



Health Care Personnel in Estonia 2017



Tervise Arengu Instituut
National Institute for Health Development

National Institute for Health Development

Health Care Personnel in Estonia 2017

Katrin Tomson

Tallinn 2019

The **mission** of the National Institute for Health Development is to establish and share health related knowledge as well to influence health behaviour and determinants of health so as to increase the wellbeing of the people in Estonia and help them live longer and healthier lives.

Front cover photo: Tallinn Children's Hospital Foundation

I would like to thank my colleagues for the advice and comments.

Refer to source when using publication data. Recommended reference to this publication:

Tomson K. Health Care Personnel in Estonia 2017. Tallinn: National Institute for Health Development; 2019.

Table of contents

- Figures..... 5
- Tables..... 6
- Definitions..... 7
- Abbreviations..... 8
- Summary..... 9
- Introduction..... 10
- 1 Methodology..... 11
- 2 Number of health care personnel..... 13
 - 2.1 Number of physicians 13
 - 2.2 Number of dental physicians and dental nurses..... 15
 - 2.3 Number of nurses, midwives and care workers..... 16
 - 2.4 Number of other health care personnel..... 17
- 3 Gender distribution of health care personnel..... 18
 - 3.1 Gender distribution of physicians..... 18
 - 3.2 Gender distribution of dental physicians and dental nurses 20
 - 3.3 Gender distribution of nurses, midwives and care workers 21
 - 3.4 Gender distribution of other health care personnel..... 22
- 4 Average age and age distribution of health care personnel..... 23
 - 4.1 Average age and age distribution of physicians..... 23
 - 4.2 Average age and age distribution of dental physicians and dental nurses 26
 - 4.3 Average age and age distribution of nurses, midwives and care workers..... 28
 - 4.4 Average age and age distribution of other health care personnel..... 30
- 5 Distribution of health care personnel between public and private sector..... 32
 - 5.1 Distribution of physicians between public and private sector..... 32
 - 5.2 Distribution of dental physicians and dental nurses between public and private sector 34
 - 5.3 Distribution of nurses, midwives and care workers between public and private sector 35
 - 5.4 Distribution of other health care personnel between public and private sector..... 36
- 6 Workload of health care personnel..... 37
 - 6.1 Actual load of physicians 37
 - 6.2 Actual load of dental physicians and dental nurses..... 39
 - 6.3 Actual load of nurses, midwives and care workers..... 40
 - 6.4 Actual load of other health care personnel..... 41
- 7 Wages of health care personnel..... 42
 - 7.1 Total hourly wage of physicians..... 42
 - 7.2 Total hourly wage of dental physicians and dental nurses..... 44

7.3 Total hourly wage of nurses, midwives and care workers	45
7.4 Total hourly wage of other health care personnel	46
8 Posts filled by health care personnel by county.....	47
8.1 Posts filled by physicians by county.....	48
8.2 Posts filled by dental physicians and dental nurses by county	49
8.3 Posts filled by nurses, midwives and care workers by county.....	49
8.4 Posts filled by other health care personnel by county.....	50
9 Migration of health care personnel.....	51
9.1 Certificates issued for working abroad.....	51
9.2 Foreign-trained physicians and nurses in Estonia.....	53
9.3 Physicians and nurses trained in Estonia working abroad	54
References.....	55

Figures

Figure 1. Number of health care personnel by main occupational group in Nov 2013 and 2017	13
Figure 2. Number of physicians in Nov 2017 and change compared to 2013.....	14
Figure 3. Number of dental physicians and dental nurses in Nov 2017 and change compared to 2013.....	15
Figure 4. Number of nurses, midwives and care workers in Nov 2017 and change compared to 2013.....	16
Figure 5. Number of other health care personnel in Nov 2017 and change compared to 2013	17
Figure 6. Gender distribution of physicians in Nov 2017	19
Figure 7. Gender distribution of dental physicians and dental nurses in Nov 2017.....	20
Figure 8. Gender distribution of nurses, midwives and care workers in Nov 2017.....	21
Figure 9. Gender distribution of other health care personnel in Nov 2017	22
Figure 10. Average age of physicians in Nov 2017 and 2013	24
Figure 11. Age distribution of physicians in Nov 2017	25
Figure 12. Average age of dental physicians and dental nurses in Nov 2017 and 2013.....	26
Figure 13. Age distribution of dental physicians and dental nurses in Nov 2017	27
Figure 14. Average age of nurses, midwives and care workers in Nov 2017 and 2013.....	28
Figure 15. Age distribution of nurses, midwives and care workers in Nov 2017.....	29
Figure 16. Average age of other health care personnel in Nov 2017 and 2013	30
Figure 17. Age distribution of other health care personnel in Nov 2017.....	31
Figure 18. Distribution of physicians between public and private sector in Nov 2017	33
Figure 19. Distribution of dental physicians and dental nurses between public and private sector in Nov 2017.....	34
Figure 20. Distribution of nurses, midwives and care workers between public and private sector in Nov 2017.....	35
Figure 21. Distribution of other health care personnel between public and private sector in Nov 2017	36
Figure 22. Distribution of physicians by actual load in Nov 2017	38
Figure 23. Distribution of dental physicians and dental nurses by actual load in Nov 2017.....	39
Figure 24. Distribution of nurses, midwives and care workers by actual load in Nov 2017	40
Figure 25. Distribution of other health care personnel by actual load in Nov 2017	41
Figure 26. Total hourly wage of physicians in March 2017	43
Figure 27. Total hourly wage of dental physicians and dental nurses in March 2017	44
Figure 28. Total hourly wage of nurses, midwives and care workers in March 2017.....	45
Figure 29. Total hourly wage of other health care personnel in March 2017	46
Figure 30. Posts filled by physicians per 100,000 inhabitants by county in Nov 2017	48
Figure 31. Posts filled by dental physicians and dental nurses per 100,000 inhabitants by county in Nov 2017.....	49

Figure 32. Posts filled by nurses, midwives and care workers per 100,000 inhabitants by county in Nov 2017 49

Figure 33. Posts filled by other health care personnel per 100,000 inhabitants by county in Nov 2017 50

Tables

Table 1. Total number of certificates of recognition of professional qualifications for working abroad requested in 2017, and in years 2004–2017 51

Table 2. Foreign-trained physicians and nurses in Estonia 2017 53

Table 3. Physicians and nurses who work abroad but have acquired their vocation in Estonia by the last year in which data was published 54

Definitions

Actual load	number of actual hours worked divided with the number of normal working hours. The number of normal working hours per month in November 2017 and in November 2013 was 176 and 168, respectively
Basic hourly wage	base wage, i.e. gross wage paid in March pursuant to the piece, hourly, daily, weekly or monthly wage rate determined in an employment contract or legal act. For calculating the hourly wage, the monthly wage is divided by the number of all working hours (excluding overtime). The hourly base wage is the "pure wage" without regular additional remunerations, additional remunerations for work in the evenings, in the night, on weekends and national holidays and for overtime
County	location of the health care service provider. Data up to 2017 (incl.) has been accounted based on the division applicable prior to the administrative reform
Dental physicians	dentists and dental specialists (orthodontists, oral-maxillofacial surgeons, dental prosthetists)
Full-time equivalent employment	full-time equivalent post i.e. one occupied post equals to 40 working hours per week
Health care personnel	persons who have received professional health care education and are providing health care services (physicians, dentists, nursing personnel or other medical specialists and assistant specialists)
Health care service provider	i.e. a health care institution is a legal person whose principal or ancillary activity is to provide health care services. Health care service providers must have an activity licence issued by the Health Board
Median	middle member of a variation series, dividing employees into two equal groups here, i.e. half of the employees earn a wage equal to or lower than the median, whereas the other half earn a wage equal to or higher than the median
Nursing personnel	nurses and midwives
Occupation	paid work activities consisting of a specific set of tasks and responsibilities in the organisation. Occupations are classified based on the International Occupation Classification of Health Care System ISCO-08
Occupational group	a set of similar occupations. A set of tasks and responsibilities in an organisation or institution for certain work (e.g. physician, nurse, etc.)
Overtime	hours worked that exceed the normal working hours agreed upon by the employer and the employee

Post filled	actual hours worked by full-time equivalents. The number of posts filled is calculated by dividing the number of actual hours worked by full-time, i.e. 176 working hours per month in November 2017
Post filled according to contractual workload	workload established by an employment contract, contract for services, authorisation agreement or another type of contract, i.e. working hours of full-time work agreed between the employer and the employee
Resident dentist	a dentist continuing professional training in residency
Resident physician	a physician continuing professional training in residency
Speciality	knowledge and skills acquired in an educational institution, latest qualifications or speciality
Total hourly wage	includes the basic wage (see: basic hourly wage) and regular additional remunerations, additional remunerations for evening work, night work, working on days off and national holidays and for overtime. The wage is divided by all working hours (including overtime)

Abbreviations

HCP	health service provider
NIHD	National Institute for Health Development

Summary

Since 2013 National Institute for Health Development started to collect health care personnel data on personal basis. In two analyses published within 4 years after that, only data about doctors and nurses was provided.

The current analysis presents an overview of the number, gender, age, workload, hourly wages, migration, geographical distribution and distribution between public and private sectors of health care personnel across different occupations in 2017.

Introduction

National Institute for Health Development (NIHD) collects data for the month of November on health care personnel from all health care service providers registered with the Health Board by online report.

As of 2013, data is collected on a personal basis, which in turn enables detailed analysis, e.g. to determine the number of employees (head count) and other statistical indicators by various occupations, occupational groups, counties, ownership, etc.

The data collected is published regularly in the Health Statistics and Health Research Database (1), provided to Estonian and international organisations, used in the development of the health care system, preparation of various analyses and publications as well as responding to various requests for information.

The previous two health care personnel analyses only addressed physicians and nursing personnel (2, 3). This analysis provides an overview of all health care personnel.

In the first part of this analysis the methodology for collecting data of health care personnel is described, whereas in the following parts an overview of the number, gender, age, workload, wage, distribution of full-time equivalent employment across counties and migration of health care personnel is given.

NIHD thanks all health care service providers for submission of data on health care personnel.

1 Methodology

As of 2013, NIHD collects data on health care personnel by statistical report "Health care personnel" pursuant to the Health Services Organisation Act (4) and on the basis of the Regulation of the Minister of Social Affairs No. 51 of 7 December 2012 "Requirements for the preparation of reports on health care statistics and economic activities in the field of health care, the composition of the data and the procedure for the submission of these" (5). Data is collected for the month of November (6).

Pursuant to subsection 1 of § 3 of the Health Services Organisation Act, health care personnel are doctors, dentists, nurses and midwives if they are registered with the Health Board (4). The health care personnel statistics of NIHD covers specialists in other health care areas and assistant specialists as well.

Within the framework of this report, all persons are considered among health care personnel, with whom a health care provider (HCP) has been in an employment relationship by employment contract, contract for services, authorisation agreement or within the framework of any other contract, regardless of the type of contract.

All sole proprietors and owners of private limited companies, who are providing health care services, are also considered health care personnel.

In the case of HCPs, whose main activity is not provision of health care services, only the part of employees, who are providing health care services, is reflected in the dataset. Non-medical personnel, such as accountants, IT specialists and others (except psychologists, social workers and heads of medical departments of companies / heads of units, who are considered health care personnel by NIHD) are not reflected in the dataset.

Data has been collected on a personal basis since 2013, allowing to determine the number of employees by their occupation, occupational group, county, type of hospital and so on, to ensure single mention of any one person in the records. For instance, in case one person worked as a physician in two posts and as a nurse in one post, he or she is accounted for in all three posts. Therefore, the number of health care personnel (persons) working in different occupations or occupational groups may be higher than the total number of health care personnel (persons). This also applies to the sum of health care personnel by type of hospital, county, etc.

Resident physicians and resident dentists have been recorded as physicians and dental physicians respectively (excl. in chapter "Wages of health care personnel"). Resident physicians and resident dentists, who are working under a residency contract, are recorded by the speciality they are acquiring.

Students who are studying to become a physician or a dentist are not considered physicians or dental physicians. They have been referred to in the statistics of health care personnel as "assistant physician (student)" or "trainee in dental medicine (student)" respectively. Similar student occupations also include assistant nurse, assistant midwife and assistant radiology technician.

Due to the general nature of work specifics, the occupation of nurses does not include dental nurses/assistants.

Full-time equivalent employment by contract load means workload established by an employment contract, contract for services, authorisation agreement or another type of contract, i.e. working hours of full-time work agreed between the employer and the employee. Full-time workload (1.0) is equal to the number of normal monthly working hours in (176 h in November 2017). If the workload of a health care personnel has not been specifically set out in the contract, an estimate has been given.

The number of posts filled is calculated by dividing the number of actual hours worked by full-time, i.e. the number of normal working hours. The number of actual hours worked includes all hours worked, incl. "working hours in standby duty", which have not been considered as part of the employment

contract. The number of actual hours worked also includes the time spent at professional trainings, whereas time spent on standby home duty or vacation is not included.

The amount of overtime set out in the statistics of health care personnel indicates the hours worked that exceed the working time agreed upon between employer and employee. Overtime by health care personnel, which is compensated by granting time off later by agreement of the employer and the employee, does not considered as overtime.

Statistics of health care personnel is based on data requested from HCPs. There have been no surveys among health care personnel to determine their actual working time.

Wage data is collected by online annual report "Hourly wage of health care personnel" (7). Data is collected for the month of March.

NIHD follows the Official Statistics Act upon collection and publication of statistical data. Personal data is only used for statistical purposes and is not disclosed to third parties.

2 Number of health care personnel

The number of health care personnel has increased by 9% in four years: there were a total of 23,750 and 21,798 health care personnel in 2017 and 2013, respectively (Figure 1).

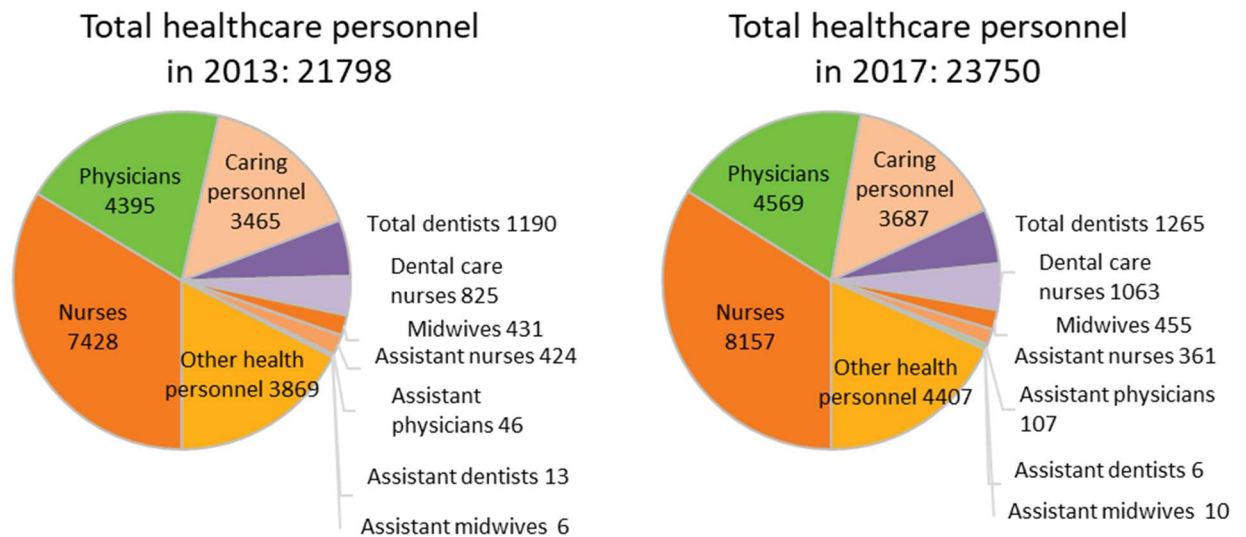


Figure 1. Number of health care personnel by main occupational group in Nov 2013 and 2017

2.1 Number of physicians

In November 2017, a total of 4,569 physicians were working in Estonia, which is 4% more than in 2013 (Figure 1).

The most common groups of physicians were family physicians, anaesthesia and intensive care physicians, and general practitioners with 921, 275 and 274 physicians respectively (Figure 2).

The smallest groups of physicians were that of the clinical microbiologist, vascular surgeon and allergologist-immunologist/allergologist with 2, 2 and 4 physicians respectively.

The number of infection diseases physicians, general practitioners and emergency medicine doctors has increased significantly (by 66%, 57% and 18% respectively). The number of children and youth psychiatrists has grown from two to 11.

However, the number of paediatricians, pulmonologists and rheumatologists has declined (by 13%, 19% and 15% respectively), while the number of children aged 0–14 has grown by 3.5%. The number of adults declined by 0.4% and the total population grew by 0.3% if we consider population on 1 January 2014 and 2018 (8).

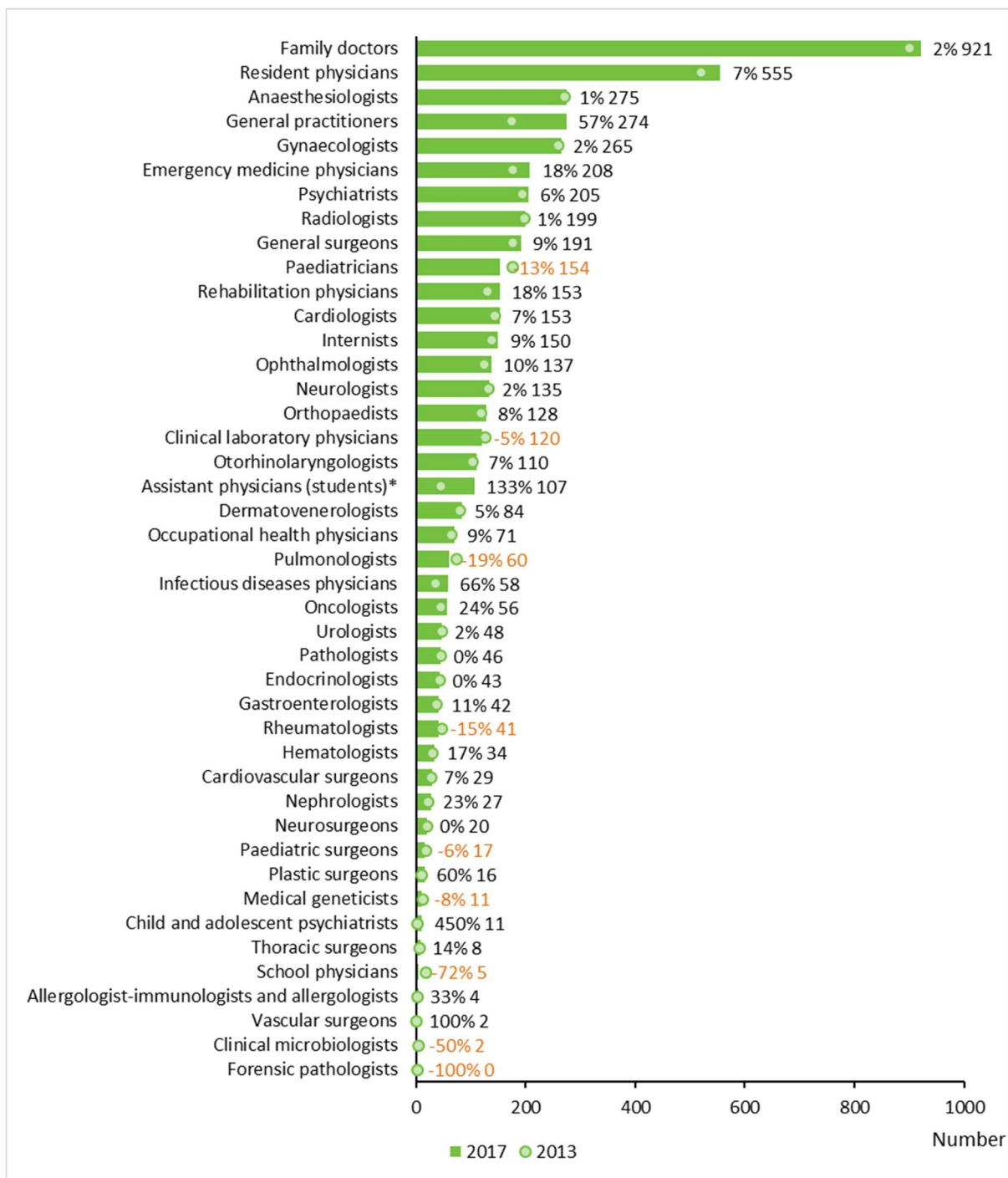


Figure 2. Number of physicians in Nov 2017 and change compared to 2013

* Assistant physicians (students) are not included among physicians

2.2 Number of dental physicians and dental nurses

A total of 1,265 dental physicians cared for our teeth in 2017, which is 6% more than in 2013 (Figure 1). This included 1,139 dentists (growth of 7%) (Figure 3). In addition, dentistry was also practiced by six dentistry students, which is seven less than in 2013.

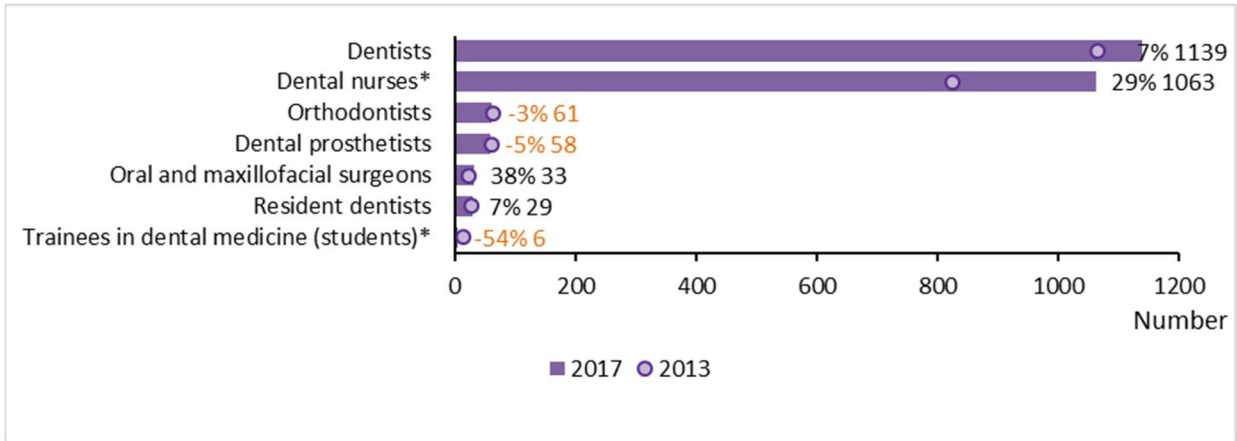


Figure 3. Number of dental physicians and dental nurses in Nov 2017 and change compared to 2013

* Occupations marked with an asterisk are not included among dental physicians

2.3 Number of nurses, midwives and care workers

There was a total of 8,157 active nurses in 2017 (9.8% growth compared to 2013) (Figure 1). The number of nurses has increased in most nursing occupations in the last four years, and the same goes for midwives (Figure 4).

There has been a significant increase of general nurses, family nurses and school nurses (19%, 20% and 15% respectively). The number of operating room nurses, paediatric nurses and rehabilitation nurses has declined (18%, 9% and 11%), as has the number of assistant nurses (15%), who are not included in the total number of nurses.

The number of care workers was 3,687 and represented a growth of 6%.

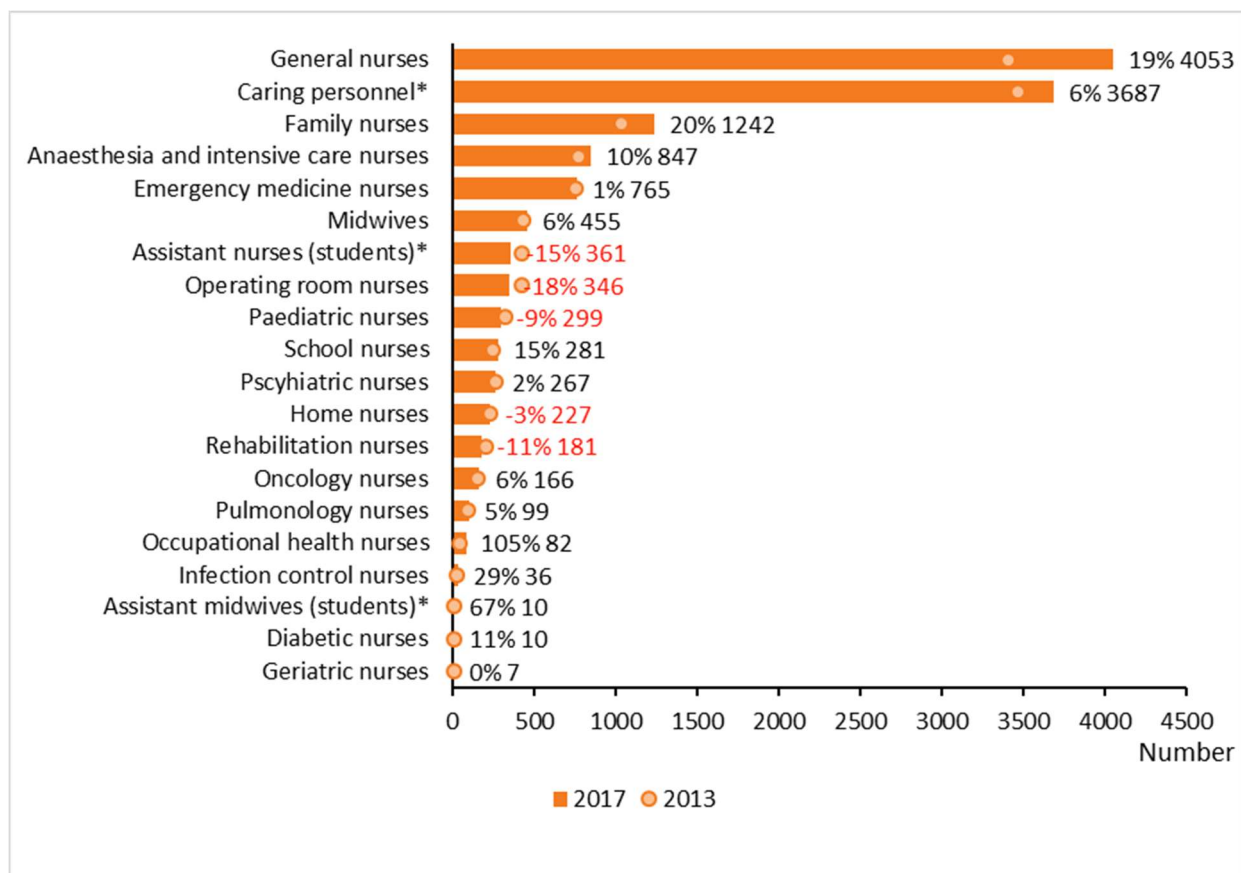


Figure 4. Number of nurses, midwives and care workers in Nov 2017 and change compared to 2013

* Occupations marked with an asterisk are not included among nurses or midwives

2.4 Number of other health care personnel

In addition to physicians, dental physicians, nurses, midwives and other aforementioned health care personnel, our hospitals and other health care institutions also employ various other specialists, technicians and assistant employees. The number of such employees was 4,407 in November 2017, which represented a 14% growth in comparison with 2013 (Figure 1).

The largest growth in most common occupations occurred among ambulance technicians, radiology technicians and physiotherapists with a higher education in medicine (15%, 16% and 30% respectively) (Figure 5).

The few occupations with a declining number of personnel were management (heads of physicians, heads of nursing and heads of hospital pharmacies) and dental technicians with 16% and 27% respectively.

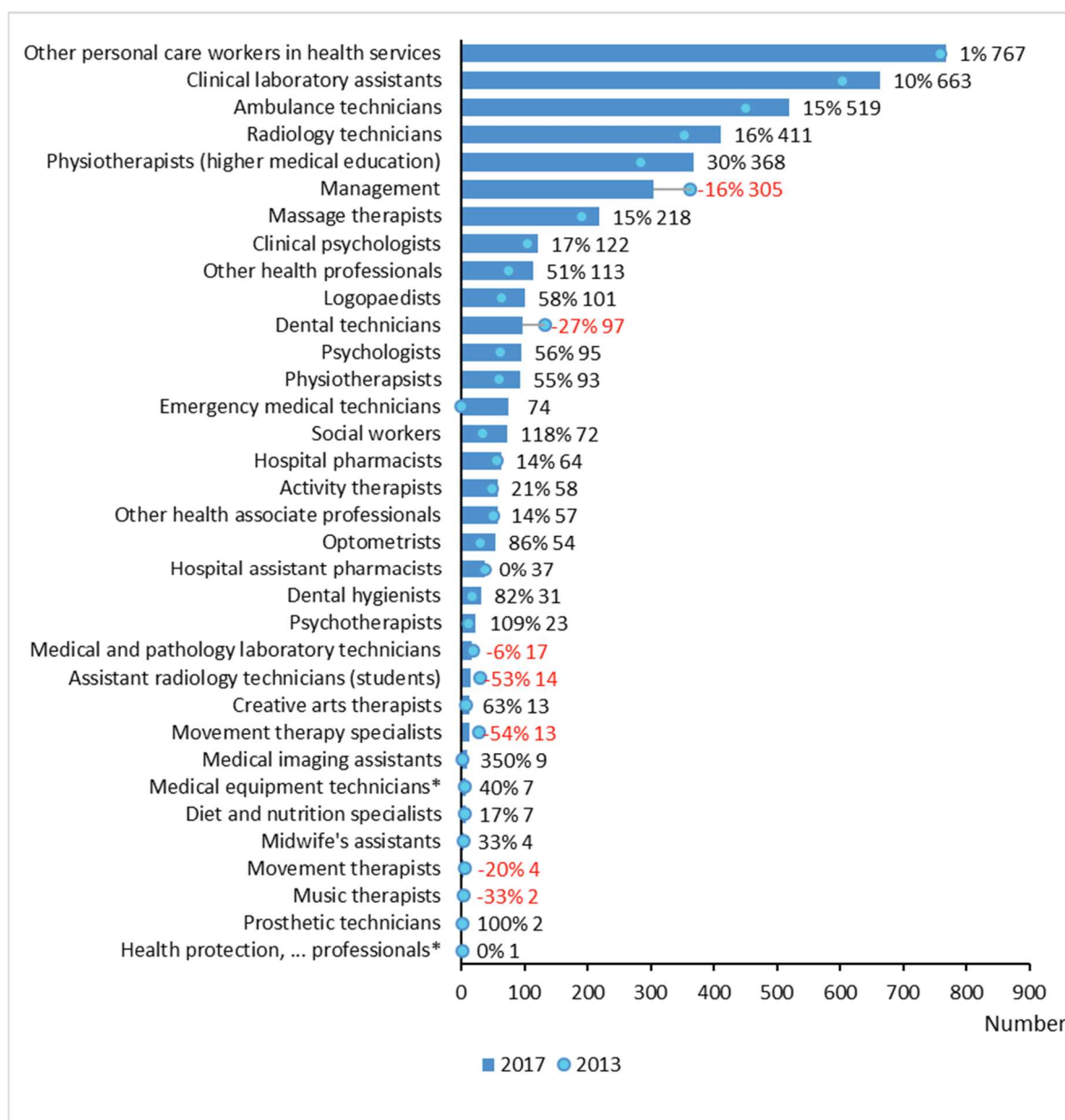


Figure 5. Number of other health care personnel in Nov 2017 and change compared to 2013

* Medical imaging and therapeutic equipment technicians; health protection, occupational health and work hygiene professionals

3 Gender distribution of health care personnel

3.1 Gender distribution of physicians

The gender distribution of physicians in Estonia by occupation has not changed significantly over four years. In 2017, 74% of physicians in Estonia were women (Figure 6). The proportion of women has decreased by 1.3 percentage points in comparison with 2013. Nearly 70% of resident physicians are women, which is 8 percentage points less than in 2013.

Posts of the clinical microbiologist, allergologist-immunologist/allergologist and doctors of school medicine were entirely filled by women, whereas posts of vascular surgeons comprised only men. Other occupations filled mainly by male physicians included that of neurosurgeons, urologists, cardiovascular surgeons, thorax surgeons, general surgeons, orthopaedists and paediatric surgeons, as the proportion of men exceeded 50% in these occupations.

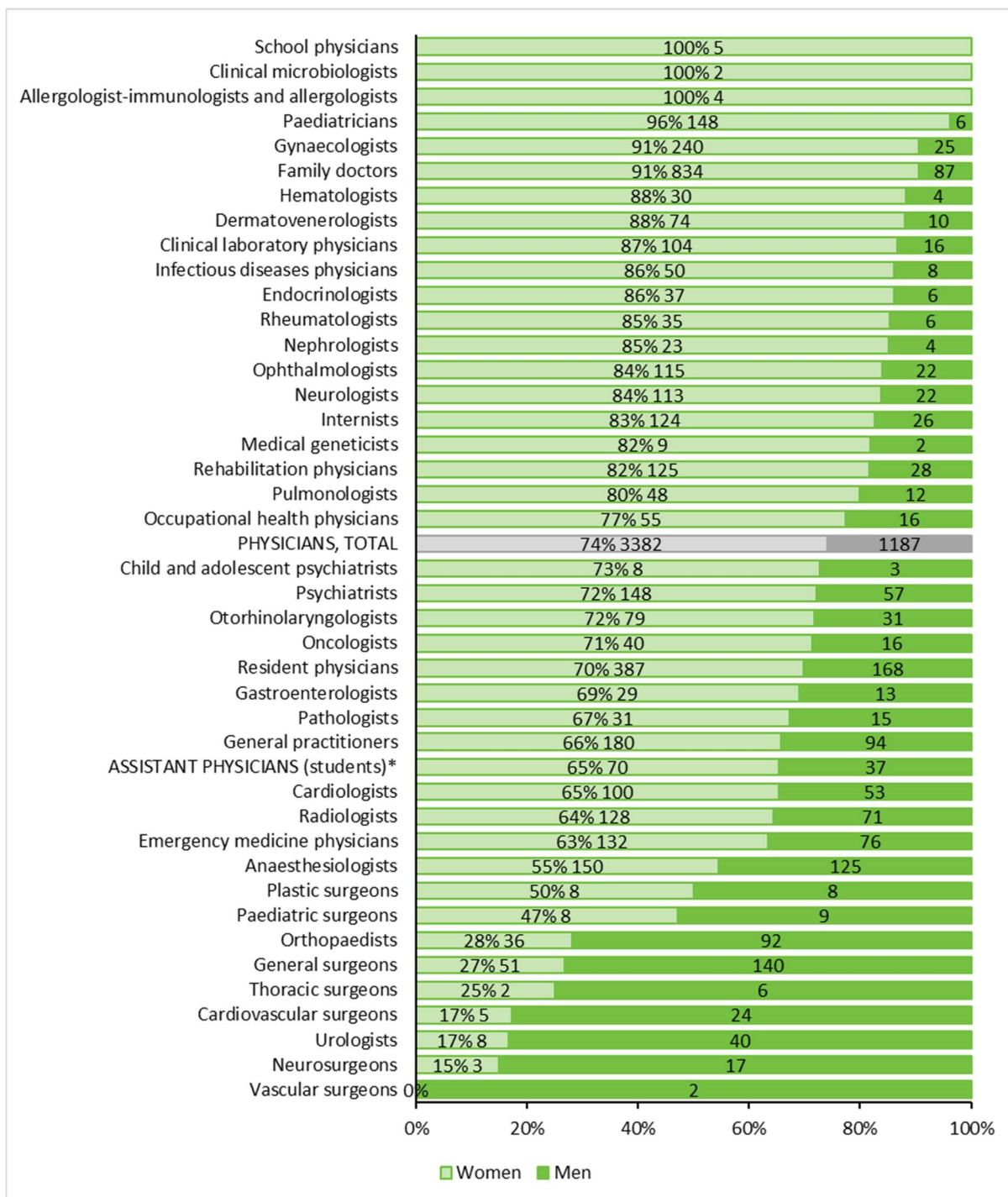


Figure 6. Gender distribution of physicians in Nov 2017

The bars in the Figure display the proportion and number of women and number of men by occupation

* Assistant physicians (students) are not included among physicians

3.2 Gender distribution of dental physicians and dental nurses

The proportion of women in dental physicians was 83% in 2017 (Figure 7). The proportion of women has decreased by 3.1 percentage points in comparison with 2013. Nearly 90% of resident dentists are women, which is approximately 19 percentage points more than in 2013.

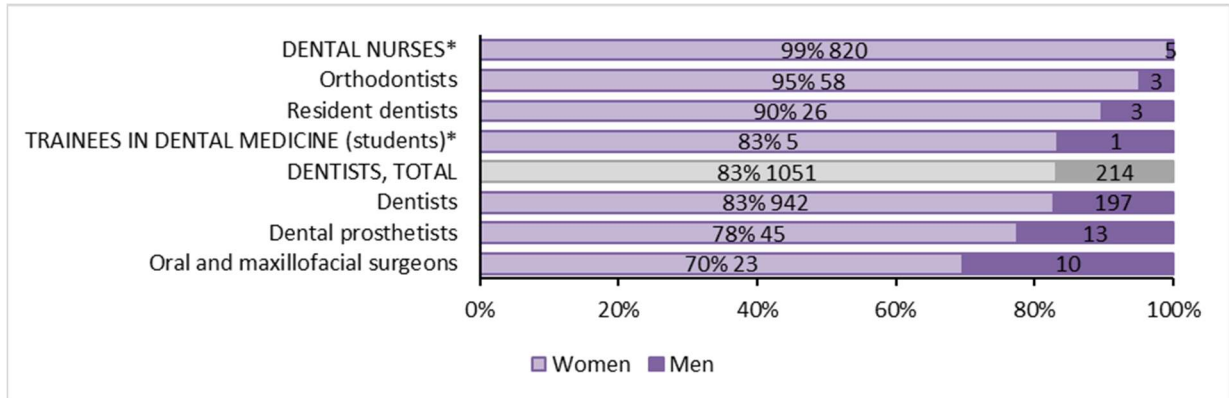


Figure 7. Gender distribution of dental physicians and dental nurses in Nov 2017

The bars in the Figure display the proportion and number of women and number of men by occupation.

* Occupations marked with an asterisk are not included among dental physicians

3.3 Gender distribution of nurses, midwives and care workers

The gender distribution of Estonian nurses by occupation has not changed significantly over four years.

In 2017, 96.6% of all nurses in Estonia were women (Figure 8). The proportion of male nurses has increased by 0.9 percentage points in comparison with 2013.

The proportion of male nurses among emergency medicine nurses, psychiatric nurses and anaesthesia and intensive care nurses was 12.9%, 4.5% and 3.4% respectively, and their share has increased by 3.9, 2.6 and 0.8 percentage points respectively in comparison with 2013. The proportion of women in other nursing occupations was between 97% and 100%.

The proportion of men was the highest among assistant nurses (students) with 15%. This category also includes students of medical science.

Occupations of midwife and assistant midwife (students) comprised only women in 2013 as well as in 2017.

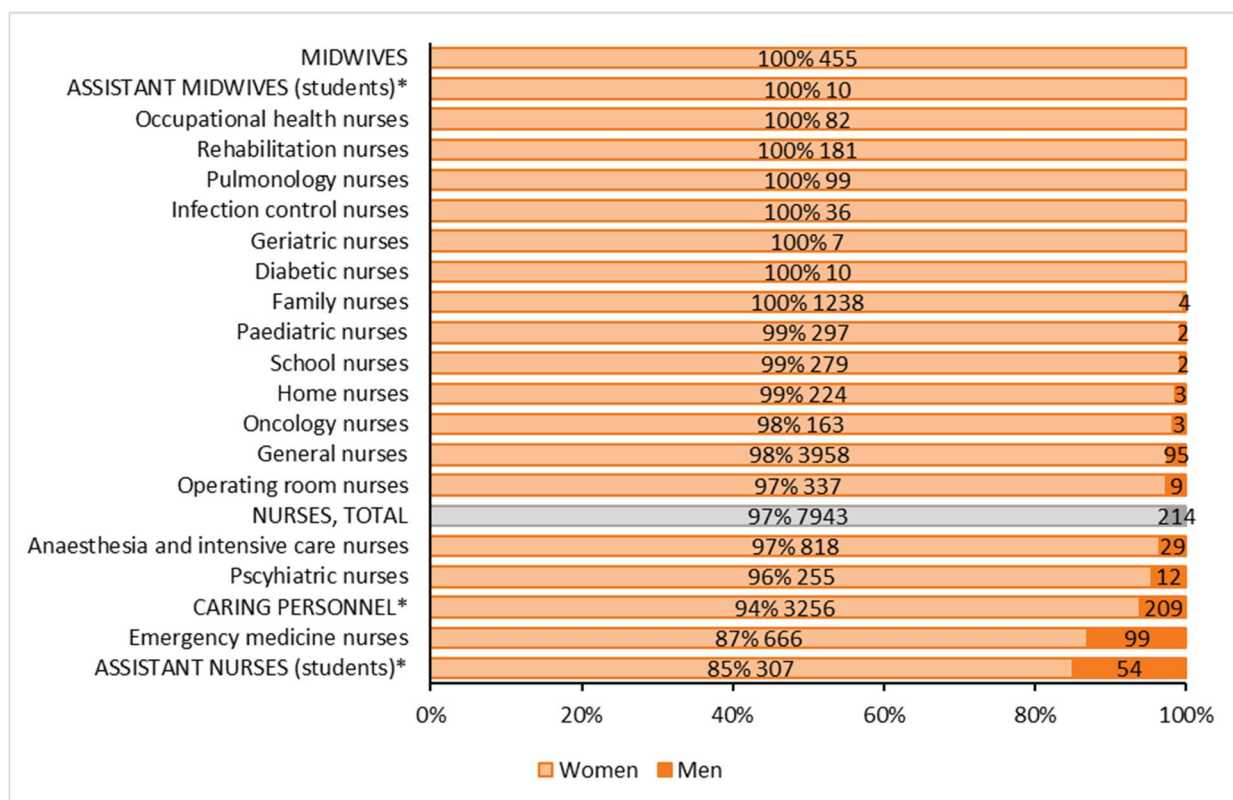


Figure 8. Gender distribution of nurses, midwives and care workers in Nov 2017

The bars in the Figure display the proportion and number of women and number of men by occupation.

* Occupations marked with an asterisk are not included among nurses or midwives

3.4 Gender distribution of other health care personnel

Gender distribution in other occupations of health care personnel in 2017 was like that of 2013 with 81% of personnel being female (Figure 9).

Male employees were mostly working as ambulance technicians (95%) and emergency medical technicians (62%). The last occupation was entered to the list in 2016. Approximately a fifth of psychologists, 14% of psychotherapists and 10% of clinical psychologists working at health care institutions are men.

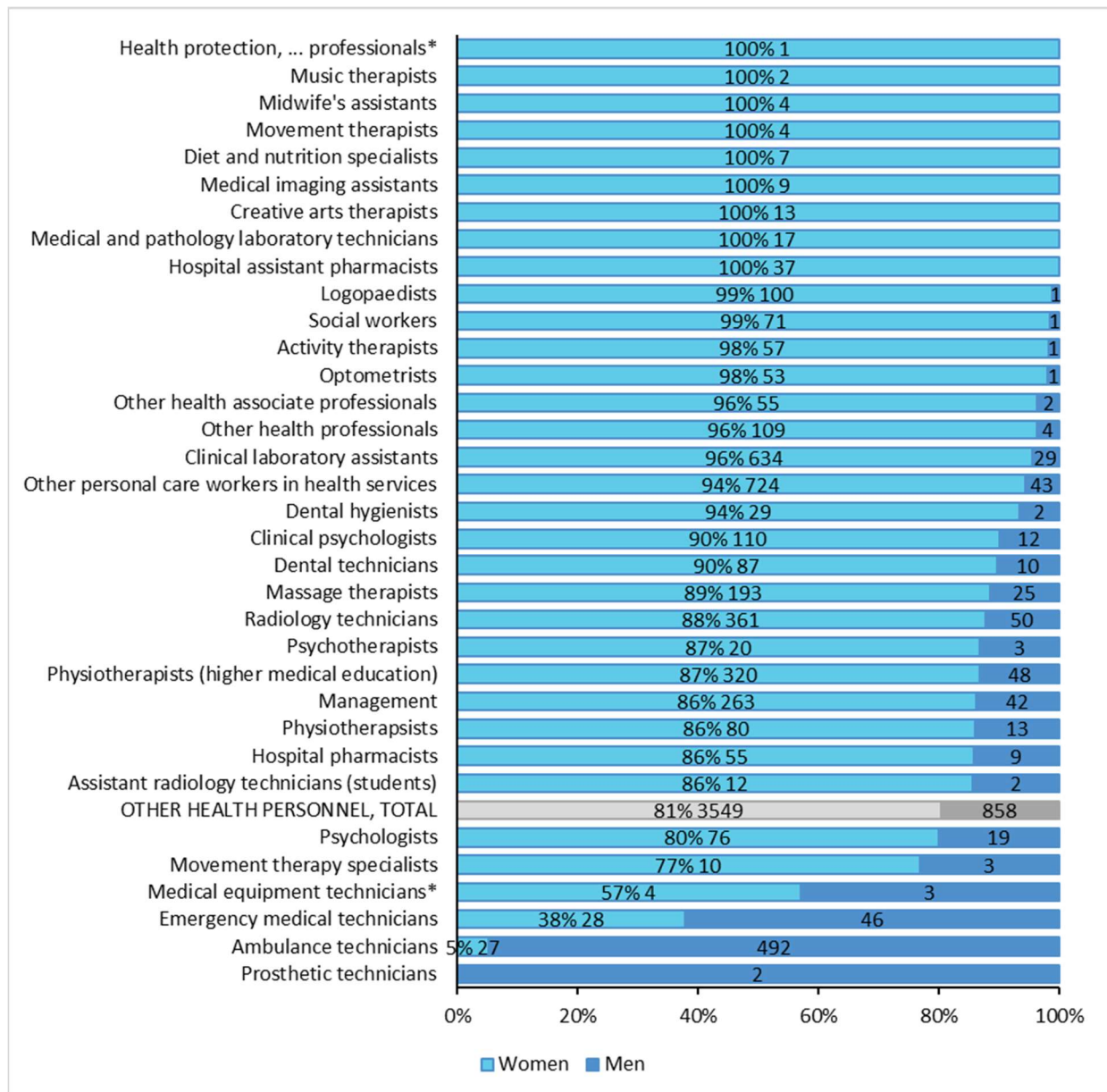


Figure 9. Gender distribution of other health care personnel in Nov 2017

The bars in the Figure display the proportion and number of women and number of men by occupation.
 * Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians

4 Average age and age distribution of health care personnel

4.1 Average age and age distribution of physicians

Figures 10 and 11 depict the average age and age distribution of physicians by occupation.

The average age of physicians in 2017 was 51 years and the number has remained the same in the course of four years (Figure 10).

Family physicians were on average 55.2 years old and paediatricians 57.2 years old (growth of 1.6 and 2.1 years respectively). The average age of general practitioners decreased by 4.2 years, falling to 39.5 years in 2017.

Resident physicians and assistant physicians (students) were on average 29.6 and 26 years old respectively (decline of 1.1 years for both).

A fifth of physicians who were working in November 2017 were in their retirement age, whereas another 26% will reach retirement age by the end of 2027 (Figure 11). The number and average age of physicians has been stated in the Figure after the occupation for better evaluation of age distribution.

Four out of five doctors of school medicine belonged to the age group of 65 and older. The number of doctors of school medicine is declining, as in most schools, health care services are provided by school nurses. Other occupations that will have a high proportion of physicians in the retirement age by the year 2027 include paediatric surgeons, neurologists and paediatricians (71%, 67% and 62% respectively).

The proportion of physicians under the age of 55 years was 54%.

However, almost all assistant physicians and resident physicians and 79% of general practitioners and 74% of emergency medicine doctors were on average less than 55 years old. The proportion of persons under the age of 35 in these occupations was 95%, 91%, 56% and 34% respectively.

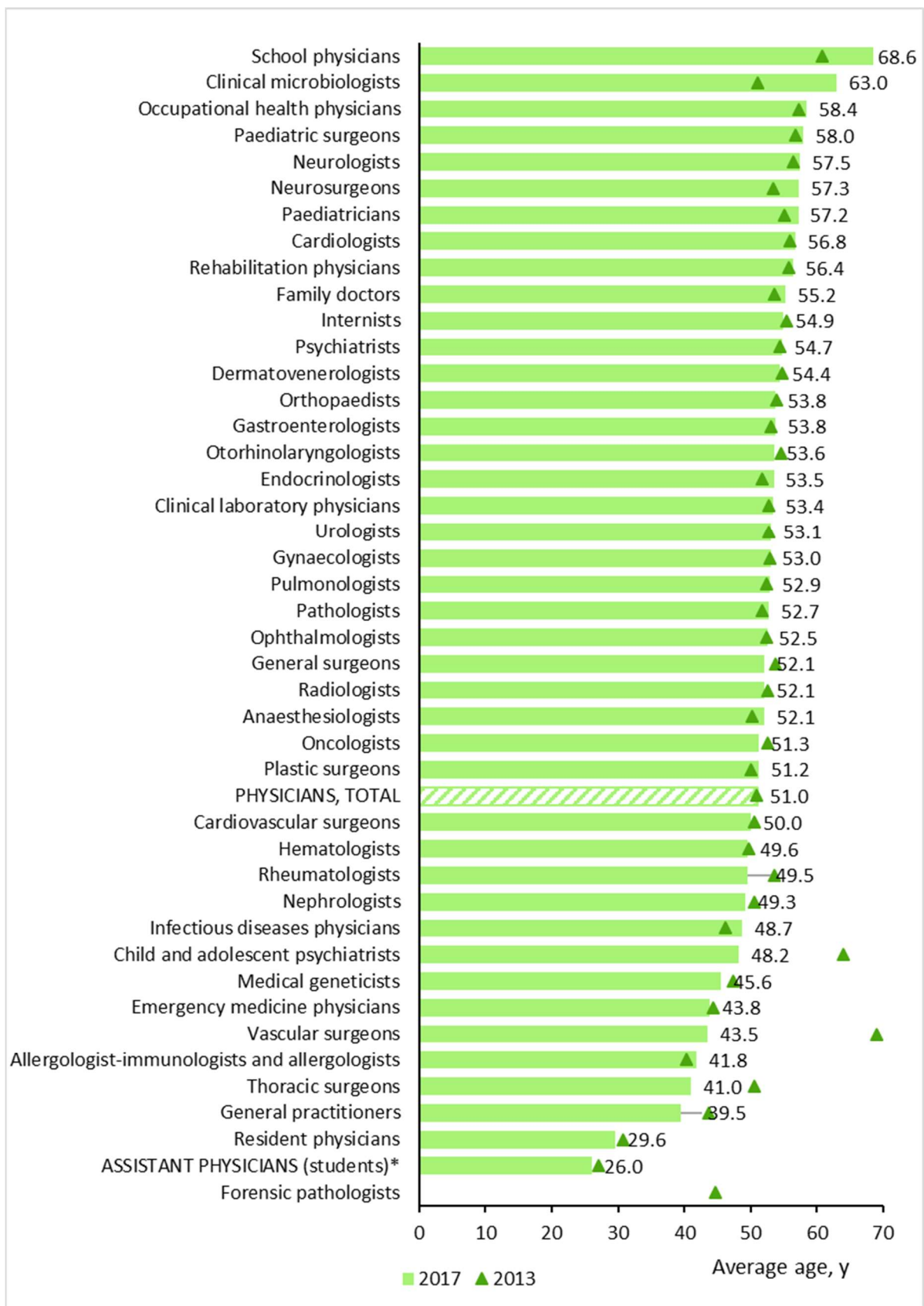


Figure 10. Average age of physicians in Nov 2017 and 2013

Numerical values of average ages in 2017 are shown in the figure.

* Assistant physicians (students) are not included among physicians

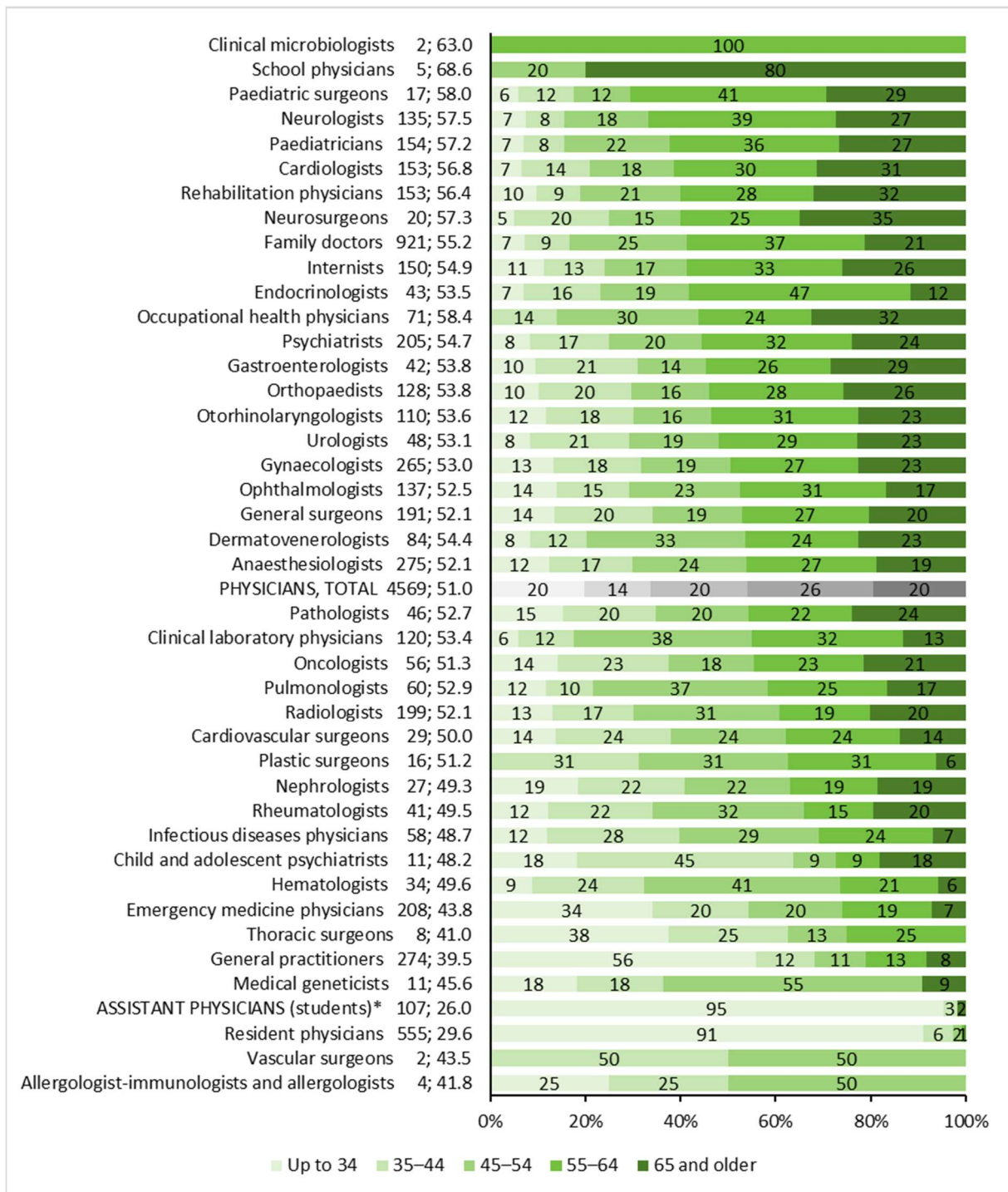


Figure 11. Age distribution of physicians in Nov 2017

Names of occupation are followed by the number of physicians and their average age. The proportions of physicians by age groups are shown on the bars

* Assistant physicians (students) are not included among physicians

4.2 Average age and age distribution of dental physicians and dental nurses

Figures 12 and 13 illustrate the average age and age distribution of dental physicians and dental nurses by occupation.

The average age of dental physicians in 2017 was 46.6 years and it has decreased by 0.4 years in four years (Figure 12).

Dental prosthetists were the oldest among dental physicians at an average age of 49.4 years, whereas orthodontists were the youngest with an average age of 43.5 years (growth of 0.6 and 2.7 years respectively). The average age of dentists declined by 0.7 years and stood at 46.8 years.

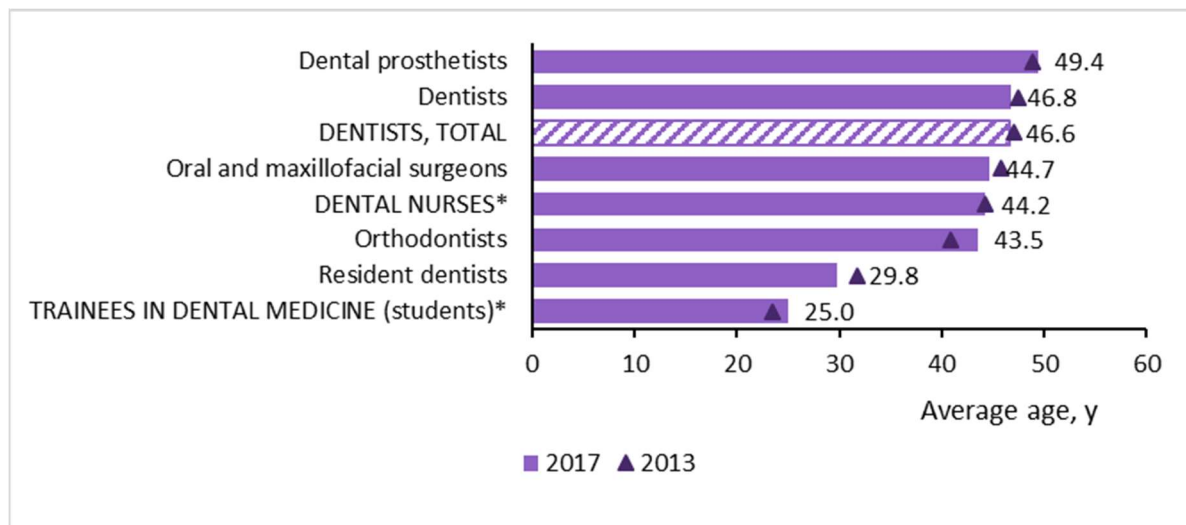


Figure 12. Average age of dental physicians and dental nurses in Nov 2017 and 2013

Numerical values of average ages in 2017 are shown in the figure.

* Occupations marked with an asterisk are not included among dental physicians

A tenth of dental physicians who were working in November 2017 were in their retirement age, whereas another 19% will reach retirement age by the end of 2027 (Figure 13). 71% of dental physicians were under the age of 55. The number and average age of employees has been stated in the Figure after the occupation for better evaluation of age distribution.

33% of dental prosthetists and 31% of dentists who were working in November 2017 will have reached the retirement age by 2027.

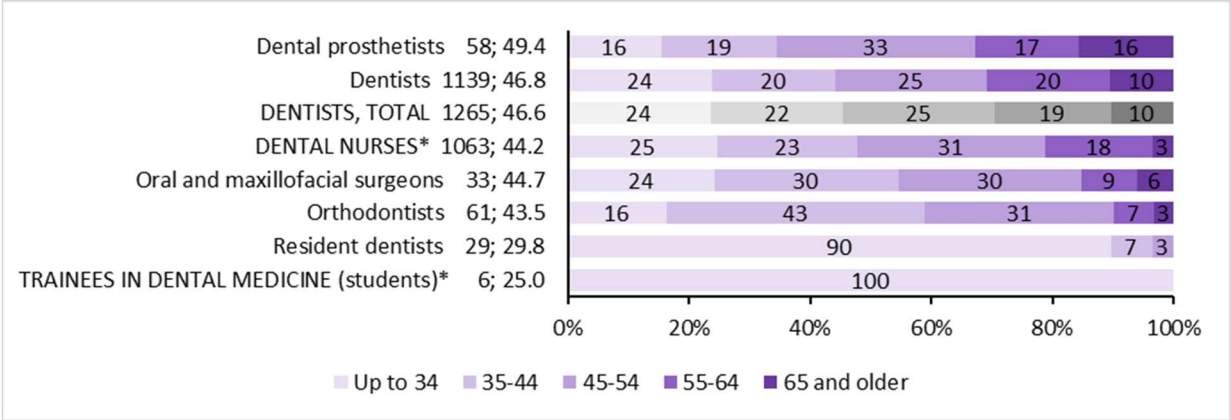


Figure 13. Age distribution of dental physicians and dental nurses in Nov 2017

The number of employees and their average age is stated after the occupation. The proportions of employees by age group are shown on the bars.

* Occupations marked with an asterisk are not included among dental physicians

4.3 Average age and age distribution of nurses, midwives and care workers

The average ages of nurses, midwives and care workers are set out by occupation in Figure 14.

In 2017, the average age of general nurses was 45.3 years, and 43.8 years for midwives and 50.4 years for care workers. The average age of midwives has not changed over four years, whereas the average age of general nurses and care workers increased by 0.4 and 1.4 years respectively.

Rehabilitation nurses and school nurses with respective average ages of 55.3 and 51.4 years were the oldest among nurses, whereas occupational health nurses and anaesthesia and intensive care nurses were the youngest (average age of 39.5 and 39.6 years).

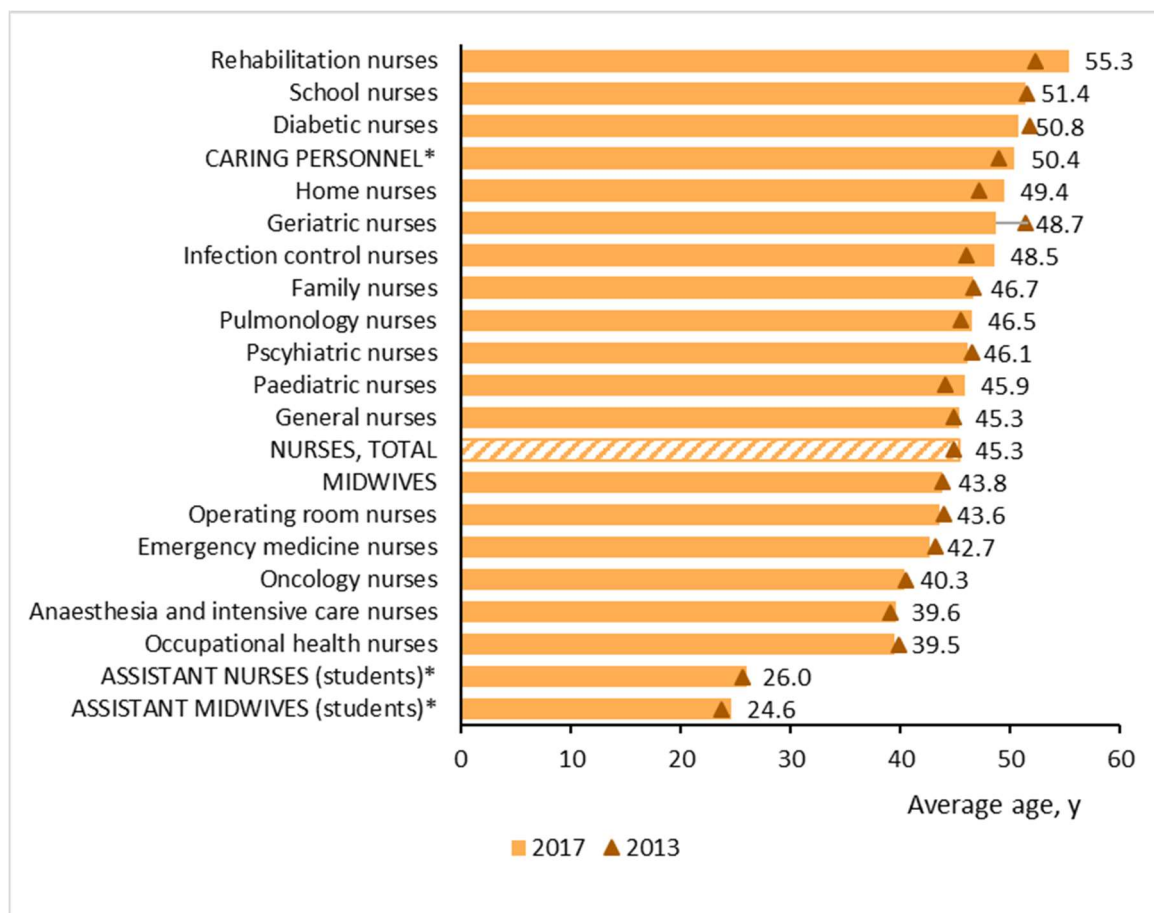


Figure 14. Average age of nurses, midwives and care workers in Nov 2017 and 2013

Numerical values of average ages in 2017 are shown in the figure.

* Occupations marked with an asterisk are not included among nurses or midwives

The age distribution of nurses, midwives and care workers is set out by occupation in Figure 15. The number and average age of employees has been stated in the Figure after the occupation for better evaluation of age distribution.

26% of rehabilitation nurses and 17% of school nurses working in 2017 were already in the retirement age, whereas another 27% will reach retirement age by the end of 2027.

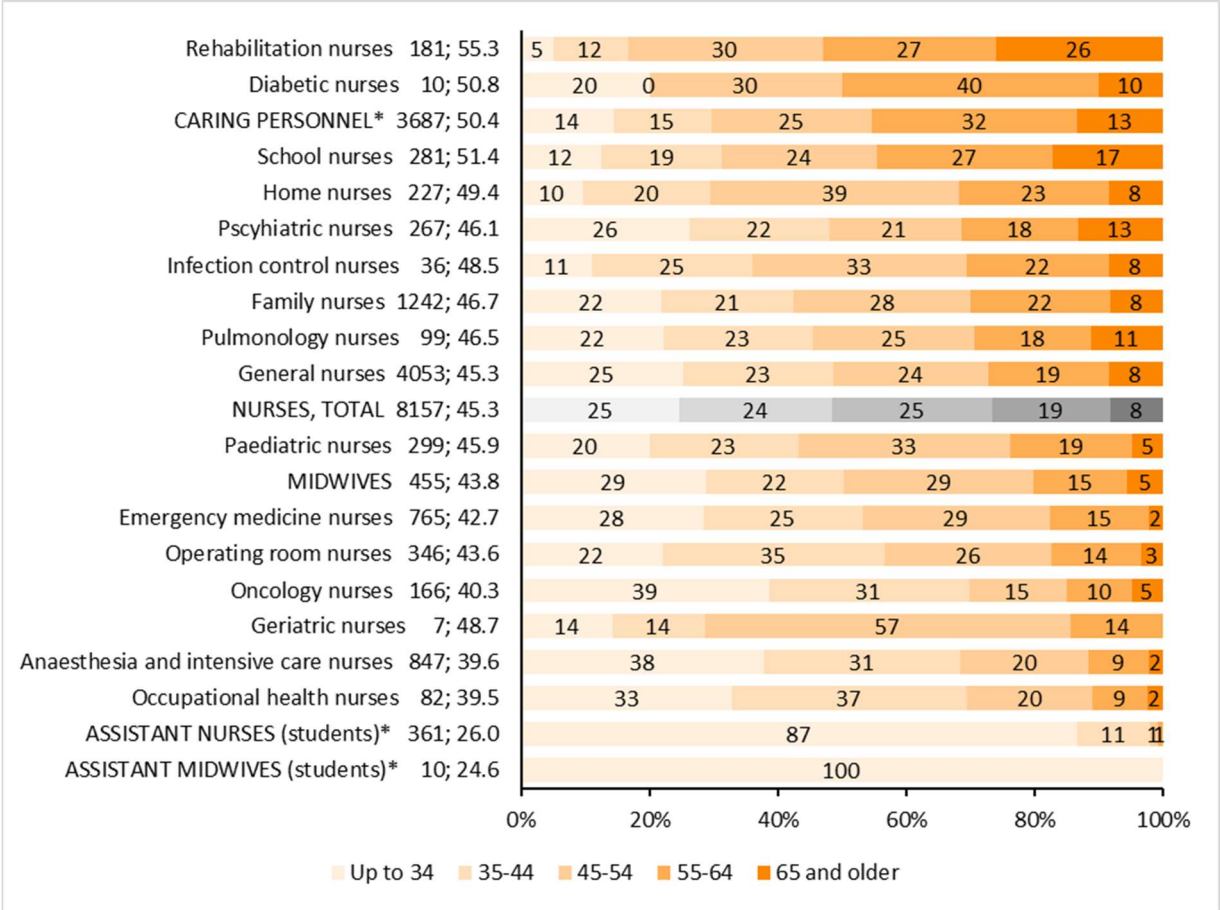


Figure 15. Age distribution of nurses, midwives and care workers in Nov 2017

The number of employees and their average age is stated after the occupation. The proportions of employees by age group are shown on the bars.

* Occupations marked with an asterisk are not included among nurses or midwives

4.4 Average age and age distribution of other health care personnel

Among other health care personnel, the oldest were dental technicians with an average age of 55.1 years, managers with 51.3 years and massage therapists with 50.9 years (Figure 16). The average age of all those occupations has increased slightly over four years.

Occupations with the youngest employees were physiotherapists with a higher education in medicine and emergency care technicians with an average age of 34.1 and 34.3 years respectively.

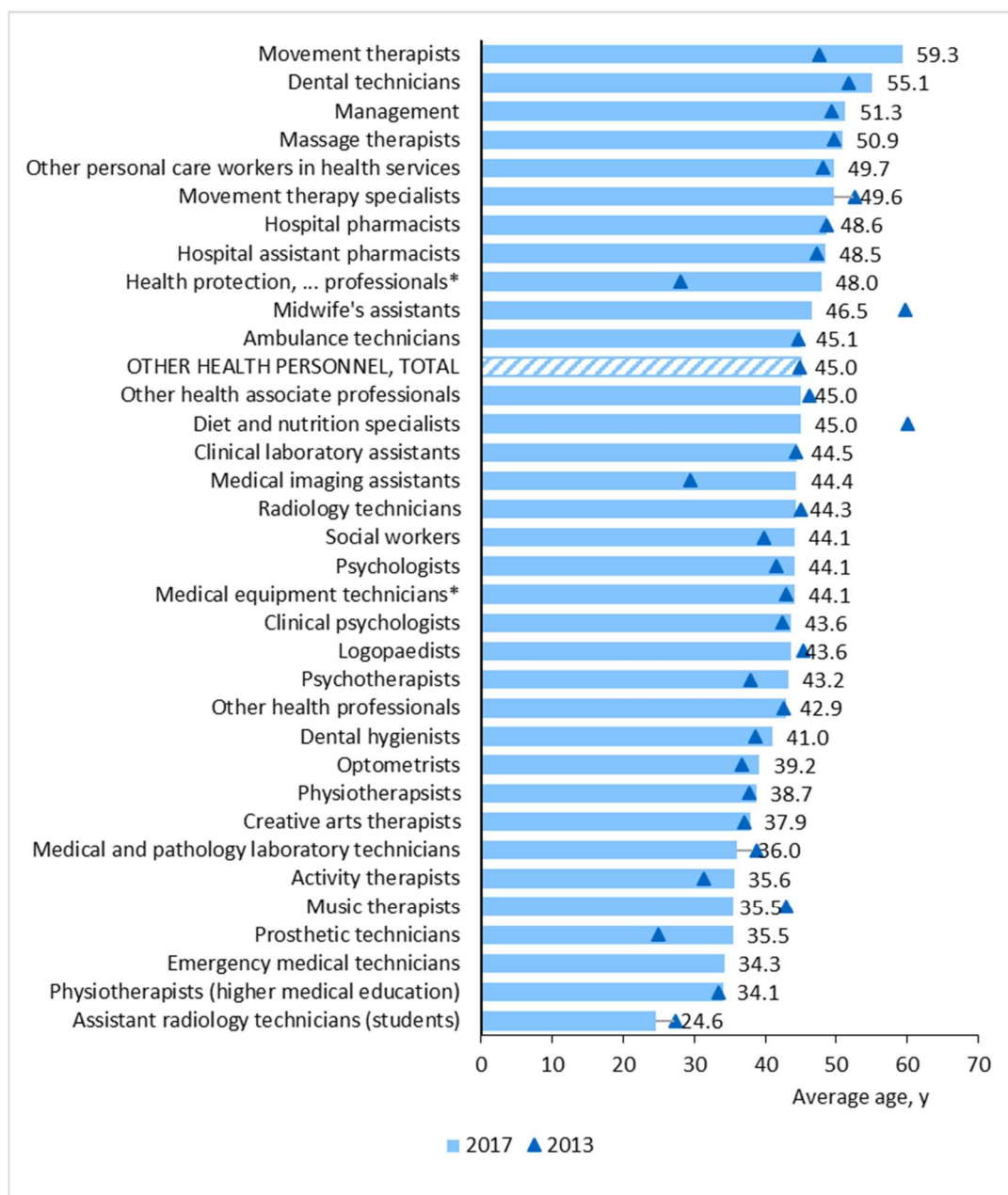


Figure 16. Average age of other health care personnel in Nov 2017 and 2013

Numerical values of average ages in 2017 are shown in the figure.

* Health protection, occupational health and work hygiene professionals; Medical imaging and therapeutic equipment technicians

Age distribution of other health care personnel is demonstrated in Figure 17. The number and average age of employees has been stated in the Figure after the occupation for better evaluation of age distribution.

26% of dental technicians who were working in November 2017 were in their retirement age, whereas another 34% will reach retirement age by the end of 2027. Relevant proportions for massage therapists were 9 and 37.

Occupations with younger employees include the physiotherapists with a higher education in medicine and emergency care technicians, 95% and 93% of whom (respectively) are under 55 years of age.

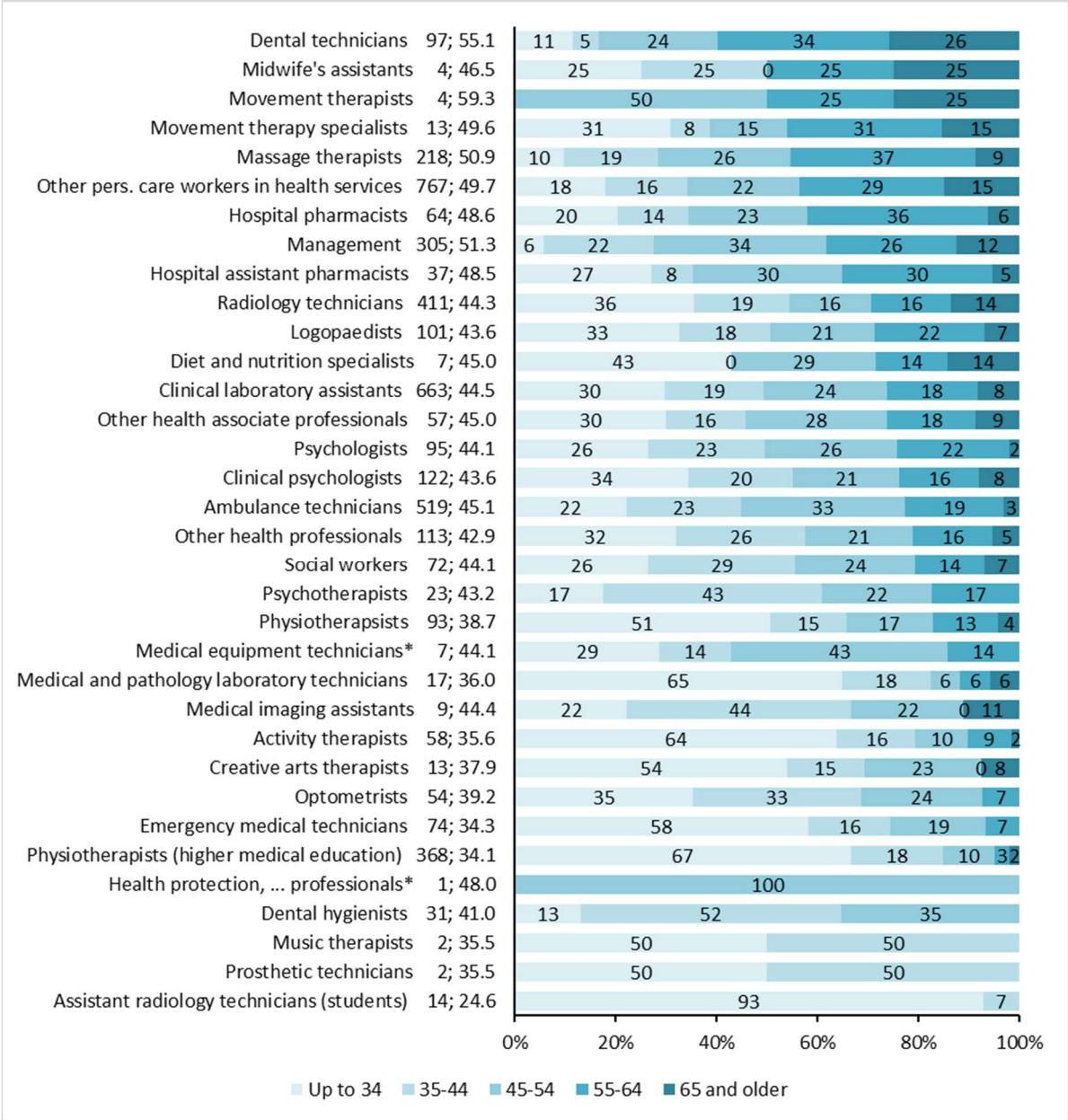


Figure 17. Age distribution of other health care personnel in Nov 2017

Names of occupation are followed by the number of employees and average age by occupation. The proportions of employees by age group are shown on the bars.

* Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians

5 Distribution of health care personnel between public and private sector

5.1 Distribution of physicians between public and private sector

No significant changes occurred in the distribution of physicians between the public and private sector from 2013 to 2017.

56% of physicians worked in the public sector only, 14% worked in both sectors and 30% worked in the private sector only (Figure 18). Most family physicians (89%) worked in the private sector only, whereas most paediatricians worked in the public sector only (72%).

Employees who worked in both sectors mostly comprised nephrologists, otorhinolaryngologists and orthopaedists with 56%, 35% and 31% respectively.

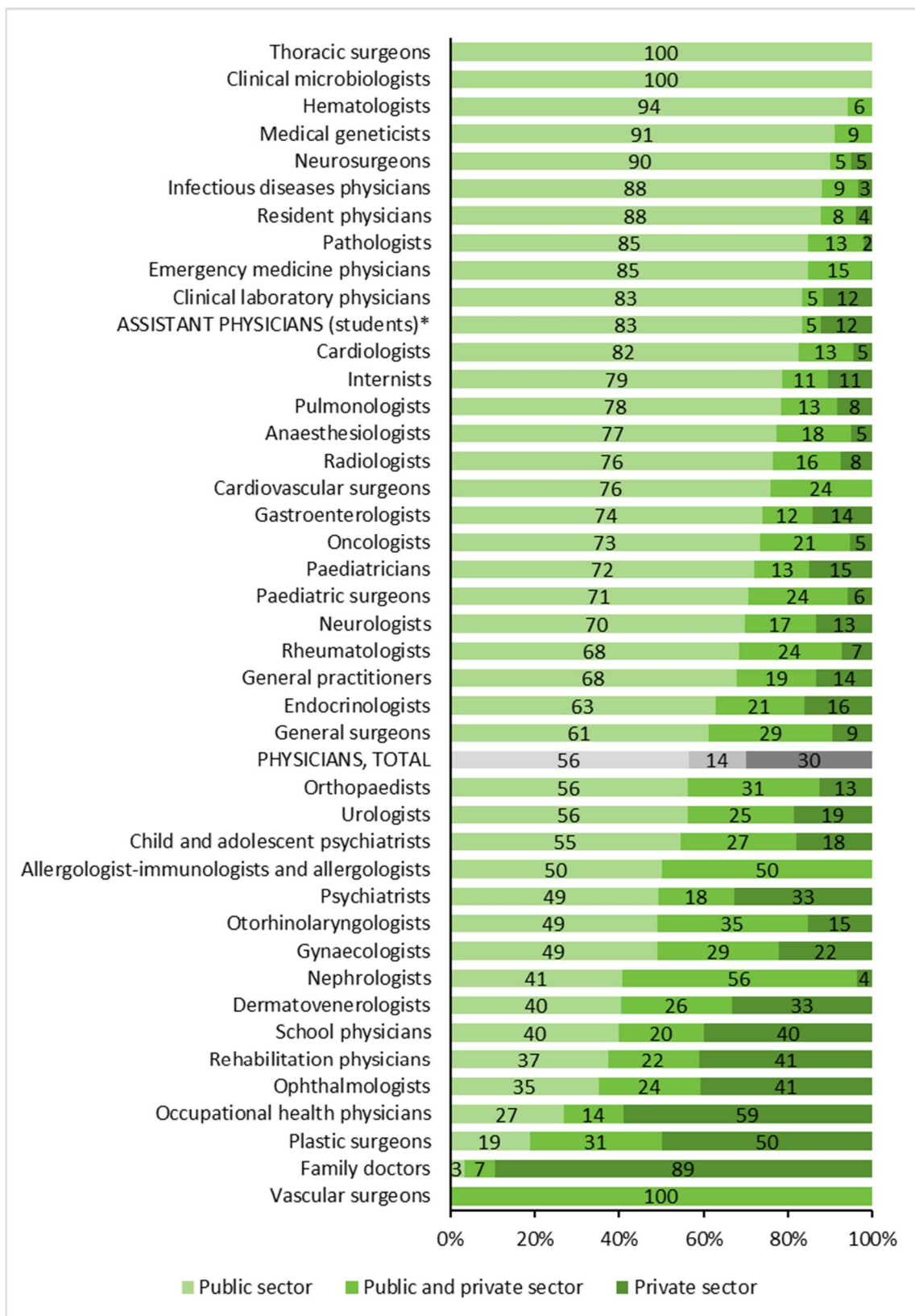


Figure 18. Distribution of physicians between public and private sector in Nov 2017

* Assistant physicians (students) are not included among physicians

5.2 Distribution of dental physicians and dental nurses between public and private sector

Unlike other groups of health care personnel, employees in the area of dentistry were primarily employed in the private sector (Figure 19).

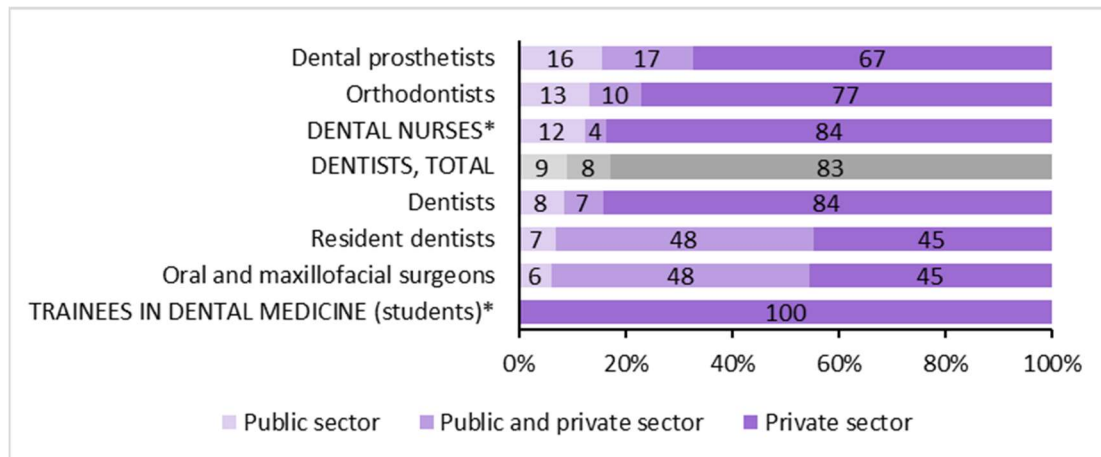


Figure 19. Distribution of dental physicians and dental nurses between public and private sector in Nov 2017

* Occupations marked with an asterisk are not included among dental physicians

5.3 Distribution of nurses, midwives and care workers between public and private sector

In November 2017, 67% of nurses worked in the public sector only, 7% worked in both sectors and 26% worked in the private sector only (Figure 20). The distribution of midwives was similar with 78%, 11% and 11% respectively.

85% of family nurses worked in the private sector only. Most school nurses were also employed in the private sector only (71%). However, 95% of oncology nurses, 94% of infection control nurses and 93% of paediatric nurses worked in the public sector only.

88% of care workers worked in the public sector only, 2% worked in both sectors and 10% worked in the private sector only.

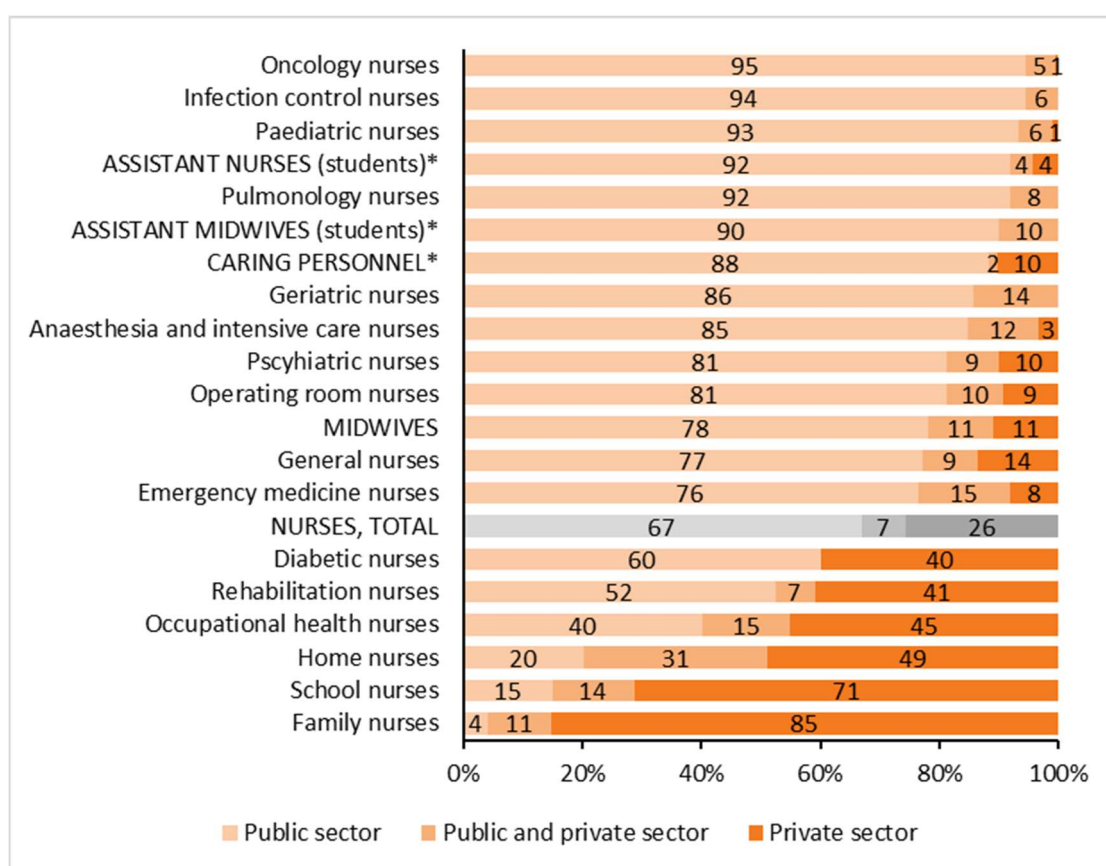


Figure 20. Distribution of nurses, midwives and care workers between public and private sector in Nov 2017

* Occupations marked with an asterisk are not included among nurses or midwives

5.4 Distribution of other health care personnel between public and private sector

Other health care personnel were mostly employed in the public sector (71%). Four percent worked in both sectors and 25% in the private sector only (Figure 21). Nearly half of psychologists, 60% of clinical psychologists and 65% of psychotherapists worked in the public sector only, whereas 45%, 25% and 30% respectively were employed in the private sector only.

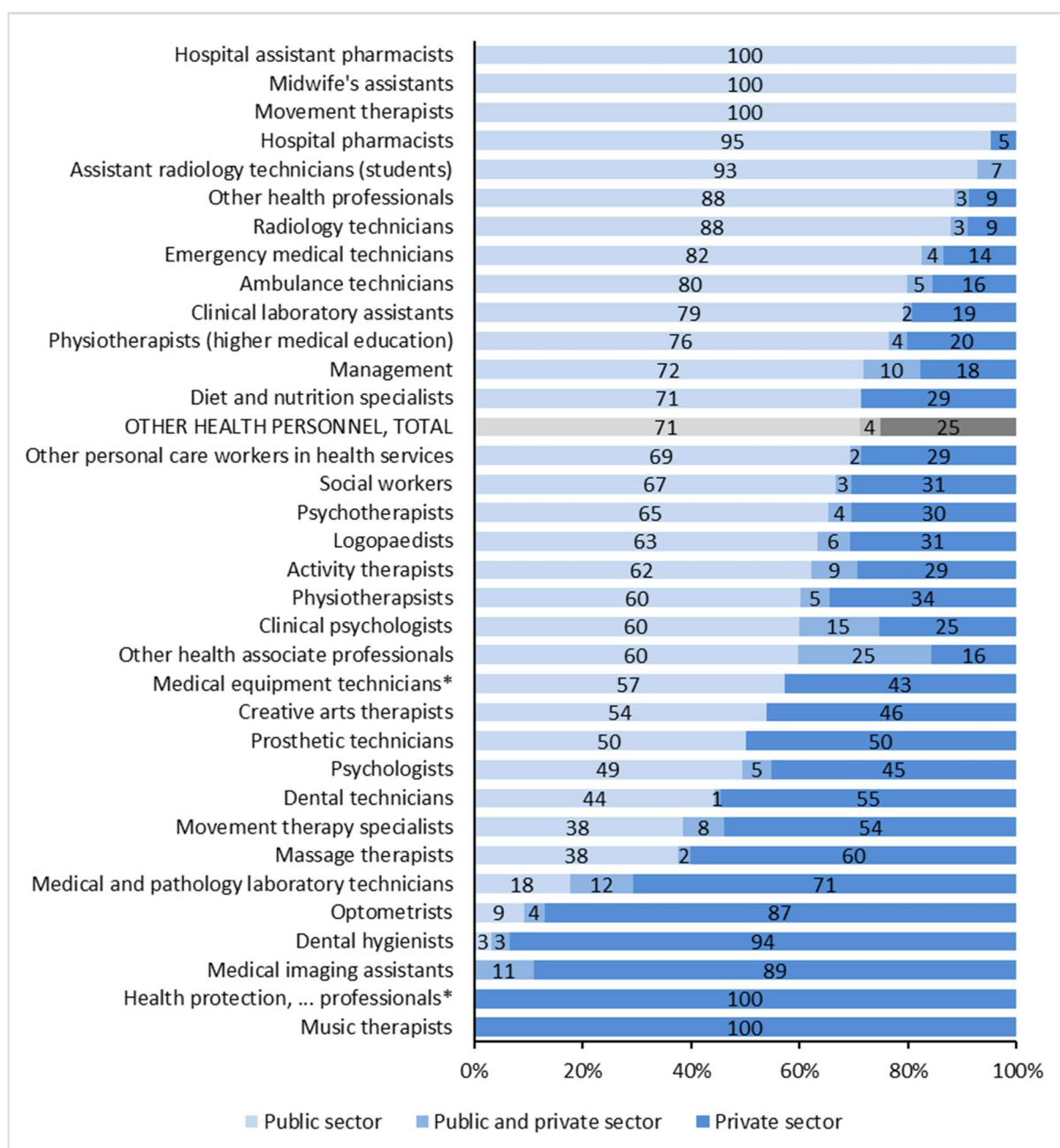


Figure 21. Distribution of other health care personnel between public and private sector in Nov 2017

* Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians

6 Workload of health care personnel

Distribution of health care personnel by actual load is set out in Figures 22–25. Median and actual average workload are shown by lines. Names of occupation are followed by average values of actual workload by occupation. Occupations are set out in Figures in a decreasing order by actual load.

The columns of the histogram show the number of health care personnel in percentages (workloads of employees are aggregated by occupation). The sum of the values of the columns set out in Figures can remain lower than 100 percent, since columns with a value of less than one percent are not displayed in the figure in the interest of better readability.

6.1 Actual load of physicians

Employees with the highest workload in November 2017 were resident physicians, anaesthesia and intensive care physicians and family physicians (Figure 22).

The figure shows that there were many physicians in various occupations who worked at an either smaller or higher actual load than the regular 1.0. A small load in a certain occupation may arise from various circumstances. Many physicians work in two or several occupations – most common combinations include, for instance, emergency medicine doctor or general practitioner along with another occupation. Physicians can also work in other occupations (as managers, lecturers, researchers, etc.). Some physicians work in Estonia as well as abroad. No data is collected on health care personnel who work in other occupations or abroad in the context of the health care personnel report.

A total of 40% of physicians worked full-time (actual load between 0.95 and 1.05), whereas ca 18% had a higher workload and ca 39% had a lower workload. Relevant distribution of the load of family physicians was 70%, ca 4% and ca 22% respectively.



Figure 22. Distribution of physicians by actual load in Nov 2017

Names of occupation are followed by average values of actual workload by occupation.

* Assistant physicians (students) are not included among physicians

6.2 Actual load of dental physicians and dental nurses

Distribution of dental physicians by actual load is set out in Figure 23. Occupations are set out in the Figure in a decreasing order by actual load.

Most dental physicians worked full-time or at various lower workloads. 16% of oral-maxillofacial surgeons and 8% of resident dentists had a higher than full-time equivalent load.

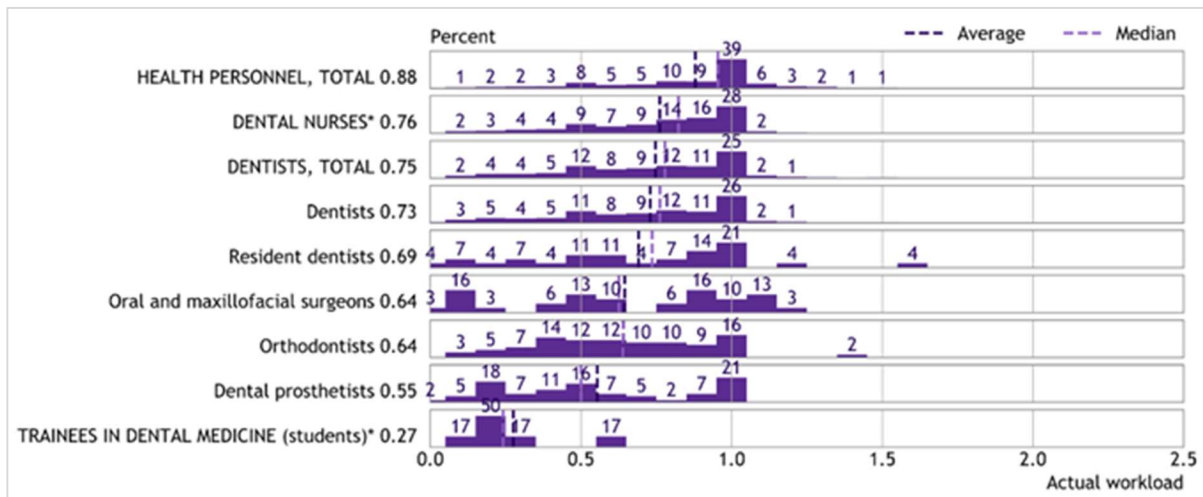


Figure 23. Distribution of dental physicians and dental nurses by actual load in Nov 2017

Names of occupation are followed by average values of actual workload by occupation.

*Occupations marked with an asterisk are not included among dental physicians

6.3 Actual load of nurses, midwives and care workers

Distribution of nurses, midwives and care workers by actual load is set out in Figure 24. Occupations are set out in the Figure in a decreasing order by actual load.

43% of nurses worked full-time, whereas ca 15% had a higher workload and ca 37% had a lower workload. Relevant distribution of the workload for family nurses was 73%, ca 2% and ca 22%, for midwives 34%, ca 7% and ca 58%, and for care workers 36%, ca 14% and ca 47%.

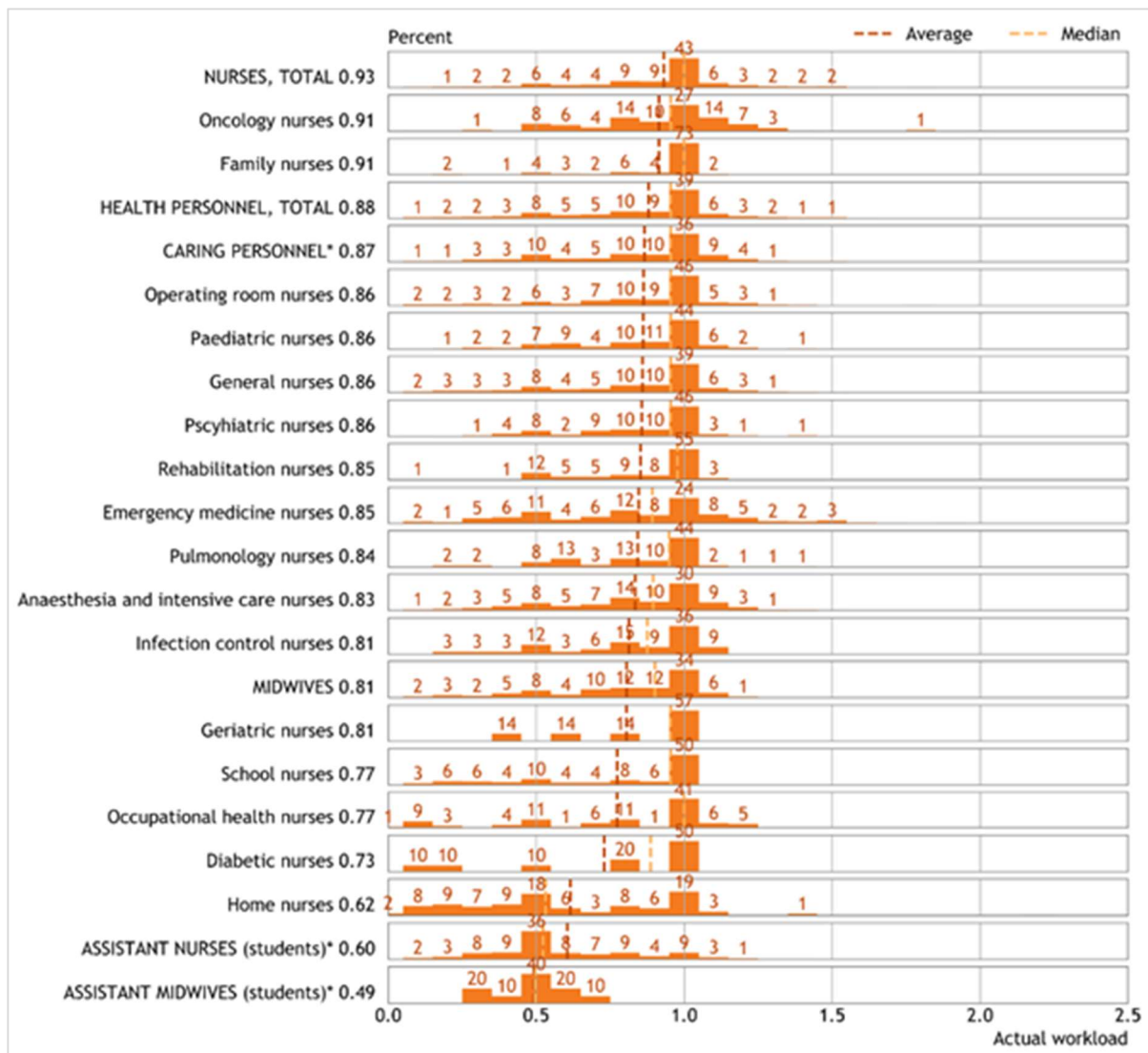


Figure 24. Distribution of nurses, midwives and care workers by actual load in Nov 2017

Names of occupation are followed by average values of actual workload by occupation.

* Occupations marked with an asterisk are not included among nurses or midwives

6.4 Actual load of other health care personnel

Most other health care personnel worked either full-time or at a lower workload (Figure 25).

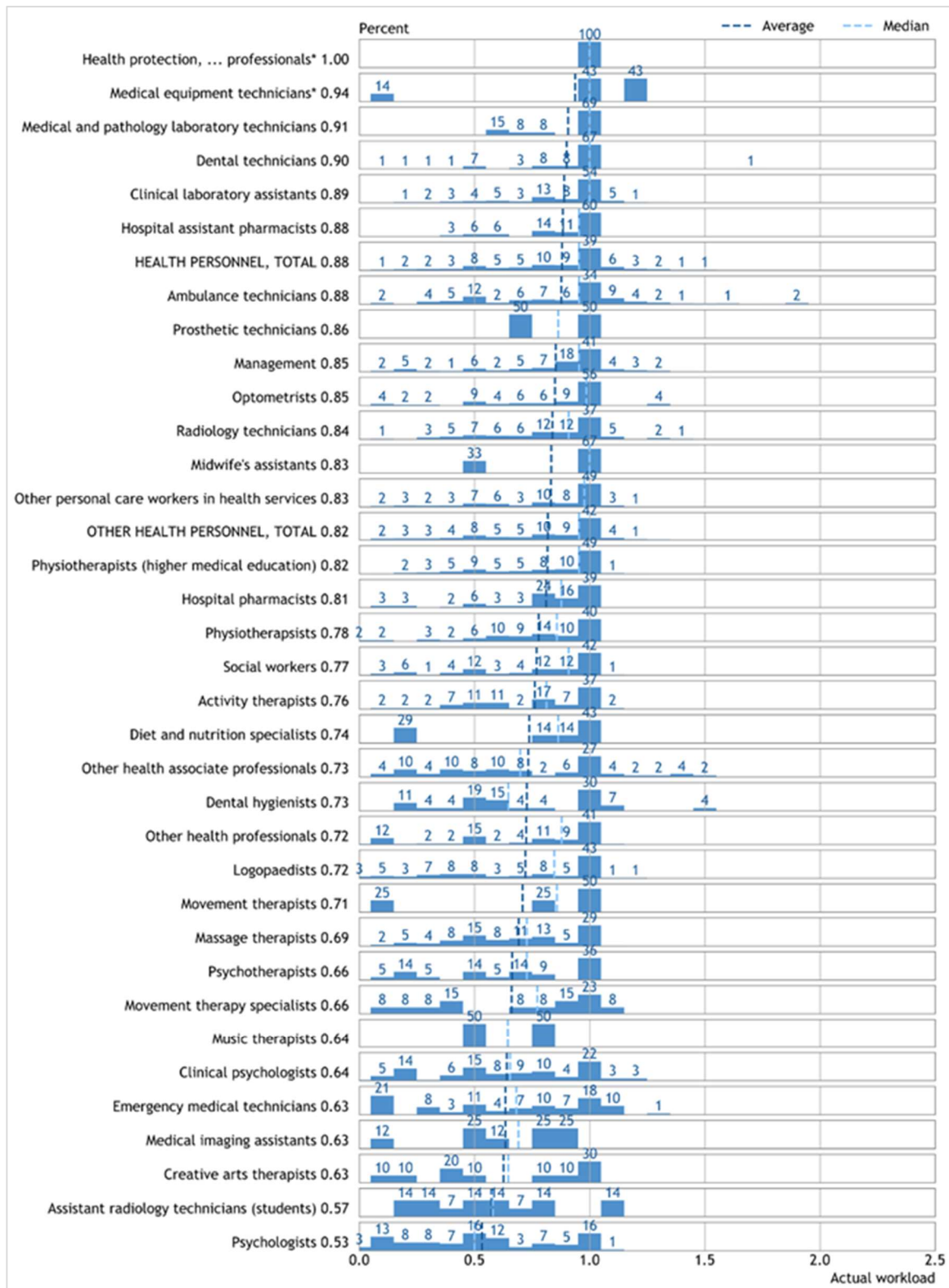


Figure 25. Distribution of other health care personnel by actual load in Nov 2017

Names of occupation are followed by average values of actual workload by occupation.

*Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians

7 Wages of health care personnel

Distribution of total hourly wages (basic hourly wage with all additional remunerations) of all health care personnel is set out as box plots in Figures 26–29.

Exception: in this chapter, resident physicians and resident dentists are not included among physicians or dental physicians.

Interpreting box plot

The lower quartile indicates the value of total hourly wage, from which 25% of values are either lower or equal to. The upper quartile indicates the value, from which 25% of values are either higher or equal to. The values of 50% of total hourly wages remain between the lower and upper quartile, shown inside the box in the Figure.

The vertical line inside the box represents the median, from which 50% of values are higher and 50% are lower. The mean value is marked by a triangle symbol.

Exceptions are values that are located at least 1.5 times of the difference between quartiles (1.5 box lengths) from the upper or lower quartile, marked with circles in the diagram. In the case there are no exceptions, the ends of whiskers represent the minimum and maximum value. In the event of exceptions, the ends of whiskers indicate the minimum or maximum value that is closer to the lower or upper quartile than 1.5 times of the difference between quartiles or at an equal distance.

In March 2017, the average total hourly wage of health care personnel was between 3.94 and 27.57 euros, i.e. 0.55–3.9 times of the average Estonian gross hourly wage respectively. The average total hourly wage of health care personnel was 1.4–9.9 times higher than the applicable minimum hourly wage of 2.78 euros. Minimal and average hourly wage numbers can be found in references (9) and (10), respectively.

The minimum wage rate of health care personnel is established by the collective agreement of the health care sector. Until 31 March 2017, the minimum wage rate was 10 euros per hour for physicians, 5.5 euros per hour for nurses, midwives and health care support specialists, 4.7 euros per hour for ambulance technicians, 4.9 euros per hour for emergency care technicians and 3.3 euros per hour for care workers (11).

More detailed analyses on the wages and wage trends of physicians, nursing personnel and care workers (by the title of “Hourly wages of health care personnel”) are published regularly and are available on the website of NIHD (12).

7.1 Total hourly wage of physicians

Resident physicians are not included among physicians in this chapter.

Total hourly wages of physicians are set out in Figure 26.

In March 2017, the average total hourly wage was 13.33 euros for physicians, 11.18 euros for family physicians and 9.50 euros for resident physicians. These indicators were respectively 1.9, 1.6 and 1.3 times higher than the average gross hourly wage in Estonia. Physicians of various occupations earned an average of 1.3–2.3 times of the average gross hourly wage in Estonia. Pursuant to the collective agreement, physicians should have earned at least 10 euros per hour.

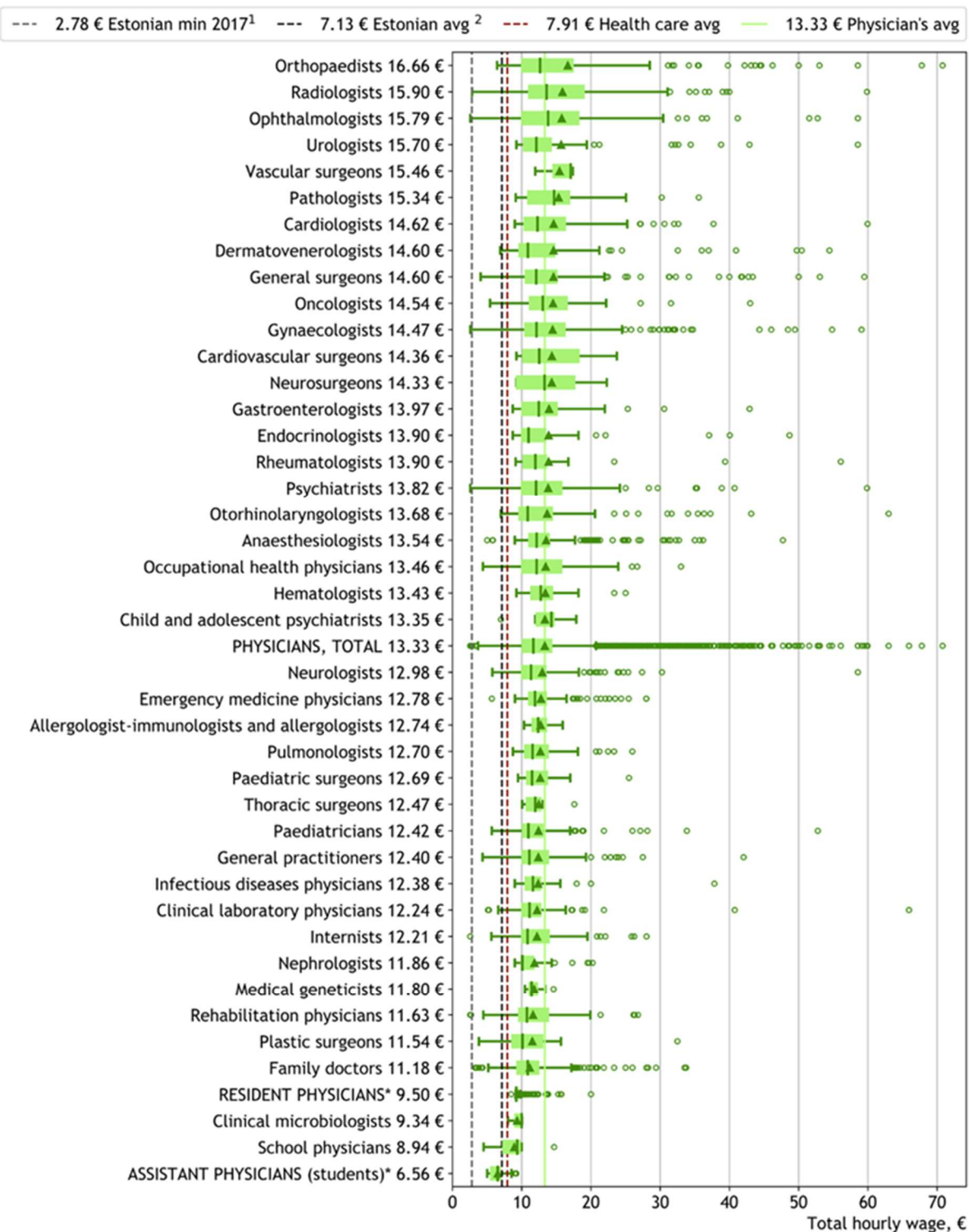


Figure 26. Total hourly wage of physicians in March 2017

Names of occupation are followed by average values of total hourly wage by occupation.

¹ Minimum in Estonia € 2.78 (9)

² Average in Estonia € 7.13 (10)

*Occupations marked with an asterisk are not included in the "physicians, total" section

7.2 Total hourly wage of dental physicians and dental nurses

Resident dentists are not included among dental physicians in this chapter.

The average total hourly wage in March 2017 was 16.36 euros for dental physicians, 9.29 euros for resident dentists, i.e. respectively 2.3 and 1.3 times of the average in Estonia (Figure 27). Employees in various dental physician occupations earned 2.2–3.9 times of the average gross hourly wage in Estonia. The total hourly wage of dental nurses was 6.62 euros (0.9 times the average in Estonia).

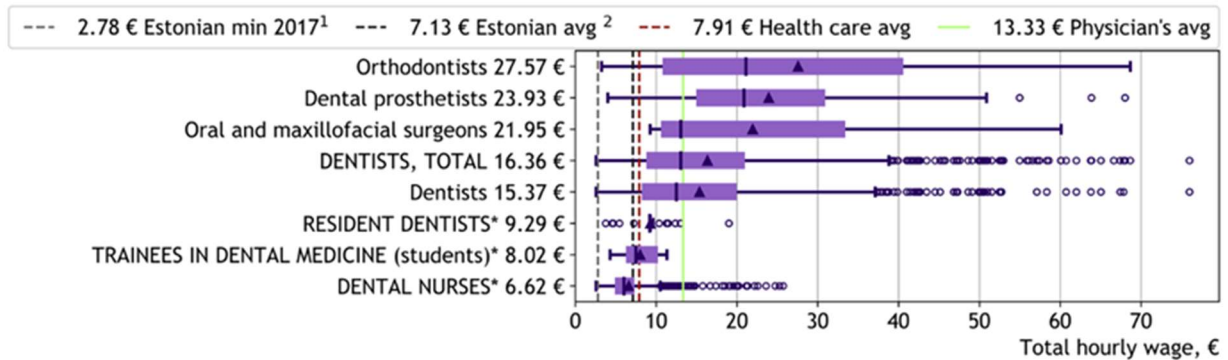


Figure 27. Total hourly wage of dental physicians and dental nurses in March 2017

Names of occupation are followed by average values of total hourly wage by occupation.

¹ Minimum in Estonia € 2.78 (9)

² Average in Estonia € 7.13 (10)

*Occupations marked with an asterisk are not included in the “dentists, total” section

7.3 Total hourly wage of nurses, midwives and care workers

The average total hourly wage in March 2017 was 6.45 euros for nurses and 6.99 euros for midwives (Figure 28), constituting 90% and 98% respectively of the average gross hourly wage in Estonia. Employees in various nursing occupations earned 0.8–1.0 times of the average gross hourly wage in Estonia.

Pursuant to the collective agreement, the minimum wage rate was 5.5 euros for nurses and midwives, and 3.3 euros for care workers.

In March 2017, the average total hourly wage of care workers was 3.97 euros, i.e. 56% of the average gross hourly wage in Estonia.

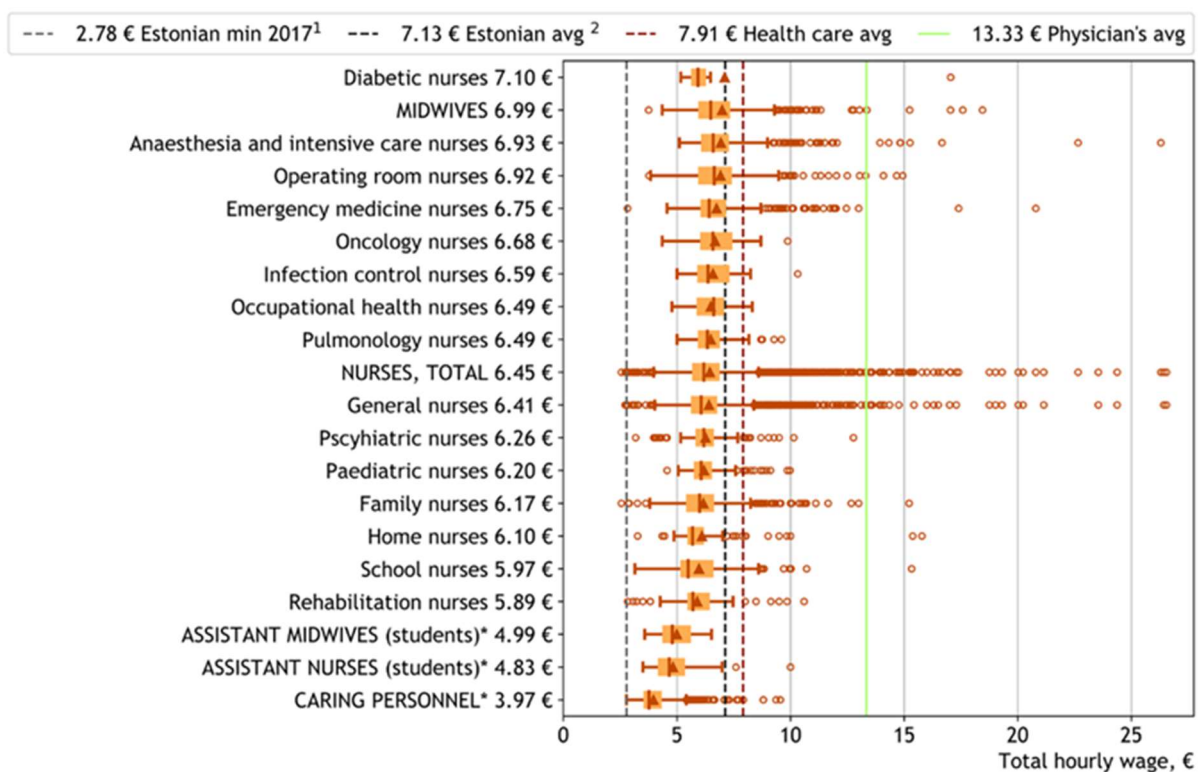


Figure 28. Total hourly wage of nurses, midwives and care workers in March 2017

Names of occupation are followed by average values of total hourly wage by occupation.

¹ Minimum in Estonia € 2.78 (9)

² Average in Estonia € 7.13 (10)

*Occupations marked with an asterisk are not included in the “nurses, total” section or among midwives.

7.4 Total hourly wage of other health care personnel

In March 2017, other health care personnel earned a total hourly wage in the amount of 3.94–11.81 euros, i.e. 0.55–1.7 times of the average gross hourly wage in Estonia (Figure 29). Pursuant to the collective agreement, the minimum wage rate was 5.5 euros per hour for health care support specialists, 4.7 euros per hour for ambulance technicians, 4.9 euros per hour for emergency care technicians and 3.3 euros per hour for care workers.

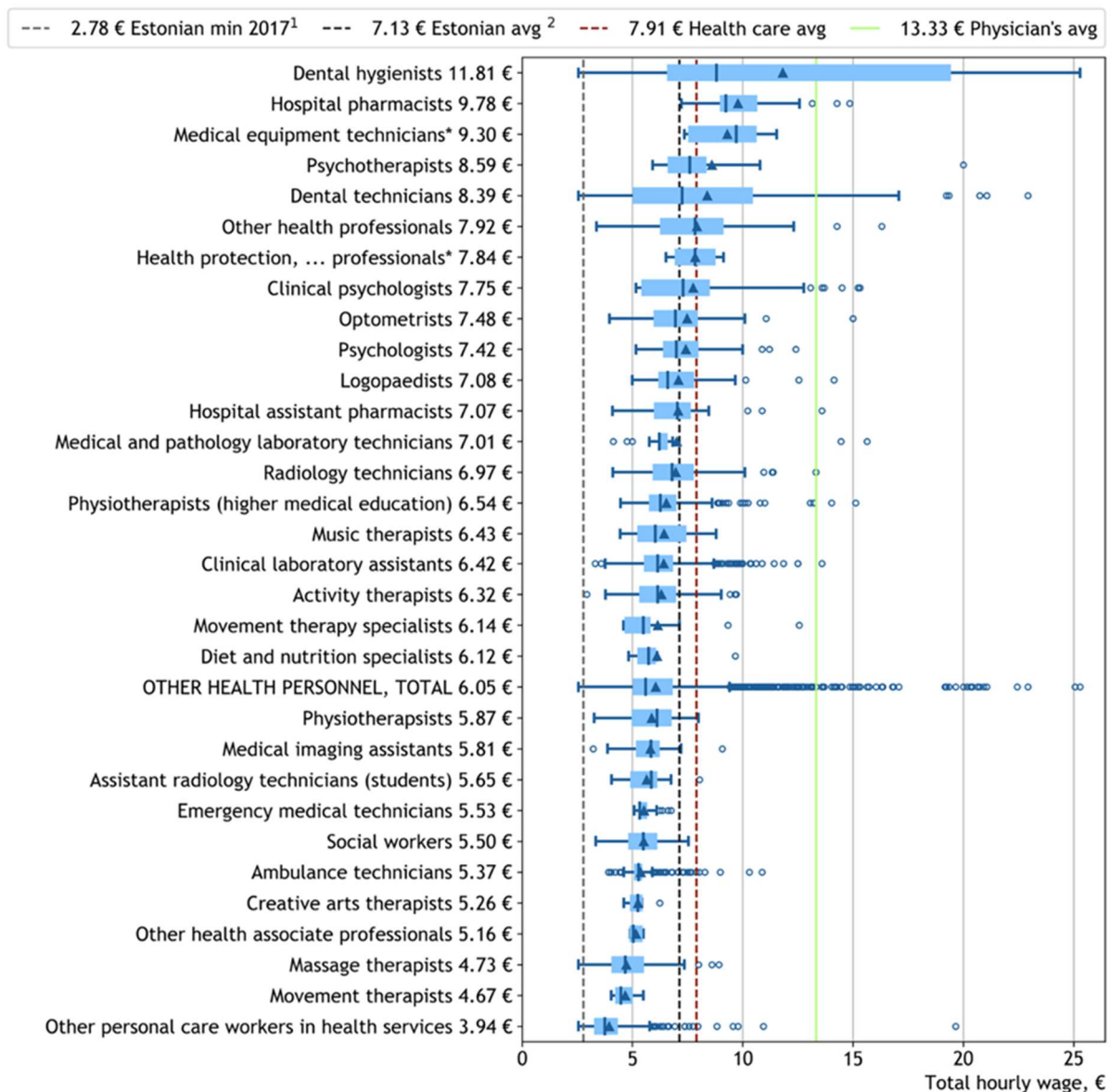


Figure 29. Total hourly wage of other health care personnel in March 2017

Names of occupation are followed by average values of total hourly wage by occupation.

¹ Minimum in Estonia € 2.78 (9)

² Average in Estonia € 7.13 (10)

*Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians

8 Posts filled by health care personnel by county

The number of physicians or nurses across counties is often requested. The Health Statistics and Health Research Database of NIHD does not publish the number of health care personnel across counties for two reasons.

In general, physicians, especially specialist physicians, are increasingly employed in several posts, health care institutions, counties, or even in different occupations. This also applies to nurses, although to a lesser extent. Therefore, sum of the numbers of physicians (persons) in various counties will result in a higher number than the total number of physicians (persons) in Estonia. Only data regarding employees in family doctor's offices and those engaged in the provision of dentistry services (database tables THT009 and THT010), who are somewhat more settled in a certain area and mostly fill one post, are published by county.

Another issue is the fact that health care personnel have very different workloads.

Therefore, the number of posts filled (which is the number of hours worked divided with the number of normal working hours) demonstrates the coverage of health care personnel better.

Figures 30–33 reveal that the number of health care personnel per 100,000 inhabitants is significantly higher in Tartu in particular, but also in Tallinn, in comparison with other counties. Upon making conclusions, it must be considered that the hospitals in Tartu and Tallinn treat people from across Estonia, and the University of Tartu trains new physicians, whereas Tartu and Tallinn Health Care Colleges train nurses, midwives and other health care specialists.

8.1 Posts filled by physicians by county

	Tartu	Tallinn	Tartu county	Härju county	Ida-Viru county	Pärnu county	Viljandi county	Saare county	Võru county	Lääne county	Lääne-Viru county	Põlva county	Jõgeva county	Valga county	Järva county	Hiiu county	Rapla county
HEALTH PERSONNEL, TOTAL	3888.8	1982.0	2594.0	1567.6	1298.6	1437.9	1410.4	1073.7	1185.7	1193.0	925.0	944.5	796.9	805.1	746.7	676.8	620.3
PHYSICIANS, TOTAL	912.2	409.2	598.8	318.0	235.5	229.0	223.0	170.6	211.2	180.9	148.4	158.0	158.0	151.3	152.8	176.0	117.1
Resident physicians	205.8	53.7	132.2	39.4	0.7	9.5	4.3		9.8		1.7		0.1				
Anaesthesiologists	63.4	26.8	40.5	20.1	13.9	9.0	9.9	14.0	12.7	13.5	8.1	10.0	3.7	9.9	11.7	11.0	3.7
Dermatovenerologists	11.9	5.4	7.6	4.1	4.2	2.5	4.0	2.6	2.0	5.8	3.4	2.1	3.3	2.3	2.1	0.5	0.7
Endocrinologists	6.4	4.2	4.1	3.1	1.7	1.4	1.9	2.3	0.9	0.4	1.7					1.0	0.3
Emergency medicine physicians	49.6	9.2	31.6	6.7	11.7	12.6	8.7	10.9			1.2		3.3	6.4	5.0	43.6	10.4
General practitioners	4.8	16.8	3.9	12.3	6.9	4.7	8.7		9.6	18.3	9.2	5.1	9.4	1.0	1.7		
Gastroenterologists	9.3	4.2	6.0	3.0	1.9	1.6		1.5			1.2						
Gynaecologists	44.1	21.0	28.7	16.6	15.1	11.2	13.9	14.5	17.3	5.6	15.9	12.6	7.1	18.0	9.4	11.2	9.2
Hematologists	15.4	2.7	9.8	2.0		1.5											
Infectious diseases physicians	23.3	3.9	14.8	2.8	3.6	2.9	1.0						0.6	0.6	0.4		
Cardiologists	31.9	16.0	20.6	11.9	4.5	8.4	4.3	2.4	1.6	2.2	1.1	3.6	0.3	0.3	1.2	0.5	2.1
Cardiovascular surgeons	11.6	3.4	7.4	2.5		0.1									0.1		
Allergologist-immunologists and allergologists		0.9		0.6													
Clinical microbiologists							1.5				1.2						
School physicians	0.6		0.4	0.2					1.2		0.2			0.5			
Clinical laboratory physicians	45.3	9.1	28.8	6.7	6.6	2.3	3.1	2.5	3.9		0.8			0.9		4.2	2.8
Paediatric surgeons	4.9	1.6	3.1	1.2	0.7									0.1	0.3		0.0
Child and adolescent psychiatrists	0.4	1.4	0.2	1.0				0.5			0.4						
Medical geneticists	6.9	0.1	4.4	0.1													
Nephrologists	5.6	2.6	3.6	1.9	0.0	0.1		0.2		0.1		0.2	0.2		0.1		
Neurosurgeons	6.7	1.7	4.3	1.2		0.3											
Neurologists	17.9	12.3	11.6	9.4	9.2	4.0	5.0	3.0	6.1	0.6	3.5	4.7	4.8	3.2	5.6	0.5	2.1
Ophthalmologists	16.9	11.9	11.5	8.8	6.2	5.0	5.1	3.4	13.1	4.4	3.4	3.6	9.6	6.9	4.0		3.0
Oncologists	11.2	6.9	7.1	5.1	0.0	0.1											
Orthopaedists	19.8	14.4	12.6	10.7	10.7	8.9	2.1	0.6	2.2	0.2				1.5	1.8	0.5	0.6
Otorhinolaryngologists	15.0	9.8	9.6	7.8	6.1	5.5	2.3	3.4	3.3	4.1	5.1	2.4	6.0	2.4	3.0	1.0	1.9
Pathologists	9.2	5.2	5.9	3.8	2.4	2.7	1.6	1.5	1.5			0.3					
Paediatricians	34.4	10.1	22.0	7.5	6.0	9.3	1.4	4.7	5.9	4.3	1.3	2.8	1.6	5.1	8.3		2.1
Family doctors	90.7	66.6	72.0	60.9	65.1	61.8	61.6	58.7	66.8	62.7	57.0	63.3	61.4	56.6	61.2	66.0	51.4
Plastic surgeons	2.9	1.2	1.8	1.3												0.2	
Psychiatrists	34.3	15.0	21.8	11.0	9.8	8.6	37.4	6.7	12.1	4.1	5.9	7.5	9.0	3.5	3.6	4.8	4.7
Pulmonologists	0.4	7.2	0.3	5.3	3.4	6.3	1.3	1.6	1.5	0.7	1.7	0.2	1.7		1.0		
Radiologists	40.6	19.2	25.9	14.5	5.7	7.1	5.4	6.7	3.8	6.2	5.9		10.7	4.8	10.0		2.0
Rheumatologists	5.4	4.8	3.5	3.5		3.7	0.5			0.1	1.7		1.0	3.2	0.3		0.5
Internists	11.8	7.0	7.5	5.4	13.0	14.6	12.3	4.0	12.9	8.8	2.3	16.9	9.9	3.4	5.3	7.0	7.5
Rehabilitation physicians	16.6	7.8	10.5	6.5	6.1	11.0	4.2	3.3	2.9	18.3	1.9	10.1		7.4	0.9	10.7	1.8
Thoracic surgeons	3.0	1.0	1.9	0.7													
Occupational health physicians	4.7	7.0	3.0	5.1	3.4	1.7	10.4	0.3		1.9	3.2		3.3	0.4	0.3	2.4	
Urologists	11.0	4.6	7.0	3.4	2.6	1.2	3.0	0.3		0.2	2.1			0.9	0.4	0.4	0.2
Vascular surgeons	0.0	0.0	0.0	0.0													
General surgeons	18.1	12.7	11.5	9.9	14.4	9.6	9.6	19.6	20.0	18.3	8.5	11.4	11.0	12.1	15.2	10.6	10.0
ASSISTANT PHYSICIANS (students)*	1.6	7.4	1.0	5.5	3.6	1.2	8.7	11.8	1.2	5.4	11.7	6.1		5.3	2.8		

Figure 30. Posts filled by physicians per 100,000 inhabitants by county in Nov 2017

* Assistant physicians (students) are not included among physicians

Rows in the table are coloured depending on the cell value from maximum (green) to average (yellow) to minimum (red) value in that row.

8.2 Posts filled by dental physicians and dental nurses by county

	Tartu	Tallinn	Tartu county	Häriju county	Ida-Viru county	Pärnu county	Viljandi county	Saare county	Võru county	Lääne county	Lääne-Viru county	Põhja county	Jõgeva county	Valga county	Järva county	Hiiu county	Rapla county
DENTISTS, TOTAL	129.2	96.0	98.3	77.0	47.1	59.8	59.3	48.5	55.8	41.1	57.5	33.5	59.2	35.1	47.8	40.3	45.7
Resident dentists	7.0	2.5	4.5	1.8	0.8	1.0											
Dentists	106.5	80.9	83.4	65.8	42.7	57.7	55.3	43.2	55.1	36.7	51.1	33.3	54.3	35.1	46.2	40.3	40.9
Orthodontists	6.5	5.0	4.3	3.6	2.0	0.6	3.8	3.1	0.7	2.4	2.5	0.2	3.3				
Dental prosthetists	0.2	5.0	0.3	3.8	1.7	0.5		2.2		2.0	3.9		1.6		1.7		4.7
Oral and maxillofacial surgeons	8.9	2.6	5.8	1.9			0.2										
TRAINEES IN DENTAL MEDICINE (students)*	0.1	0.3	0.0	0.2						1.0							
DENTAL NURSES*	102.9	88.9	79.3	68.8	41.8	53.9	54.7	37.3	41.8	50.0	50.4	27.6	58.8	23.2	25.5	7.7	35.8

Figure 31. Posts filled by dental physicians and dental nurses per 100,000 inhabitants by county in Nov 2017

*Occupations marked with an asterisk are not included in the "dentists, total" section

Rows in the table are coloured depending on the cell value from maximum (green) to average (yellow) to minimum (red) value in that row.

8.3 Posts filled by nurses, midwives and care workers by county

	Tartu	Tallinn	Tartu county	Häriju county	Ida-Viru county	Pärnu county	Viljandi county	Saare county	Võru county	Lääne county	Lääne-Viru county	Põhja county	Jõgeva county	Valga county	Järva county	Hiiu county	Rapla county
Nurses and midwives to physicians ratio	1.6	1.8	1.6	1.8	2.4	2.2	2.0	2.3	2.2	1.9	2.4	2.0	1.8	2.3	2.0	1.6	2.0
NURSES, TOTAL	1398.6	692.5	924.5	550.3	556.1	486.7	416.9	376.5	447.5	345.2	335.0	301.6	277.3	326.6	284.4	230.8	223.0
Anaesthesia and intensive care nurses	202.9	65.6	129.0	50.0	38.7	0.0	25.3	26.9	31.8	18.6	26.0	15.4	13.8	25.2	18.1	13.7	2.4
Diabetic nurses	1.9	1.2	1.2	0.9								0.5					
Emergency medicine nurses	185.6	50.8	123.9	39.2	54.1			75.1	71.5		28.9			77.3	6.3	7.8	
Geriatric nurses		0.1		0.1				15.2									
Home nurses	8.4	17.9	8.0	13.9	9.6	1.2	4.4	22.9	17.0		6.4	8.3	1.6	10.1	8.4		2.2
School nurses	30.4	16.6	21.3	15.3	16.1	13.4	16.9	10.2	13.2	16.0	17.5	9.1	14.0	23.3	12.6	19.4	14.8
Paediatric nurses	78.2	29.9	49.9	22.0	10.3		2.1	20.4			4.2	21.0					
Infection control nurses	2.1	2.3	1.4	1.7	8.5	1.0	2.1						1.6	1.7	0.6		
Oncology nurses	45.7	22.2	29.0	16.6													
Operating room nurses	86.5	33.0	55.2	25.0	18.8	0.3	10.1	14.5	11.7	6.0	5.3	2.9		8.5	8.3	9.4	2.6
Family nurses	112.0	88.5	85.6	82.9	79.1	88.1	73.9	75.6	86.0	80.8	93.4	90.2	86.8	68.3	81.9	53.7	69.7
Psychiatric nurses	75.8	21.4	48.2	15.6	9.0		26.6	12.6	38.7		1.7						
Pulmonology nurses	33.5	6.9	21.3	5.1	11.0			2.5								2.5	
Rehabilitation nurses	12.5	17.2	8.6	13.1	25.2	5.0	6.0	7.7	10.6	8.4	3.5	7.3	9.5	6.6	9.4		
Occupational health nurses	4.3	7.2	2.7	5.2	16.9					1.9			4.9	0.4	0.3		
General nurses	518.9	311.5	339.3	243.5	258.7	377.5	249.5	92.8	167.2	213.5	147.9	147.0	144.9	105.1	135.9	126.7	131.3
ASSISTANT NURSES (students)*	76.8	25.8	49.3	18.8	7.2	1.2	10.5	8.7			9.7			5.9	0.5		0.4
MIDWIVES	66.7	35.7	43.2	26.7	15.6	25.4	24.0	21.8	23.5	3.2	25.2	18.4	4.1	25.4	18.1	47.0	8.9
ASSISTANT MIDWIVES (students)*		1.1		0.8													
CARING PERSONNEL*	590.6	268.3	397.9	222.3	194.4	247.7	463.3	203.0	243.5	277.1	100.3	159.5	160.9	111.4	102.2	120.1	44.7

Figure 32. Posts filled by nurses, midwives and care workers per 100,000 inhabitants by county in Nov 2017

*Occupations marked with an asterisk are not included in the "nurses, total" section or among midwives.

Rows in the table are coloured depending on the cell value from maximum (green) to average (yellow) to minimum (red) value in that row.

8.4 Posts filled by other health care personnel by county

	Tartu	Tallinn	Tartu county	Härju county	Ida-Viru county	Pärnu county	Viljandi county	Saare county	Võru county	Lääne county	Lääne-Viru county	Põlva county	Jõgeva county	Valga county	Järva county	Hiiu county	Rapla county
OTHER HEALTH PERSONNEL, TOTAL	610.1	366.8	401.7	279.2	197.3	333.1	150.0	195.5	161.2	289.2	186.9	239.8	78.6	120.9	112.5	55.0	144.8
Assistant radiology technicians (students)	2.0	0.9	1.3	0.7	1.3	0.5											
Logopaedists	15.4	5.8	10.4	4.5	3.8	5.1	2.1	0.2	3.0	8.3	3.4	11.9	6.0		2.3		0.1
Clinical laboratory assistants	157.3	55.4	100.5	40.6	37.0	41.6	26.7	24.8	29.7	8.3	33.3	12.6	17.8	22.2	19.8	11.6	8.4
Diet and nutrition specialists		1.0		0.7													2.5
Emergency medical technicians		7.8	0.3	6.0	1.0			8.0	2.1		8.4						
Physiotherapists (higher medical education)	67.8	20.6	47.9	16.6	9.7		24.4	14.9	17.3	75.5	11.4	23.2	13.0		19.4	16.2	14.8
Physiotherapists	7.2	2.3	5.9	1.7	3.1	28.2	0.3	2.3		24.2		36.8	3.3	12.0			
Dental technicians	13.6	6.4	9.3	4.6	10.7	6.0	16.0	9.3	6.0	8.3	1.5	12.3	4.5	3.4			9.0
Other personal care workers in health services	80.2	72.3	51.7	61.0	38.7	16.4	13.4	27.4	5.4	27.5	33.6	44.7		17.2	38.2		86.0
Ambulance technicians	99.1	38.6	65.9	30.4	36.3	53.5		36.6	43.5		44.2			30.2			
Movement therapy specialists		0.7		0.7	0.7	3.8				1.5							
Movement therapists		0.2		0.2		2.2											
Creative arts therapists		1.0		1.0		0.5											
Massage therapists	1.6	4.2	1.7	3.9	9.2	93.3	1.9	5.3	3.0	51.5	5.2	37.2		7.5		8.9	3.0
Medical and pathology laboratory technicians	1.7	2.1	1.1	1.6			2.1										
Medical equipment technicians*		1.5		1.1													
Prosthetic technicians	1.1		0.7		0.5												
Medical imaging assistants	0.8	0.8	0.5	0.6									3.0				
Other health professionals	11.4	11.2	7.3	8.8	2.7	6.3		0.1	7.2						0.3		
Music therapists				0.1								2.9					
Optometrists	5.8	9.0	3.7	6.6		1.2									2.5		
Radiology technicians	67.7	37.5	43.6	28.0	16.6	19.4	19.0	17.4	19.4	10.5	17.8	9.3	10.7	17.9	19.8	17.5	1.1
Dental hygienists	2.2	2.6	1.4	1.9	0.7	1.3	2.5	0.3	0.5		1.5		3.3				3.0
Activity therapists	9.2	3.8	5.9	3.5	1.0		2.9	1.1		28.3	2.7	1.2					
Health protection, ... professionals*		0.2		0.2													
Other health associate professionals		6.0	0.3	4.4		4.1		20.4			1.7		3.0				
Midwife's assistants		0.1		0.1				6.0									
Hospital pharmacists	18.6	4.8	11.8	3.8	1.4	2.8	3.3			6.4	1.4	3.2	3.3	0.8		0.8	
Hospital assistant pharmacists	6.9	3.8	4.4	2.8	2.1		2.1	3.0			1.6	3.2					3.5
Clinical psychologists	25.5	8.6	16.2	6.5	1.1	5.9	2.1	2.4		4.1	0.8	2.3	3.9				
Psychologists	2.9	2.1	2.1	1.6	7.8	1.0	29.9	2.7	5.7	10.7	0.1	7.0			0.2		2.7
Psychotherapists	1.7	0.7	1.1	0.5		11.2						2.4					
Social workers	0.1	2.6	0.1	2.7	8.9	16.1		2.7		19.5	1.7	9.2		3.1			3.2
Management	10.2	42.2	6.5	31.8	3.0	12.8	1.1	10.6	18.5	4.7	16.5	22.5	4.5	6.6	10.0		7.5

Figure 33. Posts filled by other health care personnel per 100,000 inhabitants by county in Nov 2017

*Health protection, occupational health and work hygiene professionals; medical imaging and therapeutic equipment technicians
 Rows in the table are coloured depending on the cell value from maximum (green) to average (yellow) to minimum (red) value in that row.

9 Migration of health care personnel

9.1 Certificates issued for working abroad

Mutual recognition of professional qualifications and free movement of health care personnel in the European Union is based on Directive 2005/36/EC of the European Parliament and of the Council. The directive establishes minimum training conditions and required professional experience for all regulated vocations and specialities for ensuring free movement of labour.

Between 2004 and 2017, the Estonian Health Board issued a total of 3,434 certificates of recognition of professional qualifications for working abroad, 1,439 of those to physicians and 1,551 to nurses (Table 1). The highest number of certificates was requested between 2010 and 2012. Thereafter, this number has continuously declined with 79 and 77 certificates issued in 2016 and 2017 respectively (13).

Table 1. Total number of certificates of recognition of professional qualifications for working abroad requested in 2017, and in years 2004–2017

Speciality	2017	Total 2004–2017
Total	77	3,434
Physicians	39	1,439
General medicine	14	500
Family medicine	1	162
Anaesthesiology	3	103
Radiology	3	89
Psychiatry	4	75
Paediatrics	1	54
Obstetrics and gynaecology	1	51
Internal medicine	3	43
General surgery	0	42
Orthopaedics	1	36
Cardiology	1	29
Neurology	2	25
Ophthalmology	2	25
Physical and rehabilitation medicine	0	24
Pulmonary Medicine	0	21
Laboratory medicine	0	17
Otorhinolaryngology	0	15
Dermato-venereology	0	14
Urology	1	13
Emergency medicine	0	12
Cardiovascular surgery	0	12
Rheumatology	0	12
Gastroenterology	0	10

Table 1. (continues)

Speciality	2017	Total 2004–2017
Oncology	0	9
Pathology	1	9
Thoracic surgery	0	9
Infectious Diseases	0	6
Haematology	0	5
Neurosurgery	0	4
Paediatric surgery	0	3
Nephrology	0	3
Occupational medicine	0	3
Endocrinology	1	2
Plastic and reconstructive surgery	0	2
Dental physicians in total	3	363
Dental care	0	353
Orthodontics	2	8
Restorative dentistry	1	2
Nurses	31	1,551
General nursing	31	1,551
Midwives	4	81

Source: Estonian Health Board (13)

9.2 Foreign-trained physicians and nurses in Estonia

According to the data of the Estonian Health Board (published in Organisation for Economic Cooperation and Development (OECD) database) there were a total of 238 physicians and 16 nurses in Estonia in 2017, who had acquired their vocation abroad (Table 2). They constitute respectively 3.5% and 0.12% of all registered physicians and nurses in Estonia (14). Estonia and its figures are among the last in OECD countries. Ireland and Norway are at the top with the proportion of physicians who have acquired their vocation abroad at 42% and 40% respectively in 2017. More detailed overview of the migratory data of physicians and nurses in Estonia and other countries is available in OECD database (14).

Table 2. Foreign-trained physicians and nurses in Estonia 2017

	Physicians	Nurses
Total	238	16
Russia	92	8
Ukraine	69	
Finland	22	2
Latvia	8	3
Germany	6	1
Azerbaijan	4	
Belarus	4	
Moldova	4	
Sweden	4	1
Georgia	3	
Italy	3	
England	3	
Kazakhstan	2	
Lithuania	2	
Armenia	1	
Chile	1	
Croatia	1	
Czech Republic	1	
Egypt	1	
Greece	1	
Jordan	1	
Netherlands	1	
Poland	1	
Spain	1	
Syrian Arab Republic	1	
USA	1	
Israel		1

Source: Estonian Health Board, data published by OECD (14)

9.3 Physicians and nurses trained in Estonia working abroad

There are far more Estonian physicians and nurses working abroad than there are foreign physicians and nurses coming to work in Estonia (Table 3). Unfortunately, our neighbouring countries, which have the highest number of physicians and nurses from Estonia, do not publish any such data (last data from Finland comes from 2012) or do not publish such data in enough detail (Sweden, Denmark). It is possible that Estonian physicians and nurses also work in other countries that either only publish aggregated data or publish some data as part of an “Other countries” section. More detailed overview of the migratory data of physicians and nurses in Estonia and other countries is available in OECD database (14).

Table 3. Physicians and nurses who work abroad but have acquired their vocation in Estonia by the last year in which data was published

	Year	Physicians	Nurses
Finland	2012	1,276	659
Germany	2016	48	
Latvia	2017	43	2
Israel	2017	31	
England	2017	26	101
Norway	2017	18	113
Hungary	2016	12	
Lithuania	2017	6	0
Canada	2016	5	0
France	2017	5	4
Switzerland	2016	5	
Belgium	2017	2	3
Spain	2011	2	
Czech Republic	2016	2	
USA	2016	2	
Ireland	2017	1	
Poland	2017	1	
Italy	2017		6
Portugal	2014		2
Sweden*	2015		
Denmark**	2015		

* Estonian physicians and nurses most likely under the “Other countries” section.

** Denmark only publishes summarised data on all countries.

Source: OECD database (14)

References

All references accessed on 3 September 2019.

1. National Institute for Health Development. Health Statistics and Health Research Database. http://pxweb.tai.ee/PXWeb2015/index_en.html
2. Kivisild G. Health Care Personnel in Estonia 2013. Tallinn: National Institute for Health Development; 2014. <https://www.tai.ee/en/health-data/research-reports/download/306>.
3. Eigo N, Liivlaid H. Arstid Eestis. Tallinn: National Institute for Health Development; 2017. <https://www.tai.ee/en/health-data/research-reports/download/397>.
4. Health Services Organisation Act (11 November 2018). RT I, 10.11.2018, 3. <https://www.riigiteataja.ee/akt/106062014022?leiaKehtiv>
5. Requirements for the preparation of reports on health care statistics and economic activities in the field of health care, the composition of the data and the procedure for the submission of these (1 January 2017). RT I, 09.12.2016, 12. <https://www.riigiteataja.ee/akt/109122016012>
6. Statistical report "Health care personnel". https://www.riigiteataja.ee/aktilisa/1221/2201/5010/SOM_17122015_m63_lisa4.pdf#
7. Statistical report "Hourly wage of health care personnel". https://www.riigiteataja.ee/aktilisa/1091/2201/6009/SOM_m68_lisa6.pdf#
8. Statistics Estonia. Statistical database. Population, 1 January by sex, year and age group. http://pub.stat.ee/px-web.2001/Dialog/varval.asp?ma=PO021&ti=POPULATION+BY+SEX+AND+AGE+GROUP%2C+1+JANUARY&path=../Databas/Population/01Population_indicators_and_composition/04Population_figure_and_composition/&lang=1
9. Regulation No. 139 of the Government of the Republic. <https://www.riigiteataja.ee/akt/122122015051>
10. Statistics Estonia. Statistical database. Average hourly gross wages (salaries) by economic activity (EMTAK 2008). http://pub.stat.ee/px-web.2001/Dialog/varval.asp?ma=WS012&ti=AVERAGE+HOURLY+GROSS+WAGES+%28SALARIES%29+BY+ECONOMIC+ACTIVITY+%28EMTAK+2008%29+%282009%2D2017%2C+QUARTERS%29&path=../Databas/Economy/36Wages_and_salaries_and_labour_costs/09Wages_and_salaries/04Short_term_statistic/&lang=1
11. Collective agreement of health care sector. https://haiglateliit.ee/wp-content/uploads/2015/04/kollektiivleping_19_12_2014.pdf; https://haiglateliit.ee/wp-content/uploads/2017/05/Tervishoiuvaldkonna_kollektiivleping_25_1.pdf
12. National Institute for Health Development. Research reports. <https://www.tai.ee/en/health-data/research-reports>; "Hourly wages of health care personnel"
13. National Institute for Health Development. Health statistics and health research database. Health care personnel who hold certificate on the recognition of professional qualification to work abroad by specialty. http://pxweb.tai.ee/PXWeb2015/pxweb/en/04THressursid/04THressursid__05Tootajad/THT023.px
14. OECD. Health workforce migration, OECD Health Statistics (database); 2019, https://www.oecd-ilibrary.org/social-issues-migration-health/data/oecd-health-statistics/health-workforce-migration_1497601f-en; https://stats.oecd.org/viewhtml.aspx?datasetcode=HEALTH_WFMI&lang=en

Health and health care statistics:

- **Health statistics and health research database**
<http://www.tai.ee/tstua>
- **Website of Health Statistics Department of National Institute for Health Development**
<http://www.tai.ee/en/r-and-d/health-statistics/activities>
- **Dataquery to National Institute for Health Development**
tai@tai.ee
- **Database of Statistics Estonia**
<http://www.stat.ee/en>
- **Statistics of European Union**
<http://ec.europa.eu/eurostat>
- **European health for all database (HFA-DB)**
<http://data.euro.who.int/hfad/>
- **OECD's statistical databases (OECD.Stat)**
http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT

