment, the majority of those are aimed at the level of an individual, focusing on distributing information and educating in order to promote changes in the behaviour, attitude and beliefs of an individual. Such activities include, for example, street campaigns for raising awareness on the topic of alcohol, tobacco and the importance of physical activity and balanced diet, also online environments established for distributing health information.

⁸⁶ On the basis of an interview conducted with the Estonian Paediatric Association and the results of an expert analysis

Location of general paediatricians in Estonia

For your information

Several positions of paediatricians are open in West-Estonia and Central-Estonia and there was not a single paediatrician, for example, in Hiiu County.

Source: analysis of the Estonian Paediatric Association in 2014

Interventions selected for health promotion

Intervention – activity aimed at promoting behaviour that maintains health and preventing behaviour that damages health. For example, interventions aimed at decreasing excessive consumption of alcohol include reducing production, increasing the price of alcohol and establishing an age limit.

Source: The National Institute for Health Development

152. In addition to activities on the level of an individual, the National Institute for Health Development had a role in leading several activities aimed at local governments such as preparing a methodology for drawing up and implementing health profiles. Additionally, the National Institute for Health Development has also prepared instruction manuals for drawing up local alcohol policy and preparing a training and counselling programme, the results of which are difficult to assess, however, because the project has only been carried out in three local governments. This is partially financed within the framework of programme "Public Health" of the Norwegian and European Economic Area, also from budgets of local governments and the National Institute for Health Development.

153. In order to achieve the results, interventions of several levels have to be carried out simultaneously and for the same objective. Activities of the level of an individual do not produce a result without involving other levels, because the will or skill of an individual to change his/her behaviour may not be enough to achieve a change. For this it is necessary for both the organisational (legislation) and institutional level (changing the mindset of legislators) to support the behaviour of an individual. Such approach should be implemented foremost in case of addressing the problems of alcohol consumption and unbalanced diet of children and youths.

154. Green Papers on alcohol and tobacco have been prepared under the leadership of the Ministry of Social Affairs⁸⁷, preparation of the Green Paper on nutrition and physical activity and also the document for the integrated concept of mental health is underway. All these could serve as supporting documents for activities involving all levels. At the same time, the Ministry of Social Affairs is admitting that there are often inadequate funds and desire of parties to move beyond the preparation of the Green Paper or to highlight more important problems among other problems that require resolution.

Achieving the results of health promotion

155. By carrying out interventions aimed at an individual in case of the health promotion of children, an early evidence-based intervention is the most important. Early interventions and activities involving several parties (e.g. local governments) have so far been led mostly by the National Institute for Health Development. Due to inadequate funds, however, interventions have mostly been project-based and few interventions have been financed by the state (interventions are described in appendix P).

156. The state cannot expect results in the improvement of the health of children upon the continuation of project-based interventions alone, because there is no opportunity to plan activities systematically and in the long-term or to continuously monitor the results. For example, the evidence-based programme *Imelised aastad (Wonderful Years)* for developing parental skills of parents that is currently being carried out with the help of foreign aid has shown good results and should continue with financing from the state budget.

157. In the opinion of the National Audit Office of Estonia, the current health promotion of children has not been adequately thought out, because several interventions have isolated activities aimed at the level of an individual on the level of the organisation, community and institution. It is very likely that such interventions do not bring about results in the

⁸⁷ See <https://www.sm.ee/et/tervislik-eluviis>.

improvement of the health of children. In case of project-based interventions that have been carried out under the leadership of the National Institute for Health Development, it is important to emphasise that evidence-based programmes require a consistent quality management programme (this means that the quality is the same both in time and in places where interventions are carried out) that include updating, directing and assessing interventions. In case of project-based interventions, however, we cannot talk about consistent quality management.

158. In summary, we can say that in consideration of the health problems affecting children provided in the NHP and activities (provided in the first chapter of the report) undertaken to resolve these, the state has not systematically managed the area of the health of children, and several important problems highlighted in 2009 are still unresolved.

159. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund: analyse whether primary medical care ensures that children receive medical care in all regions that is of at least the same quality if the positions of general paediatricians are eliminated.

Response of the Minister of Health and Labour: The positions of general paediatricians have not been eliminated. When making decision of health care policy, we address each county and hospital according to the regional needs and we involve all parties in making decisions. The Estonian Health Insurance Fund is financing paediatric care in county hospitals within the context of internal diseases without decreasing the service volume to be financed with regard to this specialty. This enables county hospitals organising the provision of service in a more flexible manner. Paediatrics is a separate contract line as of the central hospital level.

The Estonian Paediatric Association and the Estonian Society of Family Physicians is in the process of preparing a uniform statement of case in the treatment of children. This will serve as a basis for planning subsequent activities and analyses, incl. developing quality indicators.

The Estonian Health Insurance Fund has in cooperation with the Ministry of Social Affairs and professional associations proposed developing quality indicators associated with the health of children for family physicians. Relevant preparations are underway and the development of criteria can probably commence in 2017.

Response of the chairman of the board of the Estonian Health Insurance Fund: The task of health insurance is to ensure that insured persons have access to a fast and efficient package of primary medical care close to home that provides them with care and a solution by the family physician's team in case of the majority of health problems, irrespective of the residence, age and social background of the person.

The Estonian Health Insurance Fund develops and continuously monitors services offered to the insured persons, incl. children, and ensures equal access to the services. The Estonian Health Insurance Fund also cooperates with professional associations in order to provide paediatric care as primary medical care.

In case of developmental activities and changes, the Estonian Health Insurance Fund deems it important to base its activities on the world practices, maintaining the strengths of the existing system and considering the context, incl. the existing personnel resource, expectations of residents and the current principles of developing the health care system.

Family health care must be available to all nationality groups irrespective of the age, residence or social background.

The contracting capacity of the Health Insurance Fund is sufficient to ensure paediatric services in hospitals of the development plan for the hospital network.

160. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the director of the National Institute for Health Development:

- Simultaneously carry out interventions of different levels in order to resolve one specific problem. Interventions such as interventions aimed at excessive eating by children (both as health education lectures and street campaigns) should also include organisational changes (taxing product groups, prohibiting lifestyle advertising aimed at children) that require institutional changes (attitudes of respective specialists) to be carried out in order to increase the effectiveness thereof.
- With regard to existing interventions, establish a quality management system that would ensure that the interventions are timely and the necessary directing and assessing of results is carried out.
- Decide how to integrate effective interventions in regular practice (e.g. in case of the intervention of the behavioural skills game VEPA is effective, techniques used therein should also make their way to teacher training). (See description in appendix P.)
- Ensure the consistency of funding for effective interventions aimed at resolving the most important problems.

Response of the Minister of Health and Labour: We agree with the first recommendation. We are in the process of preparing a Green Paper on nutrition and physical activity. An overview of evidence-basis “Decreasing the consumption of beverages sweetened with sugar and health damage caused by thereof in Estonia” that focuses specifically on the health of children has been completed in cooperation with the WHO. In cooperation with the University of Tartu and the Ministry of Education and Research, we are testing the physical activity programme aimed at children *Liikuma kutsuv kool (School for Physical Activity)*.

We agree with the second recommendation. We can start implementing the provisions of the recommendation if funds are allocated.

We agree with the third recommendation and the response given to the recommendation by the National Institute for Health Development.

We agree with the fourth recommendation. We can operate according to the funds prescribed within the state budget. At the same time, we are continuing to look for funds from the state budget and opportunities to involve foreign funding.

Response of the director of the National Institute for Health

Development: With regard to the first clause, the Ministry of Social Affairs commenced the preparation of a Green Paper on nutrition and physical activity in 2016 that involves a broad range of different parties, incl. the National Institute for Health Development who has made a direct input to the development of measures specified by the National Audit Office of Estonia in the Green Paper on nutrition and physical activity. We cannot agree with the claim of the National Audit Office of Estonia that the current activities only involve health education lectures and street campaigns, because we have continuously also addressed, for example, the improvement of the quality of catering in kindergartens and schools, updating regulations with regard to thereof and notifying respective specialists in institutions. The National Institute for Health Development has also established an online in-service training programme on nutrition for health care professionals in the Centre for Continuing Education of the Institute of Clinical Medicine at the University of Tartu and standardised the process of certifying dieticians.

With regard to the second clause, the National Institute for Health Development has attempted to take this approach into consideration as much as possible in its activities, but it is important to ensure that tools for quality management are also always prescribed in case of subsequent funding of activities.

With regard to the third clause: Integrating the methodology of the behavioural skills game VEPA in teacher training is one of the objective of sustainable development of the National Institute of Health Development. We have engaged the representatives of education science from both the University of Tartu and Tallinn University in the VEPA teacher training at the start of 2015. The first guest lecture on the VEPA methodology aimed at teachers took place in spring 2016 at the University of Tartu. A more comprehensive subject Evidence-Based Practice and Intervention is commencing in spring 2017, within the context of which students get a more comprehensive overview of the methodology and importance of evidence-based programmes in education science. Negotiations are also underway with the continuing education department for teachers of the University of Tartu. One of the main obstacles for integrating the methodology in teacher training are the licences of the cooperation partner that are issued by the cooperation partner PAXIS for each trained teacher. The objective is, however, to also reach teacher training with the teaching of the methodology during the programme period funded by the ESiF.

With regard to the fourth clause, the National Institute for Health Development has planned its budget on the basis of the principle of ensuring consistency, but the realistic situation is that very many effective interventions are mainly financed through different projects.

/signed digitally/

Tarmo Olgo
Chief Auditor of the Performance Audit Department

Recommendations of the National Audit Office of Estonia and responses of the audited

On the basis of an audit, the National Audit Office of Estonia has presented several recommendations to the Minister of Health and Labour, Minister of Social Affairs, Minister of Education and Research, Minister of the Educations, chairman of the board of the Estonian Health Insurance Fund and the director of the National Institute for Health Development. The ministers and others submitted their responses to the recommendations of the National Audit Office of Estonia during the period from 19 September to 10 October 2016.

The following table provides a summary overview of the recommendations given and responses received. The left-hand column of the table provides the area that the recommendation is concerning, section number of the recommendation in the report, recommendation text and, finally, numbers of sections that address the topic that the recommendation is concerning. The column on the right provides comments of the audited regarding the recommendations given by the National Audit Office of Estonia.

General comments regarding the audit report	
Comments by the manager of the Agency for Lifelong Guidance of SA Innove: We agree with the recommendation of the National Audit Office of Estonia – medical, social and educational services must be and can be organised significantly better today for children. We are, however, drawing attention to the circumstance that the implementation of the integrated support services concept planned by the Ministry of Social Affairs, at least as far as it concerns the organisation of counselling support services, would be unreasonable and even harmful for the state in the long-term. The concept recognises the area of educational services inadequately and misleadingly, which is a serious problem because our surveys suggest that children require educational services four times as much as they require social services. More specifically, the role of educational support specialists is recognised inadequately in the description of services for pre-school children and younger school-aged children, it does not address the activities of Guidance Centres that serve approximately 100,000 clients per year; the concept claims that there is no information on the working methods of educational support specialists, opportunities for networking and performance indicators. The Ministry of Social Affairs ordered the analysis of services that serves as the basis for the document from the research company Private Waterhouse Coopers (PWC), the most important recommendations of which have not been taken into consideration and undertaken actions are even in conflict with thereof. For example, the concept does not address problems with how to improve data flow between different service providers, how to find the missing counselling specialists for special education needs for both schools and kindergartens and child protection specialists of the local government, and how to improve their qualification. Instead, the concept recommends increasing the number and obligations of child protection specialists of local governments. The PWC analysis published in 2013 recommended not establishing new centres and structures but instead contributing to the existing ones, but the Ministry of Social Affairs established mental health centres in 2015 and child protection units of the Estonian National Social Insurance Board were established in 2016 (child protection specialists with the same function are still operating in county governments). We are now in a situation where we have to think about how to integrate different centres again. In our opinion, the concept is not based on the needs of the client (i.e. the child) but rather on departmental interests, and this does not comply with the Competitiveness Plan 2020 that provides the following recommendation: "State authorities do not have to compete with one another for additional funds by inventing new duties for themselves." We have repeatedly highlighted the deficiencies in the context, but this has not been taken into consideration. In our opinion, the organisation of services must be thought through again according to the interests of children and it must be attempted to be taken to the level of coordination between institutions. The concept must be based on analyses that the Ministry of Social Affairs has already commissioned from research companies PWC and Centar, but also on surveys carried out in the area of educational and career counselling. We also believe that it is important to work on decreasing the lack of support specialists and improving their qualification and on interfacing databases offering different services.	

Recommendations of the National Audit Office of Estonia	Response of the audited
Implementation of an integrated services concept and maintaining the mental health of children 45. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund: Develop and implement an integrated service concept for monitoring the health of children and treating children, as part of	Response of the Minister of Health and Labour: We agree with the recommendation. Within the framework of constructing the infrastructure of primary medical care centres, we are also in the process of reviewing the general medical care management. One of the objectives is to better integrate family health care and school health care as primary medical care that is, essentially, primary medical care. The provision of integrated services to children is also addressed in the project "Preliminary analysis of integrating local health and social services

Recommendations of the National Audit Office of Estonia	Response of the audited
which family physician service, school health care services, specialised medical care, support services of counselling services for special educational needs and child protection are combined to form a functional and coordinated network.	and preparing an implementation plan for the pilot project" that is in the process of being prepared, because children are one of the most important target groups in the health care and social system. The objective of the project is to reorganise the provision of local health services and social services in a more human-centered manner. In the course of the project, a model for the provision of service is prepared on the example of health care and social service providers in Viljandi County, the implementation of which would 1) improve the coordination and consistency of local services; 2) ensure a convenient, logical and optimal access to necessary local services from the perspective of the person and more efficient opportunities for the provision of services from the perspective of the service provider on the basis of the opportunity to pool resources; 3) optimise the processes of providing various services while avoiding unimportant activities and duplication and unreasonable costs associated with thereof. According to the plans, the model and the plan for the test project will be completed in the spring of 2017, after which preparations can start for implementing the test project in the new health centre-hospital building in the centre of Viljandi. We have also prepared an integrated services concept for supporting the mental health of children. The main proposal of the concept is to offer standardised and integrated services across sectors and administrative levels to children and families with children in order to ensure effective help to the target group. In order to achieve the objective, we have in cooperation with partners launched several test projects (e.g. provision of integrated social, educational and health services to disabled children, organising child protection cases crossing different sectors, etc.). Response of the chairman of the board of the Estonian Health Insurance Fund: We completely agree with the recommendation that it is necessary to prepare and implement a concept of integrated and uniform services to monitor the health and treat children that comprises family health care, special medical care, school health care services and also ensures psychological help, support persons and social rehabilitation to families with children suffering from chronic diseases.
■ Consider giving an additional task to the family physician that obligates the family physician to observe that the child receives all the necessary services and, if necessary, inform and advise the parent in doing so, at the same time ensuring that expenses accompanying the additional task incurred by the family physician are covered.	Response of the Minister of Health and Labour: Health care professionals already have the task of observing the receipt of services necessary due to the health status of a child, because it is a natural part of the so-called treatment plan. So far, however, one of the shortcomings has been the fact that there are parents who do not submit an application to include their child in the register of a family physician, which is why a family physician may not have information about all the children living his his/her service area. To resolve the problem, the Ministry of Social Affairs in cooperation with relevant parties has prepared a draft amendment of the Health Services Organisation Act, which regulates that a newborn is automatically registered in the register of a family physician. As a result, family physicians will receive timely information about the child added to their register whose health they will have to monitor according to the preventive medical examination plan for 0–18-year-old children provided in appendix to the Minister of Social Affairs regulation no. 2 "Work instruction of the family physician and health care professionals working with the family physician" of 6 January 2010. The respective amendment is planned to enter into force on 1 January 2017. Guideline for medical examination of children up to 18 years of age is also being updated. In the course of thereof, provisions on when, with whom and how often the medical examination of a child should take place and who exactly has to do what are also reviewed. We find that the counselling and outreach within one's competency is included among the duties of each health care professional, this is not extra work and does not presume additional funding. Response of the chairman of the board of the Estonian Health Insurance Fund: Updating the guideline for medical examinations of children is underway under the leadership of the Ministry of Social Affairs, and it is planned to be completed by the end of 2016. The guideline addresses carrying out a medical examination of 0–18-year-old children on uniform grounds and the objective thereof is to monitor the development of children and ensure medical care to the child through the early discovery of health and developmental disorders. The Estonian Health Insurance Fund is participating in the work of the working group and is taking the proposals arising from updating the guideline for medical examinations of children into

Recommendations of the National Audit Office of Estonia	Response of the audited
Decide whether to raise awareness among providers of primary medical care and providers of school health care services with regard to mental health. One of the options available to the Estonian Health Insurance Fund is to commence preparing national treatment guidelines and updating existing ones, also giving out information materials and organising training programmes/information days.	account in updating health services. It is also planned to update the code of conduct of school nurses after the updated principles of medical examinations of children have been completed. Response of the Minister of Health and Labour: We agree with the recommendation to raise awareness regarding mental health. The guideline for medical examination of children up to 18 years of age that is presently being updated also addresses the field of mental health. Activities associated with information materials and outreach is one of the implementation activities included in the guideline. Regional mental health centres for children and mental health offices for children have been established in Ida-Viru County and South-Estonia within the framework of Norwegian grants in order to raise awareness regarding the mental health of children. Mental health centres for children have, among others, trained specialists in affiliated fields (primary medical care, social and educational sector) and offered supervision in order to cope with complicated cases and thereby made the cooperation between fields more efficient. In order to ensure the consistency of what has been developed, the Estonian Psychiatric Association has submitted an application to the Estonian Health Insurance Fund to add a new service "Out-patient consultation of a child psychiatric team of mental health for a person up to 19 years of age (two members in the team: mental health nurse and social worker or mental health nurse and psychologist)" to the list of health services. We believe that adding the service to the list of health services is absolutely necessary and are supporting it. Within the framework of integrated services concept, a curriculum has been prepared for specialists working with children. It is currently being trialled in two regions. The anticipated results include an increased and harmonised awareness of the needs of the child and risks associated with mental health among all specialists and improved networking. The training programme is carried out in cooperation with experts of mental health centres for children. If the test project is successful, the training programme could be offered to all local governments. We are also supporting the recommendation that the Estonian Health Insurance Fund continues to prepare national treatment manuals and update existing ones and gives out information materials and organises training programmes and information days.
Amend the guideline for medical examinations and school health card form so that it would also list important mental health areas and include prepared tests or screening methods that the school doctor and the family physician could use. cl-s 26–40	Response of the Minister of Health and Labour: As mentioned above, the guideline for medical examination of children up to 18 years of age is being updated, and it is being supplemented with provisions concerning mental health (incl. evidence-based intervention). After the guideline is completed, it is possible to review and update the data fields of the health card. We would also like to note that the guideline being updated includes recommendations for implementing screening tests according to the experiences of other countries and results of scientific research for early discovery of mental health problems affecting children. Response of the chairman of the board of the Estonian Health Insurance Fund: In order to support the mental health of a child suffering from a chronic illness, the Estonian Health Insurance Fund has in cooperation of the National Institute for Health Development had a project "Health promotion in the kindergarten and school" since 2013, which will also continue in 2017. Mental health centres for children have been established next to Ida-Viru Central Hospital, SA Tallinn Children's Hospital, SA Mustamäe Children's Hospital and Pärnu Hospital and the Tartu University Clinic in order to develop and support the mental health of children. Additionally, the children's department of the Psychiatry Clinic of Tartu University Clinic has carried out a project "Establishing a mental health centre for South-Estonian children and youth". The activities of the project include: 1) opening mental health offices for children and youths next to hospitals in South-Estonia, Põlva and Valga; 2) building a 12-bed in-patient ward unit for youths in the Psychiatry Clinic of Tartu University Clinic; 3) training staff; 4) promoting networking between different sectors; 5) planning and carrying out preventive activities; 6) introducing the work of mental health centres to the public at large; 7) carrying out studies to plan future work more effectively. We agree with the recommendation to amend the guideline for medical examinations and school health card form so that it would also list important mental health areas and include prepared tests or screening methods that the school doctor and the family physician could use. At the same time, we

Recommendations of the National Audit Office of Estonia	Response of the audited
	are drawing attention to the fact that these must be nationally coordinated developmental activities.
Ensuring educational counselling services for children 46. Recommendations of the National Audit Office of Estonia to the Minister of Education and Research: implement minimum requirements for the number of counselling specialists for special education needs in schools and for the training thereof; instruct school owners (mostly local governments) to bring support specialists together under the management of the local government. It would enable to, on the one side, get a comprehensive overview of the needs of schools in the area and, on the other side, an overview of the capability to meet these needs; thereby ensure national supervision of the way that the school owner ensures the availability of support services. As a result, it would be possible to flexibly serve all educational institutions in the area according to the needs. cl-s 41–43	Response of the Minister of Education and Research: Support services must be offered to the children, youths and families thereof as needed. Because the needs of the target group vary greatly in terms of both the intensity and volume of implementing the measure and there are also great differences in the need for services in different areas, we do not believe it to be justified to establish minimum requirements in legislations for the number of specialists in educational institutions. However, local governments together with Guidance Centres must analyse the needs of a specific local government by the volume of services offered by different specialists and ensure the availability of the necessary support services. Owners of educational institutions have been proposed at roundtables organised in counties to consolidate primary medical care specialists at the level of the local government and share support specialists between different educational institutions, which would enable offering the service in a more flexible and needs-based manner. This would also improve information flow between specialists, decrease duplication in their activities and enable implementing necessary support and intervention measures more quickly. The performance of requirements established with all legislations, including requirements for the provision of support services, are currently being audited within the context of state supervision. It is possible to pay separate attention to this area within the context of thematic supervision, and we are considering it upon establishing priorities of supervision for the next academic years.
Health promotional interventions for controlling obesity 59. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour: analyse which organisation-based and individual-based interventions and combinations thereof are the most effective in reducing the number of overweight children and preventing more from becoming overweight; and carry out suitable interventions based on the results. cl-s 47, 53–54	Response of the Minister of Health and Labour: Measures preventing the excess weight of children are being addressed in the Green Paper on nutrition and physical activity, the preparation of which is in its final stage, that is planned to be submitted to the Government of the Republic in March 2017. An overview of evidence-basis "Decreasing the consumption of beverages sweetened with sugar and health damage caused by thereof in Estonia" that focuses specifically on the health of children has been completed in cooperation with the WHO. The overview was submitted to the Government of the Republic on 29 September 2016.
Activities increasing the physical activity of children in educational institutions 60. Recommendation of the National Audit Office of Estonia to the Minister of Education and Research: include activities that require increased physical activity in the curriculum of the school and kindergarten based on the results of the pilot projects. cl-s 55–57	Response of the Minister of Education and Research: Physical activity, incl. activities requiring physical activity, are described in the national curriculum of a pre-school child care institution. Instruction manuals are prepared on the basis of the results of the pilot project to implement national curriculums of general education schools, which are used to launch activities that increase the physical activity of children in schools: active recesses that enable exercising and physically active playing, also physical activity breaks and developing active learning methods in lessons; environment promoting physical activity is being developed both indoors and outdoors in schools. The syllabus of physical education is updated in the course of preparing national curriculums to make it into a timely physical activity education.
Treatment guideline for the obese 61. Recommendation of the National Audit Office of Estonia to the chairman of the board of the Estonian Health Insurance Fund: initiate the preparation of a treatment guideline for treating obese children. cl 53	Response of the chairman of the board of the Estonian Health Insurance Fund: We support the recommendation with regard to preparing treatment guidelines. As a financier of treatment, we are explaining that the Estonian Health Insurance Fund has a coordinating role in the area of treatment guidelines in Estonia. We consider treatment guidelines to be very important in ensuring the quality of the treatment, and we are essentially the only one that finances the preparation of treatment guidelines. The process of approving and preparing treatment guidelines itself, however, is significantly broader. The basis of preparing treatment guidelines is a respective methodology prepared in the cooperation of the WHO, University of Tartu and the Estonian Health Insurance Fund. The topics of new treatment guidelines that the Estonian Health Insurance Fund is financing are selected according to the submitted documents once a year. Medical professional societies or other associations can also prepare treatment guidelines on topics they consider to be important and these are also approved in the Treatment Guidelines Council if the methodology of

Recommendations of the National Audit Office of Estonia	Response of the audited
	preparing treatment guidelines has been adhered to upon preparing thereof (see the manual for preparing treatment guidelines http://www.ravijuhend.ee/koostajale/kasiraamat/). The Estonian Health Insurance Fund is considering making proposals to the Treatment Guidelines Council for preparing a respective treatment guideline as an option.
Raising awareness among parents 74. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour the Minister of Social Protection in cooperation with the chairman of the board of the Estonian Health Insurance Fund: ■ Raise awareness among parents and improve their skills to recognise different symptoms with continuous parental education programmes, because the main causes of hospitalisation are failure to comply with the treatment plan, unhealthy lifestyle and poorer health awareness among parents. This may mean that parents do not notice that their child has a health problem and/or do not know in time that they have to turn to a specialist with the child.	Response of the Minister of Health and Labour and the Minister of Social Protection: Integrated services concept includes a proposal for raising health awareness among parents – offer a parental school to parents of different age groups. It is possible to nationally harmonise the content of parental schools (e.g. infant school), but this can be organised in the cooperation of the local government and new health centres, e.g. group counselling sessions of midwives or parental school at kindergartens. The key issue is reaching those parents whose awareness level is low and whose options are limited. Versatile cooperation, motivating parents and creating necessary conditions should be a national development activity in the coming years. We are continuing to support the contribution of the Estonian Health Insurance Fund into updating information materials and ensuring the availability of publications to the target group. Response of the chairman of the board of the Estonian Health Insurance Fund: We agree that it is important to raise awareness among parents of the need for medical examinations. In order to raise awareness, we have published the topics of medical examinations on the health websites of the Estonian Health Insurance Fund and have included these in various publications concerning the healthy development of children that parents usually receive from the family physician. In the coming years, we will continue to contribute to these activities by updating the formats of publications and ensure the availability of publications to the target group.
■ Develop an integrated services concept upon treating and monitoring the health of children, the implementation of which ensures psychological help, support persons and social rehabilitation for families with children affected by chronic illnesses (see also subchapter “Children with eating disorders and attention deficit hyperactivity disorders receiving hospital treatment have not received medical care at the right time” and recommendation in cl 45). cl-s 66–71	Response of the Minister of Health and Labour and the Minister of Social Protection: Organising social services (incl. psychological help and service of a support person) for children in need (who may also include children suffering from chronic diseases) and their families continues to be the duty of local governments. As such, the local government is obligated to assess the need for assistance of a child and, if necessary, organise network-based case management. This cooperation must include areas according to in which area of well-being of a child (list in the Child Protection Act) and to which extent the deficiency has been identified. In order to ensure the provision of a social rehabilitation service to children in great need, we are in the process of preparing several changes, e.g. integrating services to be provided to disabled children in the education and social sector and also in the health care sector to as great a degree as possible. Response of the chairman of the board of the Estonian Health Insurance Fund: We completely agree with the recommendation that it is necessary to prepare and implement a concept of integrated and uniform services to monitor the health and treat children that comprises family health care, special medical care, school health care services and also ensures psychological help, support persons and social rehabilitation to families with children suffering from chronic diseases. The integrated services concept can function in cooperation of all relevant parties and under the leadership of the Ministry.
Reducing environmental impacts on the health of children 75. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the Minister of the Environment: ■ Also consider the health impacts caused by the industry in the course of preparing the methodology of determining the monetary value of external impacts (negative impacts	Response of the Minister of Health and Labour: We agree with the recommendation. In cooperation with the Ministry of the Environment, we have planned relevant activities for the implementation plan “National development plan of using oil shale 2016–2030”. The following activities have been planned for in the “National development plan of using oil shale 2016–2030”: 1) developing and launching a national screening programme for diagnosing childhood asthma and other allergy diseases to a better degree in Ida-Viru County (2017–2018); 2) study of drinking water from public water supplies extracting water from the Ordovician and Quaternary aquifers with regard to potential chemicals from the oil shale industry (2018); 3) additional study of water quality of individual

Recommendations of the National Audit Office of Estonia	Response of the audited
of exploitation of environment on the society). Foremost pay attention to the impact of fine particles and odoriferous substances on the health of people. Develop and launch a national screening test programme for diagnosing asthma and other allergy diseases occurring in childhood in Ida-Viru County and Lääne-Viru County to a better degree and develop preventive measures to avoid the negative impact arising from the oil shale industry and other industries on health. cl-s 64–65	bore wells and shaft wells (2018); 4) carrying out biomonitoring among the population (workers and residents) coming into contact with the oil shale sector, first stage – determining biomarkers (2017–2018); 5) study of the data of the birth registry of children (comparison of the birth indicators of children born in different regions of Ida-Viru County with the data of children from other Estonian regions) and survey regarding their contact with pollution from the oil shale sector (2017–2019). These activities are planned to be carried out through the Health Board and financed by the Environmental Investment Centre. The Health Board has previously (2014–2015) in cooperation with the University of Tartu organised a survey of health impacts of the oil shale sector in Ida-Viru County and Lääne-Viru County, the objective of which was to determine the impacts accompanying the mining of oil shale on the health of the population. Response of the Minister of the Environment: I agree with the recommendation and confirm that we are taking the impact on health caused by the industry into consideration upon determining the monetary value of external impacts and will pay particular attention on the impact of fine particles and other important pollutants that endanger the life of people. It is also necessary to establish measures for alleviating and preventing the negative effect arising from the oil shale industry and other industries on the health of people in cooperation with the Minister of Health and Labour. Riigikogu approved the “National development plan of using oil shale 2016–2030” with its resolution of 16 March 2016. The development plan includes measure 2.3. “Alleviating the impact caused by the oil shale industry on the society (impact on the health of a person and social impact)”, for the performance of which health indicators are being monitored in Ida-Viru County and the assessment of negative social impact (incl. impact on the health of a person) caused by mining and processing oil shale and the option for reducing thereof is being planned. The Ministry of Social Affairs is responsible for the activity, and co-responsibility lies with the Ministry of the Environment.
Raising awareness of chronic illnesses among teachers 76. Recommendation of the National Audit Office of Estonia to the Minister of Education and Research: ensure the skills and knowledge of school and kindergarten teachers necessary for dealing with children suffering from chronic illnesses. In order to do this, develop and integrate training for noticing and dealing with children suffering from chronic illnesses in the teacher training programmes. cl-s 71–72	Response of the Minister of Education and Research: Teacher training curriculums include education for supporting the health of children and children with special needs. Teachers are offered opportunities to participate in in-service training with help from the Ministry of Education and Research. Supporting children with special needs, incl. health problems, is one of the priorities of in-service training.
Financing school health care services 102. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund: amend the organisation of financing school health care services so that the lack of school nurses decreases and school health care services are ensured to all children; ensure through training school nurses and updating school health care manuals that the content of the service is similar irrespective of the region where the child lives; and at the same time determine the content and regularity of the supervision of school health care services. cl-s 82–84	Response of the Minister of Health and Labour: Within the framework of constructing the infrastructure of primary medical care centres, we are in the process of reviewing the general medical care management. We are planning to better integrate family health care and school health care services as primary medical care. In order to ensure a uniform content of the service, the Minister of Social Affairs regulation no. 54 “Activities of a nurse providing school health care services and requirements for the time, volume, availability and location of the activities of the nurse” of 13 August 2010 describes the activities of the school nurse in detail. Code of conduct of school health care services completed in the cooperation of the Estonian Health Insurance Fund and the Estonian Association of Nurses also describes the content of the service and provides instructions for the provision of service. Both the Ministry of Social Affairs and the Estonian Health Insurance Fund agree that the existing manual needs to be updated, and it is planned to do so in connection with updating the guideline for medication examinations of up to 18-year-old children. We agree that training programmes for school nurses are necessary. We are planning the respective training programmes as an implementation activity of the aforementioned guideline. We consider the Estonian Health Insurance Fund (EHIF) to be an important partner in raising awareness whose continuous activity is preparing and distributing relevant information materials and raising awareness among persons associated with health service and providers of health service. EHIF has also planned within the framework of its

Recommendations of the National Audit Office of Estonia	Response of the audited
	development plan 2017–2020 to continue developing the expanded primary medical care package, among other in the area of mental health services and school health care, in 2017. In the context of the availability of service, the EHIF is supporting the maximum coverage of school health care services, among others by updating contractual terms if necessary. In terms of supervision, pursuant to section 88 of the Basic Schools and Upper Secondary Schools Act, the Health Board exercises administrative supervision over the provision of school health care services within the limits of its competence. Supervision in connection with contractual partners of school health care services is carried out by the Estonian Health Insurance Fund. Insofar as several issues have arisen in connection with the provision of school health care services, we have suggested to the EHIF to review its price of school health care services and principles of entering into contracts, which concurrently enables reviewing the requirements associated with the provision of service if necessary. Response of the chairman of the board of the Estonian Health Insurance Fund: It is extremely important to ensure the availability of school health care services to all children. We confirm that the contractual terms are the same for all service providers. In the opinion of the Estonian Health Insurance Fund, price formation of school health care services alone is not enough to ensure school health care services and decrease the deficit of school nurses. The methodology of price formation ensures the availability of service irrespective of the region where the child lives.
Ensuring the availability of school health care services and information exchange 103. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour: - Initiate a draft amendment in order to support the process of finding a school nurse for small schools, as a result of which the service provider does not have to pay the full state fee for each place of business, or amend the procedure of granting an activity licence so that only the payment of a one-time state levy is required for different places of business. - Improve the opportunities of using the health information system across Estonia in order to increase information exchange between different providers of health service. cl-s 78–81, 85–88, 95–97	Response of the Minister of Health and Labour: In connection with reviewing the organisation of the planned health centres and general medical care, we are planning to better integrate family health care and school health care services as primary medical care. Within the framework thereof, it is possible to also review matters concerning the activity licence of school health care services if necessary. According to the Health Services Organisation Act, providers of health service (incl. school health care services) are obligated to document their activity. They are also obligated to forward data to the health information system (HIS) according to the Minister of Social Affairs regulation no. 53 "Compositions of the data of documents to be forwarded to the Health Information System and the conditions and procedure for the preservation of thereof" of 17 September 2008. It has not been regulated at the level of the legislation which computer program the health care provider should use to forward data. This has been left up to the service provider. However, the limit price of health services does, among others, include information technology expenses necessary for the provision of service. Despite the aforementioned, there are deficiencies in the use of the health information system and information exchange, which is why we are working on resolving the problem. We have also commenced monitoring in order to ensure that data are forwarded to the health information system by the providers of health services.
Reporting and supervision of school health care services 104. Recommendation of the National Audit Office of Estonia to the chairman of the board of the Estonian Health Insurance Fund: ensure that school nurses fill in reports so that these could be used both for planning services and activities for supporting the health of children. cl 98	Response of the chairman of the board of the Estonian Health Insurance Fund: to date, the statistics of the Estonian Health Insurance Fund has been the only concise national dataset regarding the health status of children. Data quality thereof arises from the aggregated data. The Ministry of Social Affairs has commenced with developing a statistics module for the health information system in order to make the data of medical examinations of children visible and enable using thereof. An overall report on the health of children that includes all children is underway.
E-solution for assessing the school environment 105. Recommendation of the National Audit Office of Estonia to the director of the National Institute for Health Development: establish an online solution for schools for evaluating the psychosocial environment in order to enable making suggestions with regard	Response of the director of the National Institute for Health Development: In 2014, the National Institute for Health Development submitted a project application "Promotion of inclusive organisation of education and mental health in educational institutions" to the programme "Children and Youth at Risk" of the European Economic Area financial mechanism in cooperation with six partners, incl. Innove, non-profit organisation Estonian Association of School Psychologists and others, one objective of which are the prepared and piloted surveys for assessing the

Recommendations of the National Audit Office of Estonia	Response of the audited
to improving the school environment more easily. cl-s 90–91	psychosocial environment for schools. The project did not receive funding, however. In the project, we highlighted that surveys for assessing the psychosocial environment are prepared for the school within the framework of the project and are published on the respective websites of the project and the National Institute for Health Development and a proposal is made to the Ministry of Education and Research or some other relevant institution for the development of a technical solution. This is necessary so that the schools would be able to carry out an assessment of the psychosocial environment as part of an internal evaluation and on uniform principles in some already operational uniform e-environment established for schools. The National Institute for Health Development is prepared to participate in the process of preparing surveys and to share the experiences of the National Institute for Health Development with regard to the online solution for assessing the psychosocial environment aimed at pre-school child care institutions. Because schools are already using different online environments, the leadership role with regard to the technical solution has to lie with an institution that has an overview of technical solutions aimed at educational institutions and that leads the process of harmonising the principles of internal evaluation of educational institutions, because assessing the psychosocial environment must be integrated into the general internal evaluation system of an educational institution.
Undergoing medical examinations and vaccinating 130. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund: Analyse whether the current frequency of undergoing medical examinations is justified. Requirement for children to undergo medical examinations too frequently may be burdensome for the parents and the health care system and may not ensure cost-effective discovery of illnesses.	Response of the chairman of the board of the Estonian Health Insurance Fund: The frequency and relevancy of medical examinations for children is also reviewed in the process of updating the aforementioned guideline for the medical examinations of children. Response of the Minister of Health and Labour: The frequency of medical examinations is reviewed in the course of updating the guideline for medical examination of children up to 18 years of age.
Improve awareness among parents of the necessity of medical examinations and, among others, implement a notification system based on mobile and e-solutions for promoting undergoing medical examinations and involve a child protection specialist in determining the causes and resolving the problem in case of continuous failure to adhere to notifications.	Response of the Minister of Health and Labour: We agree that awareness among parents of the need for medical examinations has to be improved. Respective outreach for both parents and health care professionals is also planned as an implementation activity of the aforementioned guideline for medical examinations. Although the implementation plan has not been completed yet, it is already possible to consider using existing information technological solutions to raise awareness among parents. On the basis of the applicable Child Protection Act, all persons who have information about a child in need of assistance must notify the local government thereof. If the family physician is unable to reach the parent or a child is not taken to the doctor, the situation is handled as a case of a potential child in need of assistance and the family physician is obligated to contact a child protection official. In order to improve information exchange between family physicians and child protection officials, the Ministry of Social Affairs is planning to develop a medical examination-based monitoring system for 0–6-year-old children in 2017 and within the context thereof supplement the existing area-specific information technological applications (incl. STAR, Health Information System, etc.). Response of the chairman of the board of the Estonian Health Insurance Fund: We agree that it is important to raise awareness among parents of the need for medical examinations. In order to raise awareness, we have published the topics of medical examinations on the health websites of the Estonian Health Insurance Fund and have included these in various publications concerning the healthy development of children that parents usually receive from the family physician. In the coming years, we will continue to contribute to these activities by updating the formats of publications and ensure the availability of publications to the target group.
Monitor the changes in undergoing medical	Response of the chairman of the board of the Estonian Health

Recommendations of the National Audit Office of Estonia	Response of the audited
examinations in time by creating respective e-solutions for family physicians.	Insurance Fund: We are planning to supplement the data with school information in order to interface school health care services, but in stage II of the development, because the legal area – Statutes of the Health Information System – has to be amended first in order to request data from the Estonian Education Information System. Response of the Minister of Health and Labour: We agree with the recommendation. It is possible to start monitoring the share of undergoing medical examinations among children on the basis of data submitted by the health information system in 2017 when the required development is completed in the statistics module of the health information system. Within the framework of the eHealth strategy, we are planning to update the information systems of family physicians, which would enable monitoring the treatment and health indicators of people in time.
Develop a programme in the course of which parents are informed of the necessity of vaccinations and medical examinations, also taking regional peculiarities into consideration, incl. improve the availability of information.	Response of the Minister of Health and Labour: We agree with the recommendation. A taskforce for notifying of infectious diseases that, among others, engages in planning and coordinating outreach on immunisation has been established next to the Ministry of Social Affairs. The budget of the Ministry of Social Affairs also prescribes funds for outreach on immunisations, and in 2016 we have entered into a contract for carrying out immunisation lectures in family schools. The priorities for this year include ordering the first edition and a Russian translation of the communication guideline for vaccinations <i>Räägime laste kaitsmisest (Let's Talk About Protecting Children)</i> and updating the website on vaccinations. We take regional peculiarities into consideration and have translated several materials that we have prepared into Russian, including the website. The Estonian Health Insurance Fund is also planning on printing more health journals for students and the publication <i>Me saame lapse (We're Having A Baby)</i>, which both also include the topic of vaccinations. The Estonian Health Insurance Fund continues to have the opportunity to include the topics of immunisation on health websites (six times a year, incl. in the Russian publication <i>Põhjarannik</i>). In addition to the outreach and educational activity of the Estonian Health Insurance Fund, we are also planning outreach concerning the necessity of medical examinations as one activity of the implementation plan of the guideline for medical examinations of children. This summer, a vaccinations record was completed in the patient portal. Health care providers have been given a transition period of approximately one year to adopt the respective standard. As such, the patient will have an overview in the patient portal of vaccinations given to him/her as of the summer of 2017, incl. parents will be able to see the vaccinations given to their children. Developing an automatic notification system (vaccination reminder) is planned as a follow-up development. Response of the chairman of the board of the Estonian Health Insurance Fund: After the statistics module being developed by the Ministry of Social Affairs has been completed, it is possible to gather statistics through health notifications sent through the health information system that both school nurses and family physicians are sending, and the likelihood of covering all children is higher. The module will be interfaced with the Estonian Education Information System, but until such time, grade-based reports on health statuses will continue to be delivered to the Estonian Health Insurance Fund.
Consider whether and offer relevant training programmes to family physicians beforehand. cl-s 106–129	Response of the Minister of Health and Labour: Matters concerning the eyesight of children are also reviewed in the course of updating the guideline for medical examinations of children up to 18 years of age. Ophthalmologists have already submitted and explained proposals to the taskforce of the guideline requesting that the initial eyesight examination and determining the visual acuity is carried out by family physicians/nurses in the future and that children exhibiting declining visual acuity are referred to a paediatric ophthalmologist. The Estonian Society of Family Physicians will take on matters associated with the respective training programme and outreach. Ophthalmologists have expressed their preparedness to contribute to the respective training programme. Response of the chairman of the board of the Estonian Health Insurance Fund: Under the leadership of the Ministry of Social Affairs, eyesight examinations for children to be carried out by a family physician are addressed in the course of updating the guideline for medical examinations of children.
More effective use of the eHealth	

Recommendations of the National Audit Office of Estonia	Response of the audited
145. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour: develop the health information system so that health care providers could use or exchange data regarding the results of medical examinations and treatment prescribed for the children; and ensure access to the health information system to school nurses that don't have access yet. cl-s 136–144	Response of the Minister of Health and Labour: Providers of health services can already use the health information system. The problem is that the providers of health services do not enter data in the health information system. To correct this, we are separately working on increasing data acquisition. School nurses have both the legal and technical access to the health information system. When providing a service, they also have the obligation to submit notices (growth notice, examination notice), immunisation data and epicrises to the health information system. Preparing a roadmap for data quality is in progress in 2016 within the framework of the focus area 1 – high quality health data and data infrastructure – of the eHealth strategy. Following the completion thereof, specific activities are planned for 2017–2019.
Positions and availability of general paediatricians 159. Recommendation of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the chairman of the board of the Estonian Health Insurance Fund: analyse whether primary medical care ensures that children receive medical care in all regions that is of at least the same quality if the positions of general paediatricians are eliminated. cl-s 146–149	Response of the Minister of Health and Labour: The positions of general paediatricians have not been eliminated. When making decision of health care policy, we address each county and hospital according to the regional needs and we involve all parties in making decisions. The Estonian Health Insurance Fund is financing paediatric care in county hospitals within the context of internal diseases without decreasing the service volume to be financed with regard to this specialty. This enables county hospitals organising the provision of service in a more flexible manner. Paediatrics is a separate contract line as of the central hospital level. The Estonian Paediatric Association and the Estonian Society of Family Physicians is in the process of preparing a uniform statement of case in the treatment of children. This will serve as a basis for planning subsequent activities and analyses, incl. developing quality indicators. The Estonian Health Insurance Fund has in cooperation with the Ministry of Social Affairs and professional associations proposed developing quality indicators associated with the health of children for family physicians. Relevant preparations are underway and the development of criteria can probably commence in 2017. Response of the chairman of the board of the Estonian Health Insurance Fund: The task of health insurance is to ensure that insured persons have access to a fast and efficient package of primary medical care close to home that provides them with care and a solution by the family physician's team in case of the majority of health problems, irrespective of the residence, age and social background of the person. The Estonian Health Insurance Fund develops and continuously monitors services offered to the insured persons, incl. children, and ensures equal access to the services. The Estonian Health Insurance Fund also cooperates with professional associations in order to provide paediatric care as primary medical care. In case of developmental activities and changes, the Estonian Health Insurance Fund deems it important to base its activities on the world practices, maintaining the strengths of the existing system and considering the context, incl. the existing personnel resource, expectations of residents and the current principles of developing the health care system. Family health care must be available to all nationality groups irrespective of the age, residence or social background. The contracting capacity of the Health Insurance Fund is sufficient to ensure paediatric services in hospitals of the development plan for the hospital network.
Health promotional interventions for maintaining the health of children 160. Recommendations of the National Audit Office of Estonia to the Minister of Health and Labour in cooperation with the director of the National Institute for Health Development: Simultaneously carry out interventions of different levels in order to resolve one specific problem. Interventions such as interventions aimed at excessive eating by children (both as health education lectures and street campaigns) should also include	Response of the Minister of Health and Labour: We agree with the first recommendation. We are in the process of preparing a Green Paper on nutrition and physical activity. An overview of evidence-basis "Decreasing the consumption of beverages sweetened with sugar and health damage caused by thereof in Estonia" that focuses specifically on the health of children has been completed in cooperation with the WHO. In cooperation with the University of Tartu and the Ministry of Education and Research, we are testing the physical activity programme aimed at children <i>Liikuma kutsuv kool</i> (School for Physical Activity). We agree with the second recommendation. We can start implementing the provisions of the recommendation if funds are allocated.

Recommendations of the National Audit Office of Estonia	Response of the audited
organisational changes (taxing product groups, prohibiting lifestyle advertising aimed at children) that require institutional changes (attitudes of respective specialists) to be carried out in order to increase the effectiveness thereof. - With regard to existing interventions, establish a quality management system that would ensure that the interventions are timely and the necessary directing and assessing of results is carried out. - Decide how to integrate effective interventions in regular practice (e.g. in case of the intervention of the behavioural skills game VEPA is effective, techniques used therein should also make their way to teacher training). (See description in appendix P.) - Ensure the consistency of funding for effective interventions aimed at resolving the most important problems. cl-s 150–158	We agree with the third recommendation and the response given to the recommendation by the National Institute for Health Development. We agree with the fourth recommendation. We can operate according to the funds prescribed within the state budget. At the same time, we are continuing to look for funds from the state budget and opportunities to involve foreign funding. Response of the director of the National Institute for Health Development: With regard to the first clause, the Ministry of Social Affairs commenced the preparation of a Green Paper on nutrition and physical activity in 2016 that involves a broad range of different parties, incl. the National Institute for Health Development who has made a direct input to the development of measures specified by the National Audit Office of Estonia in the Green Paper on nutrition and physical activity. We cannot agree with the claim of the National Audit Office of Estonia that the current activities only involve health education lectures and street campaigns, because we have continuously also addressed, for example, the improvement of the quality of catering in kindergartens and schools, updating regulations with regard to thereof and notifying respective specialists in institutions. The National Institute for Health Development has also established an online in-service training programme on nutrition for health care professionals in the Centre for Continuing Education of the Institute of Clinical Medicine at the University of Tartu and standardised the process of certifying dieticians. With regard to the second clause, the National Institute for Health Development has attempted to take this approach into consideration as much as possible in its activities, but it is important to ensure that tools for quality management are also always prescribed in case of subsequent funding of activities. With regard to the third clause: Integrating the methodology of the behavioural skills game VEPA in teacher training is one of the objective of sustainable development of the National Institute of Health Development. We have engaged the representatives of education science from both the University of Tartu and Tallinn University in the VEPA teacher training at the start of 2015. The first guest lecture on the VEPA methodology aimed at teachers took place in spring 2016 at the University of Tartu. A more comprehensive subject Evidence-Based Practice and Intervention is commencing in spring 2017, within the context of which students get a more comprehensive overview of the methodology and importance of evidence-based programmes in education science. Negotiations are also underway with the continuing education department for teachers of the University of Tartu. One of the main obstacles for integrating the methodology in teacher training are the licences of the cooperation partner that are issued by the cooperation partner PAXIS for each trained teacher. The objective is, however, to also reach teacher training with the teaching of the methodology during the programme period funded by the ESiF. With regard to the fourth clause, the National Institute for Health Development has planned its budget on the basis of the principle of ensuring consistency, but the realistic situation is that very many effective interventions are mainly financed through different projects.

Audit description

Audit objective

The objective of the audit was to assess the activity of the state in case of ensuring the health of children. To do this, the audit assessed whether monitoring the health of children ensures that children with health disorders and ill children are discovered; if they are discovered, are steps taken to improve the health (incl. are health promotional interventions evidence-based); are health services equally available to all children.

Criteria for giving an assessment

In the opinion of the National Audit Office of Estonia, the state has ensured the health of children well if:

- the objectives set for the health promotion of children in the National Health Plan of 2009 have been met;
- eating disorders and attention deficit hyperactivity disorders affecting children have been discovered in time and necessary health services and support services have been offered to ensure a more effective treatment;
- all children who have been diagnosed with obesity have received continuous health service;
- children receiving in-patient treatment with chronic illnesses does not vary in terms of the background of the child, i.e. the residence and income of parents;
- children whose problems have been noticed by the school nurse have gone to the doctor within at least one year;
- the availability and content of school health care services is the same throughout the country and, as required, there are up to 600 school-age children per one nurse, and the Estonian Health Insurance Board and/or the Health Board have supervised the service;
- children have undergone a medical examination both at the appointment of a family physician and family nurse, also at the appointment of other medical specialists, and received vaccinations according to the guideline for medical examinations and irrespective of their residence, income of parents and nationality;
- the state routinely collects health statistics with regard to children and youths that would enable getting an overview by target groups and use the information in planning preventive activities;
- information exchange is established so that it supports communication between different specialists and also parents;
- a comprehensive analysis preceded the activities being carried out in the area of the health of children and the strategy of the completed health promotional activities has been selected on the basis of the nature of problems requiring a solution that it is supported by the continuous funding of health promotion.

Scope and approach of the audit

The audited included the Ministry of Social Affairs, the Ministry of Education and Research, Estonian Health Insurance Fund, the National Institute for Health Development and the Health Board. In the course of the audit, data were collected from the Estonian Health Insurance Fund, Estonian eHealth Foundation, population register managed by the Ministry of Social Affairs, the Tax and Customs Board, Ministry of Justice, data register of social services and benefits register managed by the Ministry of Social Affairs,

local governments, county governments, general education schools and health care providers. An online survey was also carried out among school nurses working in the 2014/2015 academic year.

The entire audited period was 2006–2015. With regard to the majority of analyses, data of 2014 was analysed; with regard to school health care services, the data of the academic year 2014/2015, with regard to support services data of the academic year 2015/2016. All educational institutions for students with special educational needs were excluded from among schools. Undergoing medical examinations was surveyed during the period 2012–2014, the treatment of obese children during the period 2011–2014. Descriptive statistics on the trends of illnesses among children is provided for the period 2006–2014. Activities arising from the National Health Plan were analysed from the beginning of the commencement of the Plan in 2009.

Table 8. Persons interviewed in the course of the audit

Interviewed	Date of the meeting
Liis Toome, President of the Estonian Paediatric Association, paediatrician and head of the Department of Neonatal and Infant Medicine of Tallinn Children's Hospital Kaire Heilman, member of the management board of Estonian Paediatric Association, endocrinologist at Tallinn Children's Hospital Kadri Saks, member of the management board of Estonian Paediatric Association, paediatrician and head of the Department of Oncology and Haematology of Tallinn Children's Hospital	3 June 2015
Kädi Lepp, chairman of the board of the Foundation of School Health Care	8 June 2015
Le Vallikivi, chairman of the board of the Tallinn Association of Family Physicians, family physician and manager of the AS Medicum Perearstikeskus Reet Laidoja, member of the management board of Tallinn Association of Family Physicians, family physician at OÜ Linnamõisa Perearstikeskus Anne Minka, member of the management board of Tallinn Association of Family Physicians, family physician at OÜ Perearst Anne Minka	10 June 2015
Mari Mathiesen, member of the management board of the Estonian Health Insurance Fund Kersti Esnar, head of the Division of the Health Care Department of the Estonian Health Insurance Fund Tuuli Kullik, health care specialist at the Estonian Health Insurance Fund Kaija Lukka, health care specialist at the Estonian Health Insurance Fund Reet Kambla, head of the Internal Audit Department of the Estonian Health Insurance Fund	7 July 2015
Anne Kleinberg, psychiatrist at the Tallinn Children's Hospital Piret Aavik, psychiatrist at the North Estonia Medical Centre Kerstin Kõiva, psychiatrist at the Tallinn Children's Hospital Ere Vasli, psychiatrist at the Tallinn Children's Hospital Reelika Serbak, psychiatry resident at Tallinn Children's Hospital	8 September 2015
Tiia Pertel, head of the Department of Health Promotion of the National Institute for Health Development	9 September 2015
Marek Vink, chairman of the board of the Estonian Dental Association, dentist at AS Al Mare Hambakliinik Meryli Tõeleid, health manager of the Estonian Dental Association	12 October 2015
Kaire Heilman, member of the management board of Estonian Paediatric Association, endocrinologist at Tallinn Children's Hospital Ülle Einberg, endocrinologist and head of the Endocrinology Service of Tallinn Children's Hospital Aleksandr Peet, member of the management board of Estonian Paediatric Association, endocrinologist at Tartu University Clinic	26 February 2016
Triin Kahre, chairwoman of the management board of the Estonian Association of School Psychologists, school psychologist at the Tallinn European School Kristi Feldman, member of the management board of the Estonian Association of School Psychologists, school psychologist at Kiili Upper Secondary School	3 March 2016
Nele Labi, assistant manager of the Agency for Lifelong Guidance of SA Innove Anu Pärn, head of the Educational Counselling Services Unit of the North-Estonian Guidance Centre of SA Innove	10 March 2016

The following activities were carried out in the course of the audit: analysis of documents and reports, information inquiries, conducting online surveys and data analysis, conducting interviews and data analysis on the basis of medical bills of the Estonian Health Insurance Fund, treatment epicrisis collected

from health care providers, epicrisis extracted from the health information system, data of social benefits of the Estonian National Social Insurance Board, data of the Tax and Customs Board on income from employment, data of the population register on the residence, succession and nationality, data of the criminal records database, data of the Estonian Education Information System, data regarding the resolutions of the juvenile committee.

Analysis of documents and reports

Documents associated with the health of children were analysed in the course of the audit. These included the fundamental document of the National Health Plan 2009–2020 and reports and action plans by years, guideline of the Estonian Health Insurance Fund for monitoring the health of children, various analyses and documents, legislations and explanatory memorandums thereof, etc. In addition to Estonian documents, foreign surveys were also analysed – both scientific literature and respective papers of the WHO and the OECD were also perused.

Information inquiries

The audit team corresponded with different parties via e-mail in order to ensure the correct interpretation of results that were revealed by the data analysis and analysis of documents. The parties included the Ministry of Social Affairs, Estonian Health Insurance Fund, the National Institute for Health Development, the Tax and Customs Board, the Estonian National Social Insurance Board, the Estonian Paediatric Association and the Foundation of School Health Care, etc.

Data analysis

Data collected in the course of the audit has been presented by analyses carried out with thereof.

The following data were collected from the following people in order to analyse the connection between children receiving in-patient treatment with a diagnosis of asthma and diabetes and their residence and socioeconomic background:

- medical bills of 0–19-year-old persons receiving in-patient treatment in 2014 due to asthma (with diagnosis J45 and its subdiagnoses, n = 307) and diabetes (with diagnosis E10 and its subdiagnoses, n = 162) from the Estonian Health Insurance Fund;
- personal identification codes and names of parents or legal guardians of the same persons from the population register;
- data on wage income of parents of the same persons with regard to 2014 from the Tax and Customs Board;
- data on receiving family allowances and subsistence benefits by parents of the same persons with regard to 2014 from the data register of social services and social benefits managed by the Ministry of Social Affairs.

The following data were collected for expert work:

- medical bills for in-patient treatment of 16–24-year-old persons with a diagnosis of an eating disorder (F50.0, F50.1, F50.2 and F50.3) in 2014–2015 (n = 54⁸⁸) from the Estonian Health Insurance Fund;
- medical bills for in-patient treatment of 10–15-year-old persons with a diagnosis of attention deficit hyperactivity disorder (F90.0 and F90.1) in 2014 (n = 99) from the Estonian Health Insurance Fund;
- medical histories of 16–24-year-old persons receiving in-patient treatment with a diagnosis of an eating disorder (F50.0, F50.1, F50.2 and F50.3) in 2014–2015 (n = 10) from health care providers;
- medical histories of 10–15-year-old persons receiving in-patient treatment with a diagnosis of attention deficit hyperactivity disorder (F90.0 and F90.1) in 2014 retrospectively until the age of 5 from health care providers;
- decisions of the juvenile committee concerning the same persons from local governments;
- data of the criminal records database concerning the same persons from the Ministry of Justice;
- names of educational institutions of the same persons from the Estonian Education Information System managed by the Ministry of Education and Research;
- list of support services received with regard to the same person from SA Innove;
- data regarding support services (service of a school psychologist and speech therapist) provided to the same persons from the educational institution.

The following data were collected on the basis of the school health care health cards of school-age children to carry out an analysis with a targeted sample:

- school health care health card of 1,070 third and seventh grade students from the providers of school health care services, of which 993 were suitable for analysis;
- all medical bills of health services of 235 school-age children from the same sample in 2014 and 2015 from the Estonian Health Insurance Fund;
- receiving support services of SA Innove by 15 school-age children from the same sample in 2014–2015.

The following data were collected in order to analyse the consistency and effectiveness of the treatment of obese children:

- medical bills from a random selection of 200 up to 18-year-old persons on the basis of a diagnosis of an incidence of obesity (E66.0, excl. drug-induced obesity) in 2011 from the Estonian Health Insurance Fund, of which 169 were suitable for analysis (in 2011, there were 2,924 patients);
- data on weight and height according to epicrises and growth notices prepared with regard to the same persons in 2011, 2013 and 2014 from the health information system managed by the Estonian eHealth Foundation.

The following data were collected regarding the connection between children undergoing medical examinations according to the guideline for monitoring the health of children and their residence and the socioeconomic background of their parents:

⁸⁸ There were 105 medical bills sent by the Estonian Health Insurance Fund (due to recurring records, only 54 were used in the analysis).

- medical bills of medical examinations (with diagnosis Z00, Z01, Z03 and subcodes thereof) of children born in 2009 with regard to 2012–2014 (persons n = 7,574) from the Estonian Health Insurance Fund;
- data (name, personal identification code, residence, nationality, personal identification codes of parents) of persons born in Estonia and living in Estonia in 2009 (n = 15,566) from the population register;
- data on wage income of parents of children born in 2009 with regard to 2014 from the Tax and Customs Board on the basis of the population register;
- data on needs-based family allowances and subsistence benefits of parents of children born in 2009 with regard to 2014 according to the data register of social services and social benefits managed by the Ministry of Social Affairs.

The following data were collected in order to prepare descriptive statistics and an overview:

- incidence of type I diabetes (E10 together with subdiagnoses thereof) among up to 19-year-olds (incl.) with regard to the last 10 years from the Estonian Health Insurance Fund;
- number of up to 19-year-old (incl.) children that received dental care (codes A66 and A67) in 2015, 2014, 2013, 2012 and 2011 by years of birth from the Estonian Health Insurance Fund;
- medical bills of various examinations (diagnosis codes Z00, Z01, Z03 and subdiagnoses thereof) at the appointment of a family physician in 2014 by years of birth (up to 19-years-olds, incl.) from the Estonian Health Insurance Fund;
- number of children that underwent a hearing test and blood analysis from the Estonian Health Insurance Fund;
- number of appointments with an ophthalmologist of up to 19-year-olds (incl.) in 2014 from the Estonian Health Insurance Fund;
- notices sent by providers of school health care services in 2014 from the health information system managed by the Estonian eHealth Foundation;
- data on performing the immunisation plan with regard to 2014 from the Health Board;
- indicators of incidence in 2006–2014 from the databases of the National Institute for Health Development;
- school health care reports with regard to the 2014/2015 academic year from the Estonian Health Insurance Fund;
- number of incidences of congenital anomaly syndromes (diagnosis codes Q86.0 and Q86.1) caused by certain external factors in five years (2011–2015, separately for each year) with regard to up to 19-year-olds;
- share of new-borns that underwent screening tests (for early discovery of phenylketonuria and congenital hypothyroidism) in 2014.

The audit examines the use of health services and occurrence of illnesses among children also according to the residence of children. Two divisions have been used for this:

1. The basis of a regional division is the grouping by Statistics Estonia, which divides Estonia into five regions:

1) North-Estonia (Harju County);

- 2) Northeast-Estonia (Ida-Viru County);
- 3) West-Estonia (Lääne, Saare, Hiiu and Pärnu County);
- 4) Central Estonia (Järva, Rapla and Lääne-Viru County);
- 5) South-Estonia (Jõgeva, Tartu, Põlva, Viljandi, Võru and Valga County).

2. Division between children living in the city and in a rural settlement: Urban settlement included all cities, cities without municipal status, towns and also selected rural municipalities: Harku, Saue, Saku, Kiili, Rae, Jõelähtme, Viimsi, Tartu, Luunja, Haaslava, Ülenurme, Tähtvere, Jõhvi, Kohtla, Toila, Audru, Sauga, Paikuse and Tahkuranna rural municipality. The selected rural municipalities directly surround the four major cities in Estonia. Rural settlement included small towns, small town-rural municipalities and villages.

Methodology of an analysis of income and social benefits

A statement regarding the wage income of the parents of all children with regard to 2014 has been received from the Tax and Customs Board for the purpose of analyses. It is important to point out that only wage income was analysed and all other types of income (e.g. dividends) were left out, because comparable data for the whole country were available only with regard to wage income. Data were then compared to the overall statistics of 2014 of the Tax and Customs Board. In 2014, the average wages in Estonia were 772 euros, median wages were 616 euros and minimum wages were 355 euros per month.

If the child had both parents according to the population register, the wages of both parents were divided by two and average monthly wages of the parents were thereby derived for each child. In case of one parent or guardian, the wages were not divided and the average income of parents was made up of the wage income of the existing parent or guardian.

Data concerning parents of patients hospitalised with asthma and diabetes receiving subsistence benefit and needs-based family allowance were compared to the statistics of 2014⁸⁹ regarding Estonian households receiving subsistence benefit and needs-based family allowance, which in turn were compared to the data of Statistics Estonia of 2014 regarding the total number of household with children in order to find the share of those receiving the specified benefits among all households with children⁹⁰.

Expert work

The experts were the following psychiatrists of the Estonian Psychiatric Association: Dr Anne Kleinberg, Dr Piret Aavik, Dr Kerstin Kõiva, Dr Irja Irvainen, Dr Ere Vasli, Dr Madis Parksepp, Dr Inna Lindre, Dr Viivika Lauri, Dr Anu Susi and resident Reelika Serbak.

In the course of expert work, the experts prepared evaluation criteria in order to assess the receipt of timely and relevant treatment for eating disorders (diagnosis codes F50.0, F50.1, F50.2 and F50.3) and attention deficit hyperactivity disorder (F90.0 and dF90.1). The same experts used the evaluation criteria to give an assessment on the treatment of 54 persons with eating disorders and 99 persons with an attention deficit hyperactivity disorder. None of the experts assessed the medical histories of their own institution. The National Audit Office of Estonia prepared a summary on the basis of expert work that was also approved by the experts.

Survey

An online survey that had been previously tested by the Foundation of School Health Care was sent to all persons who provided school nurse services in the 2014/2015 academic year. The survey was sent to 242 service providers (there were a total of 452 school nurses) and 267 answers suitable for analysis were sent back (the answers represented 384 schools). The survey comprised 30 questions. The objective of the survey was to assess whether school nurses were able to perform the obligation set for them and to investigate how information is exchanged between different parties.

⁸⁹ <http://www.sm.ee/et/toetuste-statistika>

⁹⁰ http://pub.stat.ee/pxweb.2001/Database/Sotsiaalelu/08Leibkonnad/02Leibkondade_uldandmed/02Leibkondade_uldandmed.asp

Time of completing the audit

Procedural acts of the audit were concluded in May 2016.

Audit team

The audit team comprised the audit manager Liisi Uder (until 18 December 2015), audit manager Mart Vain (from 18 December 2015) and auditors Pille Kuusepalu and Liina Haldna.

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

Summary of the audit is also available in English.

Audit report number in the administrative system of the National Audit Office of Estonia is 2-1.7/16/70103/518.

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Prior audits of the National Audit Office of Estonia in the field of health care of children

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

5 July 2005 – **Health care administration of pre-school children**

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

Appendix A. Appointments of medical examination according to the guideline for medical examinations

Age of the child/grade	Family physician	Nurse (examinations are carried out by a school nurse once children turn school-age)	Preventive examination of dental care	Examination of an ophthalmologist	Hearing test	Blood analysis
1 week	X (appointment of a paediatrician)	X			X	
2 weeks	X					
1 month	X					
2 months		X				
3 months	X				X (if not carried out on week 1)	
4.5 months		X				
6 months	X					
7 months		X				
9 months	X					X
12 months	X					
18 months	X					
2 years		X				
3 years	X		X	X		
4 years		X				
5 years	X					
6–7 years	X		X (at the age of 6)	X		
7–8 years / grade I		X	X (at the age of 7)			
8–9 years / grade II	X					
9–10 years / grade III		X	X (at the age of 9)			
11–12 years / grade V	X		X (at the age of 12)			
13–14 years / grade VII		X	X (at the age of 14)			
15–16 years / grade IX	X		X (at the age of 15)			
17–18 years / grade XI		X				

Appendix B. Immunisation plan

Age	Name of the disease	Name of the vaccine
12 hours	hepatitis B virus	HepB 1
1–5 days	tuberculosis	BCG
1 month	hepatitis B virus	HepB 2
2 months	rotavirus infection	RV 1
3 months	diphtheria, tetanus, pertussis, poliomyelitis, <i>Haemophilus influenzae</i> type b infection, rotavirus infection	IPV 1, DTPa 1, Hib 1, RV 2
4.5 months	diphtheria, tetanus, pertussis, poliomyelitis, <i>Haemophilus influenzae</i> type b infection, rotavirus infection	IPV 2, DTPa 2, Hib 3*, RV 3*
6 months	diphtheria, tetanus, pertussis, poliomyelitis, <i>Haemophilus influenzae</i> type b infection, hepatitis B virus	IPV 3, DTPa 3, Hib 3, HepB 3
1 year	measles, mumps, rubella	MMR 1
2 years	diphtheria, tetanus, pertussis, poliomyelitis, <i>Haemophilus influenzae</i> type b infection	IPV 4, DTPa 4, Hib 4
6–7 years	diphtheria, tetanus, acellular pertussis and poliomyelitis	IPV 5, DTPa 5
12 years	hepatitis B virus	HepB 1,2,3**
13 years	measles, mumps, rubella	MMR 2
15–16 years	diphtheria, tetanus and acellular pertussis	dTpa 6

Source: Minister of Social Affairs regulation no. 2 "Immunisation plan" of 8 January 2014

Appendix C. Incidence cases and changes therein among children of up to 19 years of age during the period 2006–2014

Disease groups	2006	2007	2008	2009	2010	2011	2012	2013	2014	change 2006–2014 (%)
Total incidence cases (excl. malignant tumours)	854,249	859,010	806,935	835,334	744,468	755,540	712,163	734,984	714,756	–16.3
Certain infectious and parasitic diseases (A00–B99)	72,551	77,482	71,558	83,390	69,601	80,338	76,060	81,090	85,759	18.2
Benign and unspecified neoplasms (D10–D48)	3,506	3,726	3,672	3,932	4,583	4,927	5,096	5,019	5,729	63.4
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89)	4,034	4,068	3,596	3,665	3,620	3,512	3,375	3,595	3,763	–6.7
Endocrine, nutritional and metabolic diseases (E00–E90)	4,237	4,679	4,483	4,398	4,857	4,572	4,775	5,905	6,666	57.3
incl. obesity and other hyperalimentation (E65–E68)	1,269	1,369	1,388	1,437	1,334	1,453	1,541	1,949	1,954	54.0
Mental and behavioural disorders (F00–F99)	15,812	16,018	15,687	14,575	13,771	13,362	13,901	13,773	13,747	–13.1
Diseases of the nervous system (G00–G99)	12,881	11,780	11,312	10,964	8,512	7,704	7,007	6,842	5,737	–55.5
Diseases of the eye and adnexa (H00–H59)	31,763	33,358	34,343	30,673	35,411	33,292	30,552	31,681	35,748	12.5
Diseases of the ear and mastoid process (H60–H95)	47,511	51,790	53,466	50,556	52,350	55,380	50,534	54,171	54,646	15.0
Diseases of the circulatory system (I00–I99)	3,132	3,352	2,625	2,623	2,601	2,884	2,336	2,287	2,155	–31.2
Diseases of the respiratory system (J00–J99)	398,061	384,644	345,475	382,626	306,569	310,187	282,879	296,641	269,746	–32.2

incl. chronic asthma, status asthmaticus (J45–J46)	2,770	3,174	3,951	4,207	4,639	4,900	4,581	4,512	4,468	61%
Diseases of the digestive system (K00–K93)	38,729	27,086	24,989	24,102	21,147	22,206	19,680	18,541	17,967	–53.6
Diseases of the skin and subcutaneous tissue (L00–L99)	61,846	62,275	60,234	57,399	57,573	55,551	55,075	52,286	50,944	–17.6
Diseases of the musculoskeletal system and connective tissue (M00–M99)	29,680	28,580	26,653	25,107	23,910	24,461	24,289	24,120	24,878	–16.2
Diseases of the genitourinary system (N00–N99)	19,889	19,411	17,888	17,206	17,037	16,240	16,326	16,090	15,589	–21.6
Complications of pregnancy and labour and delivery (O00–O75, O81–O99)	2,214	2,602	2,459	2,052	1,664	1,535	1,254	1,468	1,533	–30.8
Certain conditions originating in the perinatal period (P00–P96)	5,184	4,885	5,623	4,847	511	4,980	4,835	5,118	5,417	4.5
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	5,376	6,247	5,968	5,026	4,977	5,081	5,090	4,967	4,805	–10.6
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)	32,229	35,296	37,076	38,634	40,539	42,104	43,004	46,627	44,836	39.1
Injury, poisoning and certain other consequences of external causes (S00–T98)	65,614	81,731	79,828	73,559	70,535	67,224	66,080	64,763	65,091	–0.8
PK10: New cases of malignant neoplasms	45	33	47	30	47	35	35	44		–2

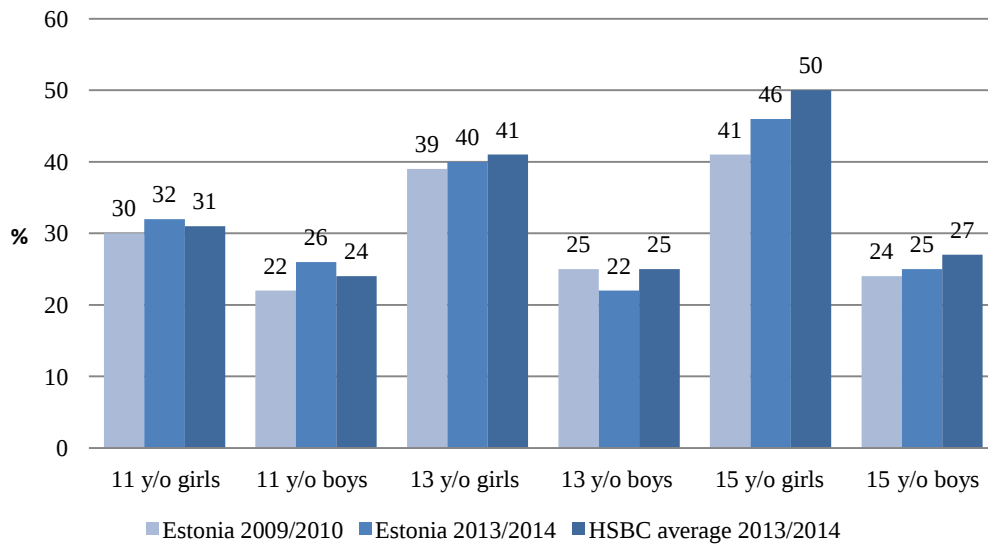
Source: The National Institute for Health Development

Appendix D. Data on the health problems affecting children to be collected within the context of school health care services, (%) 2007–2014

Health problem	Share of school-age children (%)							
	2007	2008	2009	2010	2011	2012	2013	2014
Visual disorder	19	20	20	19	20	20	31	19
Gait disorder	17	18	18	18	17.7	17	21	15.1
Overweight	8.3	9.6	9.8	10	10.1	10.9	11.1	11.3
Underweight	2	2	2	2	2.8	2	2	2.6
Increased blood pressure	2.2	2.4	2.2	2.9	2	2.3	2	1.7

Source: Data of the Estonian Health Insurance Fund

Appendix E. Share of children that have had health complaints more than once a week at the age of 11, 13 and 15 years



Source: HBSC studies in 2009/2010 and 2013/2014

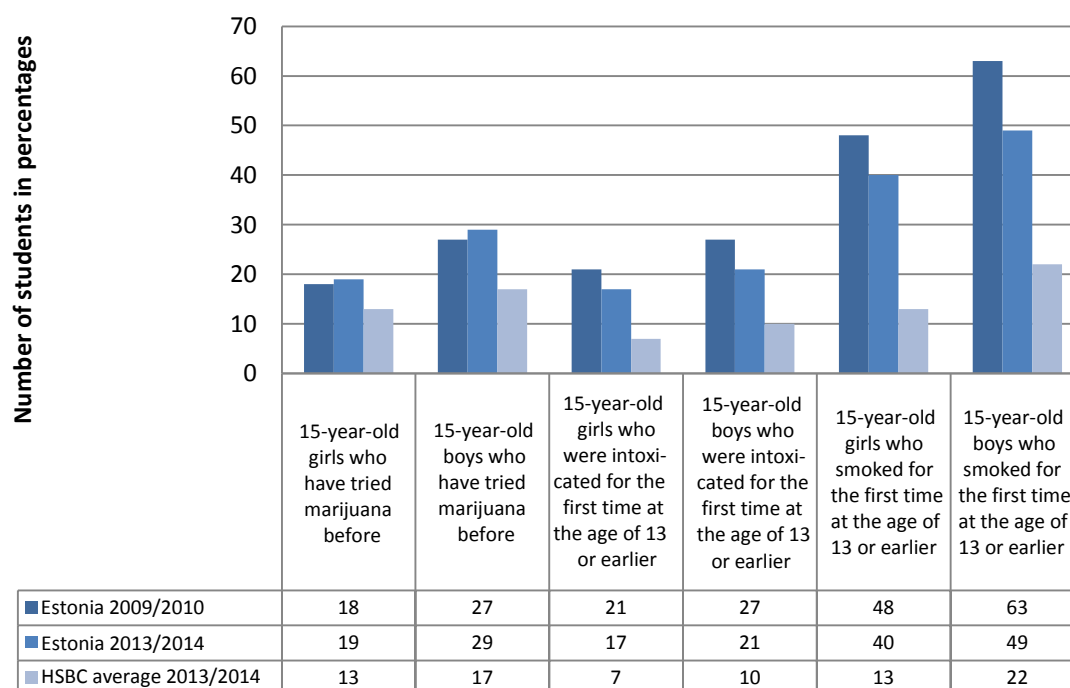
Appendix F. Eating fruit, consuming alcohol and marijuana, smoking, physical activity and share of overweight children among 11, 13 and 15-year-old school-age children

Table 9. Share of 11, 13 and 15-year-old school-age children who eat fruit every day on the basis of the HBSC study in 2009/2010 and 2013/2014

Time of the HBSC study	Share of school-age children that eat fruit every day					
	11 y/o girls	11 y/o boys	13 y/o girls	13 y/o boys	15 y/o girls	15 y/o boys
Estonia 2009/2010	32	29	29	25	27	17
Estonia 2013/2014	38	36	35	26	32	25
HBSC average 2013/2014	47	41	40	34	37	29

Source: HBSC study

Figure 16. Consumption of marijuana and alcohol and smoking among girls and boys (in %) according to the HBSC study 2009/2010 and 2013/2014



Source: HBSC study

Table 10. Share of school-age children who are physically active for at least 1 hour every day on the basis of the HBSC study in 2009/2010 and 2013/2014

Time of the HBSC study	Share of school-age children who are physically active for at least 1 hour per day					
	11 y/o girls	11 y/o boys	13 y/o girls	13 y/o boys	15 y/o girls	15 y/o boys
Estonia 2009/2010	16	19	11	17	9	13
Estonia 2013/2014	15	21	12	22	9	18
HBSC average 2013/2014	21	30	15	25	11	21

Source: HBSC study

Table 11. Share of overweight school-age children (%) on the basis of the HBSC study in 2009/2010 and 2013/2014, %

Time of the HBSC study	Share of overweight school-age children					
	11 y/o girls	11 y/o boys	13 y/o girls	13 y/o boys	15 y/o girls	15 y/o boys
Estonia 2009/2010	13	19	13	18	9	16
Estonia 2013/2014	17	29	15	22	10	22
HBSC average 2013/2014	17	27	15	24	12	22

Source: HBSC study

Appendix G. Problems and indicators of the area of the health of children specified in the National Health Plan

Table 12. Problems of the area of the health of children and activities for resolving the problems specified in the NHP

Problems	Activities
Problems that have been resolved or the resolution of which is underway	Activities carried out
High mortality of children and youths due to injuries and poisoning	Projects for the prevention of injuries have been carried out in educational institutions; swimming lessons are ensured for children; information on poisoning safety is being distributed to parents; the Government Office is leading the work of the task force on injuries, which includes cooperation of different sectors; increase in the traffic safety as a result of an improved traffic management and reconstruction of roads.
Risky sexual behaviour (more frequent infection of HIV among teenage girls, lack of a clear declining trend of age-specific abortion rate among 15–19-year-olds)	Carrying out the national HIV and AIDS strategy; better availability of counselling on reproductive health among youths and more frequent use thereof both among girls and boys; campaigns and outreach on preventing sexually transmitted diseases.
Necessity of improving and developing an evidence-based information environment reflecting the options for the development and for protecting and promoting the health of the child intended for parents, teachers and other specialists working with children	The situation has improved as a result of the purposeful development of the online environment of the National Institute for Health Development.
Risks in the health behaviour of pregnant women (large number of abortions, smoking during pregnancy), level of education of the mother and infant mortality are connected, teenage pregnancy and delivery is associated with an increased risk on the health of the new-born, health statuses of premature new-borns have increased	Counselling youths on reproductive health and preventing sexually transmitted diseases; improving the availability of infertility treatment; antenatal counselling and counselling on pregnancy crisis; antenatal diagnostics of pregnant women and screening tests of new-borns; regular monitoring and assessment of health indicators and influencing factors of infants; promoting breastfeeding of infants; implementing the principles of baby-friendly hospitals.
Unresolved problems	Description of the activity of failure to act
Irregularity of medical examinations of pre-school children intended for preventing diseases; delaying with immunisation; late discovery of developmental special needs	The Estonian Health Insurance Fund has regulated both how up to 2-year-old children undergo medical examinations and how pre-school children undergo a one-time medical examination through the quality system of family physicians. However, activities are not carried out in order to promote undergoing medical examinations among all children belonging to the age group of pre-school children nor in order to decrease the ratio of those refusing vaccinations. The Health Board has carried out campaigns for raising awareness of vaccinations and established the portal vaktsiin.ee. The Government of the Republic has discussed tying undergoing medical examinations with receiving family allowances, but the implementation thereof has not been approved.
Increase in the occurrence of diseases (asthma, diabetes) and the risk factors thereof (obesity, increasing blood pressure) among children and youths, potential later diagnosis of chronic illnesses among children living away from centres	The Ministry of Social Affairs has not carried out coordinated activities to resolve the problem; preparation of the Green Paper on nutrition and physical activity is underway, but the Ministry also admits that there are often inadequate funds and desire of parties to move beyond the preparation of the Green Paper or to highlight more important problems among other problems that require resolution. Individual activities have been carried out, but there is still no evidence-based intervention programme to fight excess weight. The National Institute for Health Development has carried out and the Estonian Health Insurance Fund has financed training and counselling the personnel of educational institutions as a project-based activity in order to support children suffering from type I diabetes in educational institutions.
Tense family relations, inadequate communication skills, lack of educating and counselling system for children and parents; inadequate networking in order to reduce health risks affecting children in problematic families	The National Institute for Health Development has commenced a pilot project of the parenting programme <i>Imelised aastad (Wonderful years)</i> for parents of pre-school children. Its initial results have been positive. Behavioural skills game VEPA is also being implemented. See more detailed descriptions of projects in appendix P. Implementation of the mental health programme, i.e. the establishment of the Tallinn Mental Health Centre, was launched with aid from Norway and the European Economic Area. The centre was opened in August 2015 but remained inactive for nearly half a year, because there were no funds to carry out treatments in 2015. The Ministry of Social Affairs has prepared a supporting document for the integrated service concept of mental health.
Insufficient availability of care offered by child psychologists, teams specialising	The activity of outreach and counselling centres for youths (regional centres until 2014, afterwards Guidance Centres of SA Innove) is being financed in counties to

on psychiatric treatment and diagnosis in children, social workers, school psychologists and speech therapists	prevent mental health problems, but it is still too early to assess their effectiveness. Implementation of the mental health programme, i.e. the establishment of the Tallinn Mental Health Centre, was launched with aid from Norway and the European Economic Area. The centre was opened in August 2015 but remained inactive for nearly half a year, because there were no funds to carry out treatments in 2015. There are still schools that do not have a school psychologist, speech therapist and other support specialists. The Ministry of Social Affairs has prepared a supporting document for the integrated service concept of mental health.
Routinely collected aggregated health statistics regarding children and youths does not provide an overview by different target groups (level of education, socioeconomic situation, nationality) and cannot serve as a basis for planning prevention aimed at target groups.	The Ministry of Social Affairs has not carried out activities to resolve the problem. As of 2013, the problem and associated activities are no longer included in the action plans or activity reports of the NHP.
High incidence of dental caries in pre-school children; increase in the frequency thereof as children's age rises ⁹¹	The Estonian Health Insurance Fund is carrying out a dental health prevention programme <i>Kiku</i> , the results of which have not been assessed yet.

Source: Ministry of Social Affairs

Table 13. Indicators measuring the performance of the objectives of the health of children provided in the NHP

	Base level 2006	Achieved level 2012 or 2013	Target level 2016	Target level 2020	Final level
Infant mortality rate (number of deaths of under one year old children per 1,000 live births per year)	4.4	2.1 (2013)	2.2	1.7*	2.5 (2015)
Death rate of children and youths per 100,000 people	61.2	38.5 (2012)	34	31*	37.9 (2014)
Death rate of children and youths due to accidents, poisoning and traumas per 100,000 people	30	11.7 (2012)	12	7*	13.3 (2015)
Incidence rate of mental and behavioural disorders of children and youths per 100,000 people	2,283	2,110 (2012)	1,929	1,801	2,092 (2014)
Share of 11, 13 and 15-year-old children that assess their health to be very good	31.5% (2005/2006 academic year)	29.3% (2009/2010 academic year)	33.8%	34.7%	33.2% (2013/2014 academic year)
Share of 15-year-old children living below the poverty line (indicators from the section "Social connectedness and equal opportunities" of the NHP)	19.8%	18.4 (2012)	18%	17%	19.8 (2013)
Share of overweight school-age children (indicator from the section "Healthy lifestyle" of the NHP)	7.4% (2005/2006 academic year)	10.5% (2011/2012 academic year)	6.5%	6.0%	11.3% (2013/2014 academic year)
Share of 15–16-year-olds that have tried illegal narcotics (indicator from the section "Healthy lifestyle" of the NHP)	30% (2007)	32% (2011)	24%	21%	38% (2016)

* Target level adjusted according to the base level due to intermediate very good results.

Source: Ministry of Social Affairs, the National Institute for Health Development

⁹¹ The National Audit Office of Estonia did not analyse how this problem is being dealt with due to lack of data; according to the Estonian Dental Association, medical bills are not an adequate information to assess the presence of caries, because medical bills do not differentiate between treatment and examination of teeth.

Appendix H. Positions filled by paediatricians by counties per 10,000 children in 2013

County, city	Number of children 2013	Positions of a paediatrician	Filled positions of a paediatrician	Filled positions of a paediatrician per 10,000 up to 19 y/o children
Harju, Tallinn	116,380	55	55	4.8
Tartu, Tartu	33,176	42.7	37.7	11
Ida-Viru	27,369	10.5	7.5	2.7
Pärnu	17,842	11.5	9.75	5.4
Lääne-Viru	13,090	2	1.25	1
Viljandi	9,954	1.4	1.4	1.4
Rapla	7,808	0.75	0.75	1
Võru	7,021	2	2	2.8
Jõgeva	6,578	0.2	0.2	0.3
Järva	6,512	2	2	3
Valga	6,445	1.25	1.25	2
Saare	6,373	1.5	1.5	2.3
Põlva	5,635	1.2	0.6	1
Lääne	4,938	2	1	2
Hiiu	1,719	0	0	0

Source: Estonian Paediatric Association

Appendix I. Average number of receiving a service among obese children by regions in 2011–2014

Region	Year	Average receiving of the service among all analysed children according to the residence of the child	Average number of services received by the children in the respective year according to the residence of the child
Central Estonia (Järva, Rapla, Lääne-Viru County)	2011	2.1	2.1
	2012	1.7	3.0
	2013	0.9	2.7
	2014	0.6	5.0
Northeast-Estonia (Ida-Viru County)	2011	1.8	1.8
	2012	0.4	1.7
	2013	0.2	1.3
	2014	0.04	1.0
South-Estonia (Võru, Põlva, Tartu, Jõgeva, Viljandi, Valga County)	2011	1.5	1.5
	2012	0.2	2.5
	2013	0.03	1.0
	2014	0.2	1.8
West-Estonia (Pärnu, Hiiu, Saare, Lääne County)	2011	1.6	1.6
	2012	0.2	2.0
	2013	0.3	2.5
	2014	0.5	3.0
North-Estonia (Harju County)	2011	2.3	2.3
	2012	1.9	4.8
	2013	0.8	3.7
	2014	0.4	2.3
Total services received per one person		3.9	3.9

Source: Data of the Estonian Health Insurance Fund, analysis of the National Audit Office of Estonia

Appendix J. Number of health services provided to obese children by the service provider and region during the period 2011–2014

Region	Medical specialist	Nurse (of a medical specialist)	Physiotherapy	Family physician	Family nurse	Psychology	Day treatment	In-patient
Central Estonia (Järva, Rapla, Lääne-Viru County)	26	8	3	7			3	
Northeast-Estonia (Ida-Viru County)	28	6		22	2			
South-Estonia (Võru, Põlva, Tartu, Jõgeva, Viljandi, Valga County)	28	5		21	2			1
West-Estonia (Pärnu, Hiiu, Saare, Lääne County)	16	5		24	1			4
North-Estonia (Harju County)	215	85	17	77	7	21	16	2
Abroad	4	1		3				
Total	317	110	20	154	12	21	19	7

Source: Data of the Estonian Health Insurance Fund, analysis of the National Audit Office of Estonia

Appendix K. Children born in 2009 undergoing medical examinations according to the residence during the period 2012–2014

Table 14. Undergoing a medical examination once per 1,000 residents of the same age according to the residence, regional and rural/urban area

Residence	Number of residents born in 2009	Children that underwent a medical examination at least once during a period of three years	Children than underwent a medical examination once per 1,000 residents of the same age
Central Estonia (Järva, Rapla, Lääne-Viru County)	1,357	599	441.4
Northeast-Estonia (Ida-Viru County)	1,343	515	383.5
South-Estonia (Võru, Põlva, Tartu, Jõgeva, Viljandi, Valga County)	3,756	2,082	554.3
West-Estonia (Pärnu, Hiiu, Saare, Lääne County)	1,635	853	521.7
North-Estonia (Harju County)	7,475	3,369	450.7
Urban	12,150	5,775	475.3
Rural	3,416	1,643	481.0
Total	15,566	7,418	476.6

Source: Estonian Health Insurance Fund, population register

Table 15. Undergoing a medical examination three times per 1,000 residents of the same age according to the residence, regional and rural/urban area

Residence	Number of residents born in 2009	Children than underwent a medical examination at least three times (medical examinations undergone according to the guideline for medical examinations)	Children than underwent a medical examination three times per 1,000 residents of the same age
Central Estonia (Järva, Rapla, Lääne-Viru County)	1,357	53	39.1
Northeast-Estonia (Ida-Viru County)	1,343	32	23.8
South-Estonia (Võru, Põlva, Tartu, Jõgeva, Viljandi, Valga County)	3,756	197	52.5
West-Estonia (Pärnu, Hiiu, Saare, Lääne County)	1,635	68	41.6
North-Estonia (Harju County)	7,475	173	23.1
Urban	12,150	400	32.9
Rural	3,416	123	36.0
Total	15,566	523	33.6

Source: Estonian Health Insurance Fund, population register

Appendix L. Share of children that received dental care in 2011–2014 according to the year of birth of the child

Year of birth of the child	Number of children that went to a dental appointment moderately during a period of 5 years	Share of the average of 5 years of the number of children born in the respective year (%)	Share of children who received dental care in 2015 (%)
1996	7,025	53	52
1997	6,761	54	54
1998	6,624	54	52
1999	7,299	59	53
2000	7,848	60	55
2001	7,981	63	57
2002	8,876	68	59
2003	9,059	69	64
2004	10,133	72	65
2005	10,409	73	69
2006	10,383	70	72
2007	10,213	65	73
2008	9,197	57	75
2009	7,344	47	70
2010	5,501	35	65
2011	3,257	22	55
2012	2,126	15	40
2013	960	–	16
2014	373	–	4

Source: Data of the Estonian Health Insurance Fund, analysis of the National Audit Office of Estonia

Appendix M. Shares of vaccinated children and those refusing vaccinations, incl. compliance with the requirements of the WHO

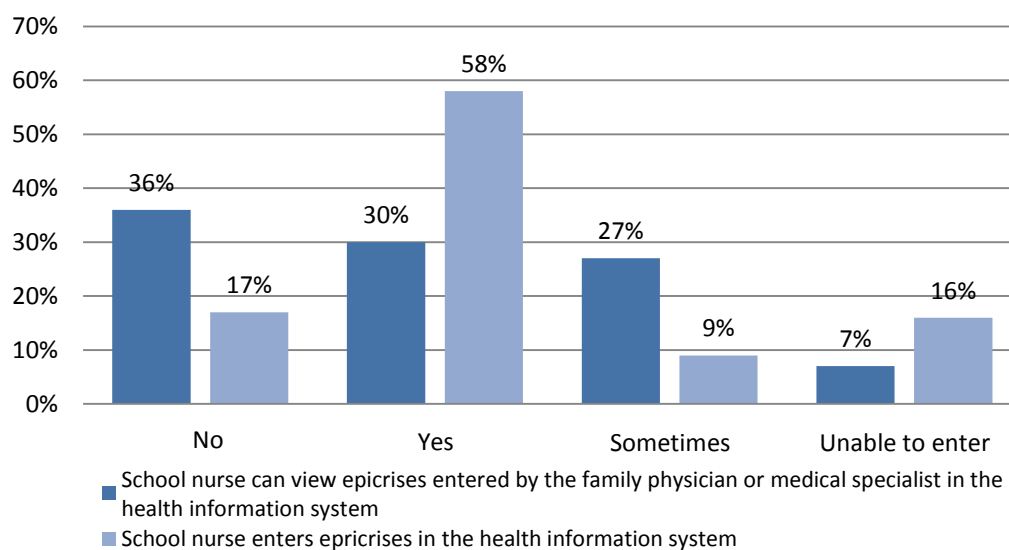
	Tuber- culosis (%)	Diphtheria, tetanus (%)	Pertussis (%)	Polio- myelitis (%)	Measles, mumps, rubella (%)	Hepatitis B virus (%)	Hib* – infection that causes meningitis (%)
Requirement of the WHO with regard to vaccinating 2-year-old children	–	95	90	95	95	–	–
Compliance with the requirement of the WHO in Estonia on average in 2014	95.1	94.5	94.5	94.5	93.4	94.1	95
Compliance with the requirement of the WHO in Estonia on average in 2013	95.9	94.8	94.8	94.8	93.7	94.7	95.1
Up to 14-year-old children refusing from vaccinations in 2014	1.9	2.8	3.2	2.8	3.10	3.50	2.5
Up to 14-year-old children refusing from vaccinations in 2013	1.7	2.5	2.9	2.5	2.8	3.2	2.1
Share of vaccinations in 2014 among up to 1-year-old children	95.1	93.3	93.3	93.3	–	92.2	93.6

* Hib – *Haemophilus influenzae* type b infection

Source: Data of the Health Board, data of the WHO

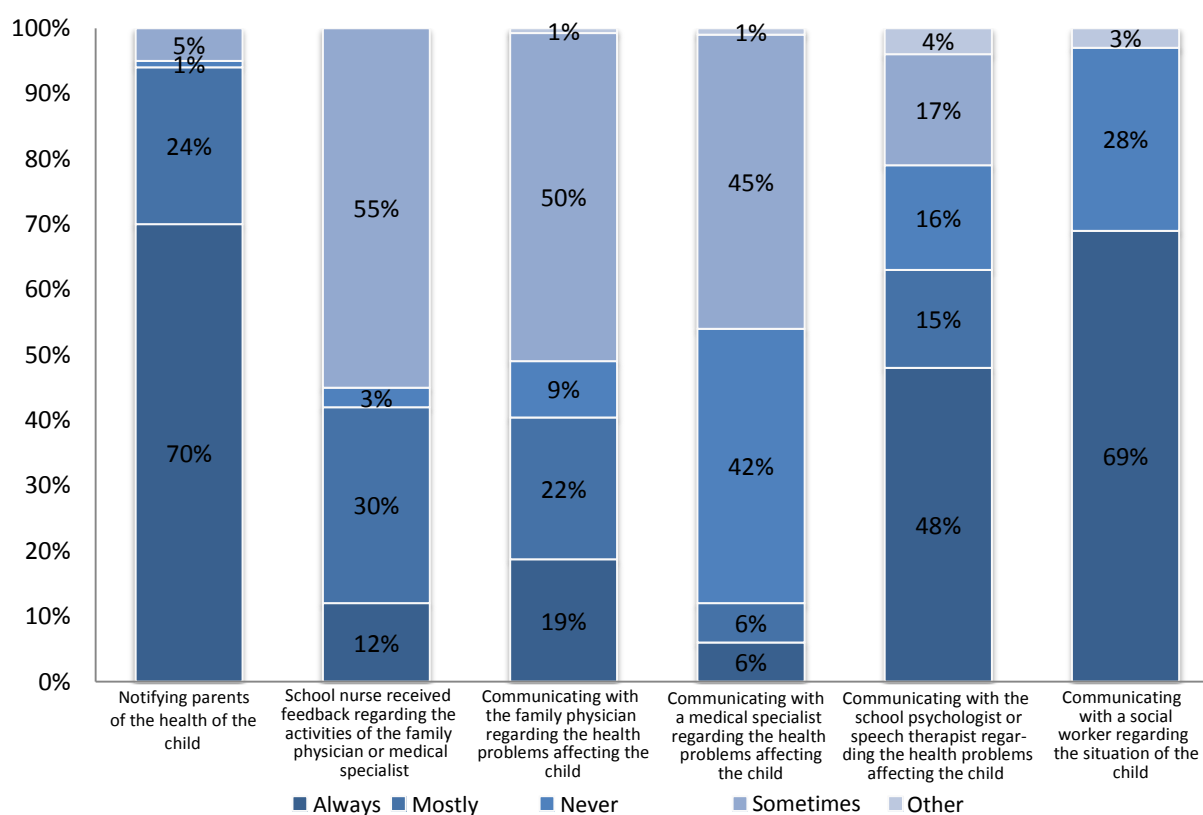
Appendix N. Information flow between school nurses and other specialists

Figure 17. Sending epicrisis to the health information system and viewing other entered data by a school nurse



Source: data of the online survey of school nurses, analysis of the National Audit Office of Estonia

Figure 18. Communication of the school nurse with different specialists and the parent regarding the problems affecting the child



Source: online survey of school nurses, analysis of the National Audit Office of Estonia

Appendix O. Different levels of health promotional interventions

Level of intervention	Intervention strategy	Sustainability	Effect
Individual-based interventions	Focus on distributing information and educating in order to promote changes in the behaviour, attitude and beliefs of an individual. Usually concerns behavioural problems such as smoking, consuming alcohol, excess eating.	Initial implementation doesn't take too much time, but continuously requires money to stay operational.	It is found that it does not have a particularly big impact on changes in behaviour both at the level of an individual and at the level of the entire population, but it does not inhibit other interventions.
Organisation-based interventions	Changes in rules and customs, incl. amending laws, redistributing roles, establishing sanctions, giving incentives. Enables better access to social, educational and health care resources in order to promote health.	Initial implementation requires a longer timeframe. However, once the intervention has already been implemented, it requires few continuous resources.	Successfully carrying out an organisational change has a big impact on the activity of an individual. At the same time, there is a great risk if the environment isn't ready for the change. Organisations may not always be capable of seeing the change through.
Community-based activities	Role of the state is minimal; initiatives of people forming a community Focus on social activities and joint planning in order to establish a better environment as new networks and cooperation.	Requires a significant amount of additional resources over a longer period of time, but it is possible to systematically withdraw from it once the new environment has been established.	Interventions have a big impact on the behaviour of an individual and the environment if the change has been carried out by the community itself. There may be resistance within the community or between communities to the redistribution of resources or changing the existing environment. These factors mean that interventions require long-term support, the effect may dissipate quickly if the support falls away too early.
Activities based on an institutional change	Advocating in order to change the views and decisions of parties preparing legislations. This often requires a lot of lobbying, sharing information and demonstrating the will of the community.	Requires a significant amount of resources over a longer period of time, but it is possible to systematically withdraw from it once the new environment has been established.	Big impact on the physical environment and the behaviour of individuals if the institutional change has been carried out, but there is usually resistance to this type of interventions.

Source: H. Swerissen, B. R. Crisp The sustainability of health promotion interventions for different levels of social organization. Health Promotion International 2004; 19(1): 123–130.
<http://heapro.oxfordjournals.org/content/19/1/123/T1.expansion.html>.

Appendix P. Research-based interventions in Estonia

VEPA

VEPA (*Even Better*) is a behavioural skills game, the aim of which is the prevention of drugs, but VEPA also includes prevention of dropping out of school and development of social skills. VEPA (*PAX – Good Behaviour Game* in English) in Estonia is led by the National Institute for Health Development.⁹² VEPA is a licenced intervention from the United States of America that was trialled in Estonia in the 2014/2015 academic year and is thereafter financed with the funds from the European Social Fund through the Ministry of Social Affairs for five years.

According to the evidence, the most effective universal programmes for the prevention of drugs are those that do not focus on the drugs but on the development of social skills and improving the way people cope with issues.

The first assessment of the VEPA results has shown positive results. The results have been measured in intervention classes and also in control classes for comparison. In intervention classes, the involvement of children in class activity was even better in the than in autumn, which is a very good result, because children are generally tired of the school year by spring and involvement is smaller.

In Estonia, VEPA was trialled in the 2014/2015 academic year in Grade 1 classes in cooperation of the National Institute for Health Development and the KiVa Anti-Bullying Program (SA Kiusamise Vastu). The project was carried out in two stages. 10 intervention classes (one class from each school) participated in stage I and 10 intervention and control classes, two parallel classes from one school, participated in stage II. Teacher training programmes took place in October 2014 and January 2015. At the end of the school year, intervention classes of stage I had implemented the game for approximately 7 months and classes of II stage approximately 4 months.

In the course of the pilot project, the following data collection methods were used to measure the effectiveness of the activity: filling in the satisfaction survey by teachers after the training programme, classroom observations carried out by the employees of the National Institute for Health Development, surveys completed by the class teacher regarding strengths and difficulties faced; filling in the feedback form for the project by teachers.

Data collected by the end of the project indicate that teachers have given a positive assessment on the game, the occurrence of behavioural patterns interfering with studying has significantly decreased in the classroom, and socialising and cooperation between students has increased and hyperactivity has decreased in the intervention classes of stage I. According to the survey, no significant changes were detected in the intervention classes of stage I. It must be taken into account, however, that materials, teacher training, work of mentors, etc. was still being tested and adapted during stage I of the pilot project and the project was implemented to its full extent only in stage II from January.

Until 2021, the VEPA game is being carried out with support from the European Social Fund 2014–2020, using the measure “Preventing risky behaviour, supporting families at risk and developing a safe living environment”. The Ministry of Internal Affairs has allocated nearly 140,000 euros to test the game in Estonia and an additional 965,000 euros will be allocated in the coming years.⁹³

Wonderful Years

The objective of the parenting program *Wonderful Years* is to help parents develop effective coping strategies, prevent behavioural problems affecting children and find answers to questions concerning the development of children.

⁹² <http://www.terviseinfo.ee/et/tervise-edendamine/koolis/tervise-edendamine-koolis/koostooprojektid/vepa-mang>

⁹³ <http://www.terviseinfo.ee/et/uudised/4410-siseministerium-suunab-ligi-miljon-eurot-noorte-riskikaitumise-ennetuseks>

Within the framework of the grant programme “Children and youth at risk” of the European Economic Area, the Ministry of Social Affairs in cooperation with the National Institute for Health Development is carrying out a parenting programme of the subprogramme aimed at the parents of 3–6-year old children (*IY Basic Preschool*) of the evidence-based parenting programme *Wonderful Years* originating from the United States that has been adapted for Estonia.⁹⁴ As of 2016, the parenting programme *Wonderful Years* is partially financed from the state budget, i.e. in the amount 166,048 euros per year. An additional application has been submitted to the state budget for increasing the state budgetary funding for 2017 when the programme ceases to be financed from the grant of the European Economic Area.

Parties to the intervention include the National Institute for Health Development and local governments. The National Institute for Health Development is finding the group leaders and is organising training for them and equips them with learning materials, while local governments are responsible for the technical organisation of training programmes. Since a Russian version of the programme *Wonderful Years* was already available, the selection among two evidence-based parenting programmes (the selection also included Triple P) was made in favour of *Wonderful Years*.

The programme took place from October 2014 to April 2016, during which time the project was implemented and the impact thereof and prerequisites for the expansion thereof were assessed. The results of assessing the impact revealed important positive results with regard to the implementation thereof in Estonia: the results of groups in the first two training period indicate that the intensity of the occurrence of problematic behaviour among children had significantly decreased by the end of the training programme and the improvement of behaviour had also continued following the training programme to some extent.⁹⁵

As an additional programme, the *Advance* programme that is aimed at the parents of 4–12-year-old children who have completed the Basic Preschool training programmes and whose children have not shown a significant decrease in behaviour problems after completing the first programme is brought to Estonia in the autumn of 2016.

Effect

The main objective of the programme *Effect* is to postpone the age of consuming alcohol for the first time and to decrease consumption of alcohol among the youth. During the 2012/2013 academic year, the National Institute for Health Development carried out an alcohol prevention programme *Effect* in grade 5 classes in 34 schools, but the assessment results of the programme indicated that the objectives of the programme were achieved only partially, and the Institute will not continue to implement the programme in the same form.

Funds prescribed for the programme *Effect* are used to develop new methods of intervention aimed at parents.

In conclusion

The national priority cannot be a maximum number of ongoing interventions, rather the aim should be to integrate proven effective activities into the programme. This has been achieved with regard to, for example, balanced and varied food both in school and kindergarten. The aforementioned activities are mostly funded on a basis of a project, and the National Institute for Health Development has also confirmed that funds are not found for interventions in the state budget. A positive example, however, is that the programme *Wonderful Years* will continue in 2016 partially with financing from the state budget. The programme *Effect* will not continue, but the funds planned for the project will be used to develop a new intervention method for parents. The problem both in Estonia and abroad is that there is no reliable health statistics that could be relied on upon planning interventions. The statistics of incidences is not suitable for that purpose, excl. in the event of injuries (statistics on injuries has been used). Lack of data necessary for planning affects the youngest age group, up to 7-year-old children, the most.

⁹⁴ <http://www.tai.ee/et/instituut/koostoopprojektid/vanemlusprogrammi-rakendamise-pilootprojekt>

⁹⁵ https://intra.tai.ee/images/prints/documents/14633896383_Vanemlusprogrammi_I-II%20etapi%20tulemused.pdf