CATCHING GAPS WITH HEALTHCARE MAPS

Summary of Maps of Healthcare Needs for Mazowieckie Voivodeship for 30 groups of diseases

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Part I

Demographic and Epidemiological Aspects

1.1Estimating epidemiological indicators

Modelling of the number of new cases is an important activity in evaluating healthcare systems. It allows to define the current epidemiological situation, examine various interrelationships and phenomena, and to identify the determinants of population health. The insufficient number of epidemiological studies in Poland necessitated certain approximations and estimation of the epidemiological indicators (namely, reported incidence rates and reported prevalence rates) based on the data from the National Health Fund.

For the purposes of estimating recorded incidence rates and reported prevalence rates, the subgroups analysed within each disease group were divided into acute and chronic. This was done to identify non-transient diseases, for which it is justified to calculate reported incidence rates and reported prevalence rates, and transient diseases, for which the epidemiological data are approximated by the hospitalised prevalence rate described in another chapter.

For the purposes of analysing the number of new cases for a particular chronic disease, we estimated the reported incidence rate, defined as the number of new patients with this diagnosis who appeared in the public healthcare system. For chronic diseases, the reported incidence was calculated for 2014 based on the NFZ data for the period from 2009 to 2015 (it was possible to analyse the patient's history up to five years back and one year ahead in cases where the rules defined by the experts applied to more than one appearance of the patient in the system). A patient that appeared in the NFZ reporting system during this period was considered a new patient (a first-time patient) if 2014 was the year in which he or she appeared in the system with a given diagnosis for the first time.

The reported prevalence was estimated as of 31 December 2014. Individuals affected by the particular disease on that day were defined as patients who had been classified as new cases in the public healthcare system at any point since 2009 and were still alive on 31 December 2014.

Table 1.1: The incidence and prevalence recorded in Mazowieckie Voivodeship.

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Diseases of the musculoskeletal system		
Arthropathies associated with infections[1]	9.4	76.9
Inflammatory polyarticular arthropathies	241.2	1,729.0
Systemic connective tissue disorders	150.8	1,315.3
Muscular diseases	19.4	132.9
Diseases of fasciae, tendons and soft tissues (inflammatory)	160.3	1,367.4
Joint diseases	1,528.6	12,214.6
Diseases of fasciae, tendons and soft tissues (non-inflammatory)	1,097.0	7,493.1

1It should be noted that wards treating complications of 'M' group diseases reporting 'M' group diseases as the principal cause of hospitalisation (instead of the complication being treated) distort the recorded incidence (e.g. J84 interstitial lung disease and M34 systemic sclerosis)

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Disorders of bone mineralisation and structure	308.0	2,932.9
Other diseases of bone and cartilage	104.8	744.5
Other musculoskeletal and connective tissue diseases	148.3	979.5
Diseases of the spine	1,562.1	12,642.2
Diseases of the nervous system (diseases of the nervous system in the elderly)		
Alzheimer's disease and other dementias	143.4	843.3
Parkinson's disease and other movement disorders[2]	102.4	687.6
Neuromuscular diseases[3]	93.0	567.3
Demyelinating diseases[4]	16.0	175.2
Epilepsy[5]	118.1	1,207.5
Degenerative diseases of the spine[6]	1,160.4	8,999.8
Mononeuropathies, nerve compression syndromes and radiculopathies[7]	994.5	6,932.8
Diseases of the aorta and peripheral vessels including hypertension		
Hypertension	922.9	7,521.8
Resistant hypertension	222.4	1,956.9
Atherosclerosis	282.3	1,844.0
Atherosclerosis of renal artery	4.0	17.1
Aortic aneurysm and dissection (excluding abdominal aortic aneurysm)	17.0	79.0
Aneurysm of abdominal aorta and iliac artery	27.2	149.7
Aneurysm of other arteries	18.7	122.4
Pulmonary thrombosis and/or embolism	251.2	1,772.2
Vasculitis	66.3	443.4
Varicose veins of lower extremities	515.5	4,066.8

2The considerable differences in the number of new cases appearing in the public healthcare system may suggest underdetection of dementias in certain voivodeships.

3According to medical experts working with the Ministry of Health, the very high number of new cases of neuromuscular diseases may result from the inclusion of patients with polyneuropathies in the analysis, in particular from the differentiation between diabetic polyneuropathy and polyneuropathies of other origins.

4After consulting the results with the medical community, it should be concluded that the discrepancies between the data analysed in maps of healthcare needs and the findings of published epidemiological studies may result from the adopted index estimation method.

5A larger number of patients diagnosed with epilepsy than indicated by epidemiological studies known to medical experts may suggest incorrect diagnosis or coding.

6According to national and regional consultants, the above results suggest a relatively low number of identified new cases, which may result from excluding radiculopathies (which were analysed together with mononeuropathies).

7According to national and regional experts, the estimated results suggest that the high number of new cases may result from including patients with radiculopathies in this group.

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Ulcers	96.5	625.4
Lymphoedema	23.2	130.4
Occlusion and stenosis of precerebral arteries	76.9	647.5
Diseases of the respiratory system(chronic)		
Asthma	432.6	4,000.6
Chronic obstructive pulmonary disease	219.6	1,766.3
Interstitial lung disease	40.4	326.5
Sleep-disordered breathing	68.8	409.7
Chronic inflammatory lung diseases	140.9	1,219.0
Respiratory failure	37.5	88.1
Other diseases of the respiratory system	179.4	965.3
Endocrine diseases		
disorders of reproductive glands	145.2	1,141.4
Disorders of adrenal glands	27.5	187.1
Disorders of pituitary gland	35.8	292.6
Disorders of parathyroid gland	41.3	210.4
Disorders of thyroid gland	472.0	4,396.1
Diseases of pancreas	36.9	236.7
Diseases with unspecified endocrine diagnosis	163.5	980.5
Obesity	100.9	636.0
Benign endocrine neoplasms	377.3	3,701.7
Mental disorders		
Organic disorders	226.9	1,582.1
Addictions	272.7	2,346.1
Schizophrenia	38.0	671.7
Psychoses other than schizophrenia	26.3	253.7
Mood disorders	243.1	2,153.3
Anxiety disorders	546.2	4,377.1
Eating disorders	12.1	83.8
Behavioural syndromes associated with physiological disturbances and physical factors	36.7	264.9

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Disorders of adult personality and behaviour	47.1	358.4
Gender identity disorders and disorders of sexual preferences	1.5	12.7
Mental retardation	32.2	363.3
Disorders of psychological development	133.6	1,044.5
Behavioural and emotional disorders with onsetusually occurring in childhood and adolescence	104.6	785.2
Diabetes mellitus		
diabates mellitus[8]	346.3	3,561.7
Neoplasms of haematopoietic or lymphoid tissue		
Acute neoplasms of haematopoietic tissue	5.7	28.7
Chronic neoplasms of haematopoietic tissue[9]	38.7	236.6
Precursor B- and T-cell neoplasms [10]	0.7	5.2
Mature B-cell neoplasms	27.5	180.5
Mature T- and NK[11]-cell neoplasms	1.8	11.5
Hodgkin lymphoma[12]	3.6	40.5
Histiocytic and dendritic cell neoplasms	0.6	5.5
Diseases of the blood and of the immune system		
Deficiency anaemias[13]	54.9	401.1

8According to sources adopting a different method to determine recorded incidence of diabetes mellitus, e.g. based on information on patients taking diabetes medication and using glucose test strips, the estimated value of recorded incidence per 100,000 population was significantly higher: 1008 for Poland.

9Recorded incidence of chronic neoplasms of haematopoietic tissue recorded in the Polish healthcare system in 2014 was 1.5 to 2 times higher than suggested by epidemiological data found in the literature.Such incidence overestimation may result from insufficient quality of reporting data or discrepancies between ICD-10 codes and the current classification of neoplasms of haematopoietic tissue recommended by WHO.It is worth noting that the general code D47.9 (neoplasms of an uncertain or unknown character of haematopoietic, lymphoid or related tissue, unspecified) was used for patients diagnosed with specific neoplasms of lymphoid tissue more frequently than epidemiological data would suggest.

10Recorded incidence rates in the Polish healthcare system in 2014 were lower than incidence rates quoted in American and European literature.This may follow from low diagnosis rates for these neoplasms, especially in the elderly (aged 74 y.o. and over).

11These numbers should be considered as the upper range limits.Almost double the difference in the incidence rates recorded in individual voivodeships requires further detailed analysis of the incidence of particular types of neoplasms from T and NK cells.

12Incidence and prevalence recorded in Poland are close to the SEER NCI data.

13Recorded incidence and prevalence rates for patients with deficiency anaemias, especially anaemias resulting from iron deficiency, are most likely underestimated.

Haemolytic anaemias (hereditary)[14]	2.6	21.6

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Haemolytic anaemias (acquired)	1.9	14.1
Aplastic anaemias	1.3	10.1
Other anaemias	33.1	173.4
Coagulation defects and other haemorrhagic conditions (hereditary)	2.6	17.6
Coagulation defects and other haemorrhagic conditions (acquired)	60.0	385.6
Other diseases of blood	59.5	411.8
Disorders of immune system (primary)	21.8	161.6
Disorders of immune system (secondary)	3.5	18.5
Disorders of immune system (unspecified)	18.9	137.6
Porphyria	0.2	2.2

Source: Compiled by DAiS based on data provided by the NFZ.

Table 1.2: The incidence and prevalence recorded in Mazowieckie Voivodeship.

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Metabolic diseases		
Malnutrition	21.5	66.7
Other nutritional deficiencies	19.4	69.0
Obesity	101.4	548.4
Metabolic disorders	203.1	1,415.0
Osteoporosis and other metabolic disorders of bone	323.4	2,790.7
Vitamin D deficiency	27.9	60.9
Diseases of the eye and adnexa		
post-cataract conditions	206.6	768.8
disorders of retina and vitreous body excluding AMD	627.0	4,980.9
Strabismus and amblyopia	2,173.0	19,377.4
glaucoma	371.3	3,339.9
AMD	207.6	984.2
disorders of cornea	174.2	1,236.1
cataracts	639.7	4,988.8
disorders of eyelid, lacrimal system and orbit	1,309.4	9,624.1
Other	776.9	4,059.2

14According to experts working with the Ministry of Health, the low registered incidence and prevalence in Poland most probably results from the fact that the diseases have not been diagnosed.Attention is drawn to the concentration of newly diagnosed patients in the Mazowieckie and Śląskie Voivodeships, which may indicate the appropriate diagnostic facilities in these voivodeships.

Diseases of the skin

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Dermatitis and eczema	1,269.5	10,245.8
Autoimmune bullous disorders	10.9	56.7
Cutaneous T-cell lymphoma	1.2	4.4
Selected infections	1,401.7	9,412.8
Non-melanoma skin cancers, conditions, in situ carcinomas	113.1	625.4
Connective tissue disorders, including selected systemic connective tissue disorders	105.7	598.6
Inflammatory diseases of the skin	799.3	5,690.0
Other disorders of skin, hair and nails	1,257.6	8,293.5
Infections with a predominantly sexual mode of transmission	17.6	90.6
Psoriasis	144.3	1,233.1
Selected benign neoplasms	786.6	4,358.8
Burns, frostbite, decubitus ulcers, ulcers	237.3	1,344.5
Urticaria and angioedema	196.1	1,155.1
Congenital malformations of skin	19.1	121.0
Non-neoplastic diseases of male reproductive system		
Benign hyperplasia of prostate	425.7	3,726.0
Male infertility	13.4	92.8
Redundant prepuce, phimosis and paraphimosis	139.0	876.6
Diseases of the genitourinary system women		
non-neoplastic disorders of mammary gland	522.1	4,568.6
abnormal hyperplasia or location of mucous membrane of the reproductive system	496.3	3,649.5
non-inflammatory, non-neoplastic diseases of genital organ	485.0	3,503.4
fistulae	3.2	21.6
disorders of menstruation	1,130.3	11,745.1
disorders of fertility	78.1	531.6
diseases of statics of sexual organs	123.7	839.3
Diseases of kidneys and urinary tract		
Glomerular diseases	42.4	350.8
Disorders of mineral metabolism	25.0	171.3
Other disorders of fluid, electrolyte andacid-base balance	55.1	241.0
Hypertension	905.0	6,547.1
Urinary tract infection	295.2	1,716.4
Urinary incontinence	176.5	1,073.2
Renal tubulointerstitial diseases	68.5	367.8

Renal failure	196.2	828.6
Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Urolithiasis	299.0	2,144.2
Other disorders of kidney and ureter	102.6	525.8
Other diseases of lower urinary tract	83.3	508.6
Symptoms and signs involving the urinary system	115.7	595.8
Defects of the urinary systemdiseases of liver, biliary tract and pancreas (excluding malignant and non-malignant neoplasms)	200.6	1,076.1
Cirrhosis of liver (excluding alcoholic liver disease)	18.5	91.3
Fatty liver diseases	23.8	135.7
Alcoholic liver disease	69.5	371.5
Complications of liver diseases	1.6	4.7
Hepatic failure	7.0	30.1
Toxic liver disease (excluding alcoholic liver disease)	8.8	46.3
Disorders of gallbladder (with or without cholelithiasis)	256.5	1,455.1
Disorders of biliary tract (with or without calculus)	311.4	1,866.4
Congenital malformations of liver, pancreas and biliary tract	2.9	19.6
Chronic pancreatitis (including complications)	48.3	246.9
Diseases of the upper digestive tract (excluding malignant and non-malignant neoplasms)		
Gastro-oesophageal reflux disease	352.8	2,028.0
Other diseases of oesophagus (not included in other subgroups)	26.5	159.3
Peptic ulcer disease	154.6	1,035.7
Other diseases of stomach and duodenum (not included in other subgroups)	696.3	4,338.5
Other functional disorders of the upper digestive tract	1,528.3	8,487.5
Intestinal malabsorption	216.4	1,008.4

Disease group	Incidence rate recorded per 100,000 people	Prevalence rate recorded per 100,000 people
Diseases of the lower digestive tract (excluding malignant and non-malignant neoplasms)		
Diseases requiring urgent surgical operation on the lower digestive tract	132.7	752.5
Other diseases requiring surgical operation on the lower digestive tract	372.8	2,113.0
Non-neoplastic diseases of anus and rectum	393.6	2,382.9
Crohn's disease	13.7	93.4
Ulcerative colitis (UC)	27.8	213.7
Enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis)	472.5	2,787.7
Lower gastrointestinal haemorrhage, including vascular disorders	170.7	820.3
Functional intestinal disorders	1,145.9	6,365.2
Diverticular disease of intestine	131.6	631.5
Other diseases of intestines	351.5	1,909.0
Diseases of nose, paranasal sinuses, ear, pharynx and larynx		
Diseases of the ear and mastoid process	1,340.8	10,375.1
Diseases of oral cavity and pharynx	1,125.6	7,972.6
Diseases of nose and paranasal sinuses	1,506.9	11,343.6
Diseases of larynx and trachea	468.7	3,121.2
Disorders of voice, speech and language	94.1	581.8
Sleep apnoea	56.6	322.7
Diseases of the organs of hearing and balance	954.3	6,423.7
Infectious diseases: viral hepatitis		
Chronic viral hepatitis B	13.7	150.7
Chronic viral hepatitis C	25.8	272.8
Other and unspecified forms of chronic viral Hepatitis	40.0	447.7
Infectious diseases (HIV)	8.5	66.6
Infectious diseases (excluding HIV infection		

and hepatitis		
Tuberculosis	23.3	170.1
Lyme disease	65.0	459.2

Source: Compiled by DAiS based on data provided by the NFZ

Part II

Inpatient Healthcare

2.1 Diseases of the musculoskeletal system

Diseases of the musculoskeletal system are divided into inflammatory and non-inflammatory diagnoses. Non-inflammatory diagnoses include the following groups: joint diseases, diseases of the spine, diseases of the fasciae, tendons and soft tissues (non-inflammatory), disorders of bone mineralisation and structure, systemic connective tissue disorders, and other musculoskeletal and connective tissue diseases. Inflammatory diagnoses include: systemic connective tissue disorders, inflammatory polyarticular arthropathies, disorders of the fasciae, tendons and soft tissues (inflammatory), arthropathies associated with infections, and muscular diseases. This document presents analyses of the disease groups that constitute the biggest part of all diagnoses: joint diseases, diseases of the spine, systemic connective tissue disorders, and inflammatory polyarticular arthropathies. A detailed analysis of other groups is presented in the Map of Healthcare Needs regarding the diseases of the musculoskeletal system.

The hospitalisation of inflammatory and non-inflammatory groups may be observed in different wards and scopes. The most important groups have been singled out in the following scopes: rheumatology, orthopedics, neurology, and neurosurgery. It is worth noting that inflammable diagnoses constitute between 49.1% and 87.7% of the rheumatology scopes (rheumatology - children's rheumatology and hospitalisation - hospitalisation); in Mazowieckie Voivodeship, they consituted on avarage 78.3%.

Joint diseases

In the case of children: in Mazowieckie Voivodeship, 0.89 thousand hospitalisations have been reported within this subgroup. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Dolnośląskie (40.54), the most in Lubelskie Voivodeship (230.57). In Mazowieckie Voivodeship, this index equalled 90.18. The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Kujawsko-pomorskie and Lubelskie Voivodeships: among the hospitalised patients, 5.0% and 5.1%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 57.15 and 230.57.80% of hospitalisations were reported by 7 healthcare providers out of 41 (17% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 37.6% of all hospitalisations. Surgical treatment DRGs constitute 73.1% in the voivodeship, out of which 43.4% is specialised surgical treatment [15] (in Poland, these figures stand at 68.8% and 24.7%, respectively).Variations occur among healthcare providers. In those that reported at least 50 hospitalisations (4 in a voivodeship), surgical treatment DRGs constituted between 68.4% and 98.2%.

In the case of adults (up to 64 years of age): in Mazowieckie Voivodeship 13.69 thousand hospitalisations have been reported within this subgroup. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Lubelskie (274.77), the most in Warmińsko-Mazurskie Voivodeship (500.44). In Mazowieckie Voivodeship, this index equalled 387.30. The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Opolskie and Warmińsko-Mazurskie Voivodeships: among the hospitalised patients, 15.6% and 16.3%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 365.17 and 500.44. 80% of hospitalisations were reported by 23 healthcare providers out of 76 (30% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 17.0% of all hospitalisations. Surgical treatment DRGs constitute 86.1% in the voivodeship, out of which 33.8% is specialised[16] surgical treatment (in Poland, these figures stand at 88.0% and 25.6%, respectively).Variations occur among healthcare providers.In those that reported

[15] I.e. the type that could not be reported within general surgery.
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at least 50 hospitalisations (45 in a voivodeship), surgical treatment DRGs constituted between 0.0% and 100.0%.The average length of hospitalisation in the voivodeship was 4.6 days (standardized value: 4.7 days); the nationwide average length of hospitalisation of these patients is 4.2 days.With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 4.7 days (ranging from 1.0 to 11.0 days).

In the case of the elderly: in Mazowieckie Voivodeship, 7.05 thousand hospitalisations have been reported within this subgroup.Surgical treatment DRGs constitute 78.4% in the voivodeship, out of which 66.0% is specialised[17] surgical treatment (in Poland, these figures stand at 77.7% and 69.4%, respectively). Variations occur among healthcare providers. In those that reported at least 50 hospitalisations (33 in a voivodeship), surgical treatment DRGs constituted between 0.0% and 100.0%. The average length of hospitalisation in the voivodeship was 7.9 days (standardized value: 8.0 days); the nationwide average length of hospitalisation of these patients is 7.6 days. With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 8.2 days (ranging from 1.0 to 13.9 days). The average patient from this group, hospitalised in this voivodeship, is 72.7 years old. Patients with a comorbidity index different from 0 constitute 24.7% of all hospitalised patients.

Diseases of the spine

In the case of children: in Mazowieckie Voivodeship, 0.29 thousand hospitalisations have been reported within this subgroup. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Lubuskie (12.87), the most in Małopolskie Voivodeship (82.08). In Mazowieckie Voivodeship, this index equalled 29.76. The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Pomorskie and Świętokrzyskie Voivodeships: among the hospitalised patients, 3.1% and 3.8%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 14.50 and 48.32.80% of hospitalisations were reported by 11 healthcare providers out of 33 (33% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 29.3% of all hospitalisations. Surgical treatment DRGs constitute 45.0% in the voivodeship, out of which 94.5% is specialised[18] surgical treatment (in Poland, these figures stand at 42.5% and 91.9%, respectively). With the only healthcare provider that reported more than 50 hospitalisations, surgical treatment DRGs constituted 91.9% of them.

In the case of adults (up to 64 years of age): in Mazowieckie Voivodeship 7.84 thousand hospitalisations have been reported within this subgroup. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Pomorskie (161.41), the most in Lubelskie Voivodeship (402.60). In Mazowieckie Voivodeship, this index equalled 222.32. The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Dolnośląskie and Podkarpackie Voivodeships: among the hospitalised patients, 6.6% and 6.2%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 173.99 and 396.87.80% of hospitalisations were reported by 20 healthcare providers out of 71 (28% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 8.7% of all hospitalisations. Surgical treatment DRGs constitute 58.0% in the voivodeship, out of which 97.0% is specialised[19] surgical treatment (in Poland, these figures stand at 47.6% and 81.2%, respectively). Variations occur among healthcare providers. In those that reported at least 50 hospitalisations (34 in a voivodeship), surgical treatment DRGs constituted between 0.0% and 100.0%. The average length of hospitalisation in the voivodeship was 6.1 days (standardized value: 6.2 days); the nationwide average length of hospitalisation of these patients is 6.0 days. With the healthcare

17I.e. the type that could not be reported within general surgery.

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providers that reported over 50 hospitalisations, the average length of stay was 6.2 days (ranging from 2.0 to 9.0 days).

In the case of the elderly: in Mazowieckie Voivodeship, 2.09 thousand hospitalisations have been reported within this subgroup. Surgical treatment DRGs constitute 40.6% in the voivodeship, out of which 93.6% is specialised surgical treatment[20] (in Poland, these figures stand at 33.5% and 71.4%, respectively). Variations occur among healthcare providers. In those that reported at least 50 hospitalisations (15 in a voivodeship), surgical treatment DRGs constituted between 0.0% and 82.2%. The average length of hospitalisation in the voivodeship was 7.7 days (the same as its standardized value); the nationwide average length of hospitalisation of these patients is 7.1 days.With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 8.6 days (ranging from 4.9 to 14.2 days).The average patient from this group, hospitalised in this voivodeship, is 73.3 years old. Patients with a comorbidity index different from 0 constitute 35.3% of all hospitalised patients.

Systemic connective tissue disorders

In the case of children: in Mazowieckie Voivodeship, 1.11 thousand hospitalisations have been reported within this subgroup.Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Świętokrzyskie (24.16), the most in Łódzkie Voivodeship (175.56). In Mazowieckie Voivodeship, this index equalled 112.65.The value of this index may be influenced by the migration of patients.However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Łódzkie and Pomorskie Voivodeships: among the hospitalised patients, 10.4% and 10.3%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 175.56 and 67.38.80% of hospitalisations were reported by 2 healthcare providers out of 32 (6% of all in the voivodeship that reported at least one patient from this group).The biggest healthcare provider reported 79.0% of all hospitalisations.The patients were most often hospitalised within the scopes of children's rheumatology - hospitalisation (79.0%) and paediatrics - hospitalisation (16.0%).The wards with the highest hospitalisation rates were the paediatric rheumatology ward (79.0%) and the paediatric ward (13.7%).

In the case of adults (up to 64 years of age): in Mazowieckie Voivodeship 4.73 thousand hospitalisations have been reported within this subgroup.Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Lubuskie (45.64), the most in Lubelskie Voivodeship (203.35).In Mazowieckie Voivodeship, this index equalled 134.81. The value of this index may be influenced by the migration of patients.However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Małopolskie and Wielkopolskie Voivodeships: among the hospitalised patients, approx. 12.7% were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 88.04 and 176.29 respectively.80% of hospitalisations were reported by 7 healthcare providers out of 59 (12% of all in the voivodeship that reported at least one patient from this group).The biggest healthcare provider reported 30.4% of all hospitalisations.The patients were most often hospitalised within the scopes of rheumatology - hospitalisation (64.0%) and internal diseases – hospitalisation (10.7%).The wards with the highest hospitalisation rates were the rheumatology ward (64.1%) and the ward of internal diseases (9.7%).The average length of hospitalisation in the voivodeship was 7.0 days (standardized value: 7.1 days); the nationwide average length of hospitalisation of these patients is 7.3 days.With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 7.0 days (ranging from 3.2 to 13.9 days).

In the case of the elderly: in Mazowieckie Voivodeship, 2.05 thousand hospitalisations have been reported within this subgroup.The patients were most often hospitalised within the scopes of rheumatology - hospitalisation (70.6%) and internal diseases – hospitalisation (13.0%). The wards with the highest hospitalisation rates were the rheumatology ward (71.1%) and the ward of internal diseases (11.2%).The average length of hospitalisation in the voivodeship was 9.1 days (the same as its

20I.e. the type that could not be reported within general surgery.

standardized value); the nationwide average length of hospitalisation of these patients is 9.4 days.With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 9.1 days (ranging from 5.6 to 15.6 days).The average patient from this group, hospitalised in this voivodeship, is 72.3 years old. Patients with a comorbidity index different from 0 constitute 33.6% of all hospitalised patients.

Inflammatory polyarticular arthropathies

In the case of children: in Mazowieckie Voivodeship, 0.81 thousand hospitalisations have been reported within this subgroup.Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Opolskie (19.79), the most in Mazowieckie Voivodeship (81.98). The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Mazowieckie and Podlaskie Voivodeships: among the hospitalised patients, 10.7% and 10.8%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 81.98 and 44.19.80% of hospitalisations were reported by 4 healthcare providers out of 35 (11% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 58.0% of all hospitalisations.The patients were most often hospitalised within the scopes of children's rheumatology - hospitalisation (58.0%) and paediatrics - hospitalisation (21.9%). The wards with the highest hospitalisation rates were the paediatric rheumatology ward (58.0%) and the paediatric ward (20.6%).

In the case of adults (up to 64 years of age): in Mazowieckie Voivodeship 2.22 thousand hospitalisations have been reported within this subgroup. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Warmińsko-Mazurskie (27.27), the most in Lubelskie Voivodeship (111.83). In Mazowieckie Voivodeship, this index equalled 63.25. The value of this index may be influenced by the migration of patients. However, with a similar migration level, the variations between the voivodeships are still noticeable. For instance, the difference between Lubelskie and Łódzkie Voivodeships: among the hospitalised patients, 5.9% and 6.3%, respectively, were from outside of the voivodeship, while the number of hospitalisation per 100 thousand people was 111.83 and 39.05.80% of hospitalisations were reported by 8 healthcare providers out of 57 (14% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 31.4% of all hospitalisations. The patients were most often hospitalised within the scopes of rheumatology - hospitalisation (76.1%) and internal diseases – hospitalisation (7.5%). The wards with the highest hospitalisation rates were the rheumatology ward (76.4%) and the trauma and orthopaedic surgery ward (7.2%). The average length of hospitalisation in the voivodeship was 9.0 days (standardized value: 9.2 days); the nationwide average length of hospitalisation of these patients is 8.4 days. With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 8.7 days (ranging from 4.5 to 14.6 days).

In the case of the elderly: in Mazowieckie Voivodeship, 0.66 thousand hospitalisations have been reported within this subgroup. The patients were most often hospitalised within the scopes of rheumatology - hospitalisation (67.7%) and orthopaedics and traumatology of the musculoskeletal system – hospitalisation (13.9%). The wards with the highest hospitalisation rates were the rheumatology ward (68.2%) and the trauma and orthopaedic surgery ward (13.5%). The average length of hospitalisation in the voivodeship was 11.6 days (standardized value: 11.5 days); the nationwide average length of hospitalisation of these patients is 10.3 days. With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 12.3 days (ranging from 5.5 to 18.7 days). The average patient from this group, hospitalised in this voivodeship, is 73.2 years old. Patients with a comorbidity index different from 0 constitute 29.8% of all hospitalised patients.

Hip and knee replacement, and revision hip and knee arthroplasty

Hip and knee replacements and revision hip and knee arthroplasty services have been analysed. In 2014 in Mazowieckie Voivodeship, 41 healthcare providers reported at least one hospitalisation with the aforementioned procedures.16 (39.0%), 16 (45.7%) and 18 (66.7%) healthcare providers who perform these types of arthroplasty in the voivodeship reported less than 90% of the minimum number of the services to be carried out annually, as described in the regulation[21].

Rehabilitation within 42 days after joint replacement surgery is a vital part of the treatment. Voivodeships differ with regard to what part of all their patients was rehabilitated within that time period after the operation:

- For hip replacement: from 5.4% to 40.1%, with a nationwide average of 20.5% and 27.8% in Mazowieckie Voivodeship.
- For knee replacement: from 10.8% to 56.5%, with a nationwide average of 37.5% and 54.2% in Mazowieckie Voivodeship.
- For revision arthroplasty: from 5.4% to 19.6%, with a nationwide average of 12.8% and 19.2% in Mazowieckie Voivodeship.

In the voivodeship, healthcare providers differed with regard to the percentage of patients who underwent rehabilitation in the course of 42 days after hip replacement, knee replacement, or revision arthroplasty (0-98.5% in healthcare providers that reported more than 90% of the minimal number of services of this type). High percentages may point to a centre owning a rehabilitation centre of their own, or to a good cooperation with a rehabilitation centre.

2.2 Diseases of the nervous system (diseases of the nervous system in the elderly)

Diseases of the nervous system (diseases of the nervous system in the elderly) have been divided, based on the ICD-10 classification, into vascular diseases of the brain and degenerative diseases of the brain.Of vascular diseases of the brain, ischaemic stroke, intracranial (both intracerebral, and subarachnoid) haemorrhage, Transient Ischemic Attack (TIA), and others, have been analysed.Of the degenerative diseases, movement disorders, mainly Parkinson's Disease, have been analysed. This document presents the summary of the most important information for the subgroups above. A more detailed analysis is presented in the Map of Healthcare Needs for the diseases of the nervous system (diseases of the nervous system in the elderly).

Ischaemic stroke

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of ischaemic stroke came to 10.3 thousand.

In Poland, 14.3% of patients admitted to the hospital due to ischaemic stroke, were hospitalised outside of the neurological ward. In Mazowiecki Voivodeship, this percentage was lower than the nationwide rate, and came to 9.8%. In the voivodeship, there were 2 hospitals not completing the scope "neurology: hospitalisation A48, A51", but which hospitalise a considerable number of patients with ischaemic stroke annually (over 100 patients).

21Regulation of the Minister of Health of 20 June 2016 amending the Regulation concerning guaranteed services in hospital care.

Differences have been noted in the frequency of using thrombolytic treatment in the facilities that hospitalise patients with ischaemic stroke. The smallest percentage came to 0.7%, the biggest to 28.3%. It should be noted that 7 hospitals treated over 10% of their patients with thrombolytic treatment. The proportion of patients with ischaemic stroke hospitalised in facilities in Poland that do not offer thrombolytic treatment was 14.9%, and was lower than the nationwide rate (19.0%).

Standardised by age, sex, and the Charlson index, mortality within 90 days after admission due to ischaemic stroke came to 22.4% in Mazowieckie Voivodeship, and to the average of 22.3% in Poland.

The proportion of patients who received rehabilitation within 90 days after admission was 36.1% in Mazowieckie Voivodeship, and 31.5% in Poland. It should be noted that the value of this index varies between different hospitals.

Intracranial intracerebral haemorrhage

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of intracranial (intracerebral) haemorrhage came to 1.4 thousand.

Standardised by age, sex, and the Charlson index, mortality within 90 days after admission due to intracranial (intracerebral) haemorrhage came to 47.1% in Mazowieckie Voivodeship, and to the average of 47.7% in Poland.

The proportion of patients with intracranial (intracerebral) haemorrhage, hospitalised in a neurosurgery ward, was 10.3%, and was higher than the national average (9.1%).

The proportion of patients who received rehabilitation within 90 days after admission was 25.8% in Mazowieckie Voivodeship, and 23.9% in Poland. It should be noted that the value of this index varies between different hospitals.

TIA

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of TIA came to 4.8 thousand.

The percentage of patients with TIA, hospitalised outside of neurological wards, was lower in Mazowieckie Voivodeship (9.4%) than in Poland (16.6%). The proportion of hospitalised patients for whom DRG A47 was reported was 70.2%, which was higher than the national average (64.2%). At the same time, this proportion varied between different hospitals in the voivodeship under analysis.

The percentage of patients, who developed ischaemic stroke within 365 days after being hospitalised with the TIA diagnosis, was 3.0% both in Mazowieckie Voivodeship and in Poland.

Alzheimer's disease and other dementias

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of Alzheimer's disease and other dementias came to 0.6 thousand.

The considerable differences in the number of new cases appearing in the public healthcare system may suggest underdetection of dementias in certain voivodeships.

In the case of patients hospitalised in Poland with the main diagnosis of Alzheimer's disease and other dementias, only 52%, and 50.3% in Mazowieckie Voivodeship, received psychological consultation.

The above data may be caused by the lack of systemic solutions for this patient group, most importantly the lack of dedicated outpatients' procedures and the lack of specialised medical facilities.

Parkinson's disease and other movement disorders

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of Parkinson's disease and other movement disorders came to 0.8 thousand.

The number of hospitalizations per 100 thousand people in the group “Parkinson's disease and other movement disorders” is greatly varied in individual voivodeships. In Mazowieckie Voivodeship, it came to 15.3 and was the second highest in the country.

A varied access to procedures has been noted in different voivodeships, especially with regard to the reporting of DRG A03 (the implantation of a deep brain stimulation device / a vagus nerve stimulation device). In Mazowieckie Voivodeship 112 hospitalisations with this type of DRG have been reported. Nationwide there were 273.

Intracranial subarachnoid haemorrhage

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of intracranial (subarachnoid) haemorrhage came to 0.5 thousand.

Standardised by age, sex, and the Charlson index, mortality within 90 days after admission due to intracranial (subarachnoid) haemorrhage came to 25.1% in Mazowieckie Voivodeship, and to the average of 29.3% in Poland.

In Mazowieckie Voivodeship, hospitalisations with surgical procedures were being reported by 9 hospitals. The percentage of hospitalisations with reported embolisation procedures was 22.3% in Mazowieckie Voivodeship (23.1% nationwide), whereas the percentage of hospitalisations during which neurosurgery procedures were reported was 24.4% (18.2% nationwide).

The proportion of patients who received rehabilitation within 90 days after admission was 21.5% in Mazowieckie Voivodeship, and 20.9% in Poland. It should be noted that the value of this index varies between different hospitals.

2.3 Diseases of the nervous system (other than those in the elderly)

Diseases of the nervous system (other than those in the elderly) were divided using the ICD-10 classification into headache, demyelinating diseases, neuromuscular diseases, degenerative diseases of the spine, monoeuropathy, nerve compression syndromes and ridiculopathies, cerebral palsy, epilepsy, head injuries, spinal injuries, encephalitis, myelitis and meningitis. The following document summarises the key information for the subgroups mentioned above. A detailed analysis of children and adult groups is presented in the Map of Healthcare Needs regarding the diseases of the nervous system (other than those in the elderly).

Headache

Headache is a health problem of various aetiologies. Of note are the high number of patients hospitalised nationwide (34.77 thousand hospitalisations, which accounts for 10.8% of all the hospitalisations in the analysed group of diagnoses) and the variation of this parameter between voivodeships (from 7.5% in Pomorskie voivodeship to 16.6% in Świętokrzyskie voivodeship). In Mazowieckie Voivodeship the percentage was 8.3% (4.0 thousand hospitalisations). Headaches resulted in 74.47 hospitalisations per 100,000 people.

In 5 out of 31 hospitals in the voivodeship which reported over 50 hospitalisations, the headaches accounted for over 25% of all hospitalisations caused by the analysed group of diseases.

In Poland, MRI scans are obtained during 29.3% of hospitalisations of adults with headache and 31.8% of hospitalisations of children. In the voivodeship these values amounted to 37.1% and 24.8% respectively.

Patients over the age of 65 years accounted for only 13.8% of adult patients with headache in Poland. In 91.6% of them, no other conditions defined in the Charlson comorbidity index were observed.

Demyelinating diseases

The proportion of patients hospitalised nationwide for demyelinating diseases is noteworthy (15.60 thousand hospitalisations, which accounts for 4.9% of all the hospitalisations in the analysed group of diagnoses) and the variation of this parameter between voivodeships (from 2.0% in Zachodniopomorskie Voivodeship to 7.1% in Kujawsko-Pomorskie Voivodeship). In Mazowieckie Voivodeship the percentage was 5.2% (2.5 thousand hospitalisations).

Considerable migrations between voivodeships are observed (up to 18.7% of hospitalisations in Kujawsko-Pomorskie voivodeship were for patients from outside this voivodeship), which manifests in high hospitalisation rates in these voivodeships per 100,000 population. In Mazowieckie Voivodeship the hospitalisation from outside the voivodeship accounted for 14.7%. Concentration of services within individual voivodeships is also noteworthy, with each voivodeship having only a few dominant facilities managing demyelinating diseases. In the Mazowieckie Voivodeship, 4 out of 30 hospitals carried out over 50% of adult hospitalizations for this voivodeship. Other hospitals reported less than 126 of hospitalisations per year.

MRI scans were performed in 44.9% cases of hospitalisations of adults with demyelinating diseases. This value for the voivodeship was 47.6%.

The average age of hospitalised adult patients was 43.89 and there was a female-to-male predominance (68.0%).

The access to first- and second-line free drug provision programmes also varies. The ratio of the number of patients in treatment to the population of the individual voivodeship also varied. The treating facilities are unevenly distributed in terms of distance, which can even exceed 100 km in certain locations. Also the accessibility to rehabilitation services varies from voivodeship to voivodeship (from 19.2% in Opolskie voivodeship to 34.3% in Podkarpackie voivodeship). In the Mazowieckie Voivodeship the share of hospitalised patients who were rehabilitated within 90 days amounted to 28.0%. It should also be noted that the value of the indicator varies between hospitals in the voivodeship, which indicates the need to improve access to rehabilitation.

Neuromuscular diseases

The subgroup of neuromuscular diseases includes polyneuropathies of various origin, diseases of the spinal cord, myasthenia and myopathies. Polyneuropathies were the reason for 50.1% of hospitalisations in this subgroup. A total of 11.87 thousand hospitalisations were reported for neuromuscular diseases, which accounts for 3.7% of all the hospitalisations in the analysed group of diagnoses. Of note is the variation of this percentage between voivodeships (from 1.5% in Lubuskie voivodeship to 4,7% in Małopolskie voivodeship). In Mazowieckie Voivodeship the percentage was 4.2% (2.0 thousand hospitalisations).

Considerable migrations between voivodeships were observed (up to 25.9% of hospitalisations in Mazowieckie voivodeship were for patients from outside this voivodeship), which manifests in high hospitalisation rates in these voivodeships per 100,000 population. In the voivodeship, per 100,000 population, 38.04 hospitalisations due to neuromuscular diseases were reported.

The concentration of services within individual voivodeships is noteworthy. In Mazowieckie Voivodeship, 4 hospitals carried out over 50% of hospitalizations for this voivodeship. Other hospitals reported less than 95 of hospitalisations per year. The concentration is justified by the nature of neuromuscular diseases.

Polyneuropathy is diagnosed in most hospitals, while other neuromuscular diseases, mainly in specialised facilities. In 6 hospitals (out of all that reported more than 50 hospitalisations in a year), hospitalisations due to neuromuscular diseases other than polyneuropathies accounted for 50% of all hospitalisations.

Very detailed diagnosis, e.g. muscle biopsy, is only given in specialised hospitals. In Mazowieckie Voivodeship, biopsy was only performed in 7 hospitals

Of note is the wide variation in (age-, sex-, and Charlson Comorbidity Index-) standardised mortality rates between voivodeships for the period of 365 days after hospitalisation (from 7.2% in Podkarpackie Voivodeship to 15.8% in Warmińsko-Mazurskie Voivodeship). The mortality rate in Mazowieckie Voivodeship was 9.2%. High mortality does not necessarily reflect the quality of hospital care. It may depend on the stage of the disease or on the access to long-term care locally. The next step of the analysis of mortality should involve an analysis according to the patient's place of residence.

A total of 578 (5.3%) adult patients in Poland are readmitted to any hospital with a diagnosis from the analysed disease group within 30 days, which makes it one of the highest readmission rates in the analysed group. In the voivodeship, this value came to 4.9%.

The differences in the proportion of hospitalisations with plasmapheresis may be due to the varied access to plasmapheresis. In two voivodeships (Pomorskie and Lubuskie) no hospitalisation with plasmapheresis was reported. In 2014, immunoglobulin therapy was not yet covered by a free drug provision programme. The proportion of hospitalisations involving immunoglobulin therapy considerably varied (from 4.0% in Małopolskie Voivodeship to 25.8% in Łódzkie Voivodeship).

The accessibility to rehabilitation services 90 after hospitalisation also varies from voivodeship to voivodeship (from 22.5% in Zachodniopomorskie Voivodeship to 41.2% in Podkarpackie Voivodeship). In the Mazowieckie Voivodeship the share of hospitalised patients who were rehabilitated within 90 days amounted to 31.8%.

Degenerative diseases of the spine

Degenerative diseases of the spine were the largest subgroup in terms of hospitalisations in Poland within the analysed disease group. A total of 68.23 thousand hospitalisations were reported nationwide for degenerative diseases of the spine, accounting for 21.3% of all the hospitalisations in the analysed group of diagnoses. Of note is the variation of this percentage between voivodeships (from 16.3% in Dolnośląskie voivodeship to 30.9% in Warmińsko-Mazurskie voivodeship). In Mazowieckie Voivodeship the percentage was 18.1% (8.7 thousand hospitalisations).

Of note are the high values of hospitalisation per 100,000 population in the eastern voivodeships. In Mazowieckie Voivodeship, per 100,000 population, 162.50 hospitalisations due to degenerative diseases of the spine were reported.

Within this subgroup, hospitalisations are evenly distributed (no significant concentration is observed). Patients with degenerative diseases of the spine were mainly hospitalised in neurosurgery wards (36.2%), trauma and orthopaedic surgery wards (35.9%), and neurological wards (18.6%).

Treatment of degenerative diseases of the spine varies between voivodeships and healthcare providers both in terms of the number of hospitalisations, and of treatment modality (medical versus surgical). Surgical hospitalisations accounted for 50.1% in Polandand 59.0% in Mazowieckie Voivodeship. For the healthcare providers in the voivodeship who reported over 100 hospitalisations,

this percentage ranged from 0.0% to 100.0%. The next step should involve including in the analysis the flow of patients from non-surgical to surgical wards over one year.

It is noteworthy that 49.9% of all hospitalisations in Poland were medical, and MRI or CT scans were reported for only 32.7%. In the voivodeship, these values were 41.0% and 27.8%, respectively. This low percentage may be due to the fact that the reporting of this procedure under specific DRGs is not required. It seems that some of the non-surgical procedures could be carried out in outpatient specialist care.

Given the high epidemiological prevalence of this disease, a method for assessing treatment effectiveness should be developed. As a further step, the impact of the treatment on the patient's occupational activity should be analysed, as this could be a measure of treatment effectiveness. Alternatively, the methodology used in the International Spine Registry “Spine Tango” could be followed, as several Polish hospitals are already participating in this project.

Mononeuropathies, nerve compression syndromes and radiculopathies

A total of 55.22 thousand hospitalisations were reported in Poland for mononeuropathies, nerve compression syndromes and radiculopathies (which accounted for 17.2% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 11.3% in Kujawsko-Pomorskie Voivodeship to 24.3% in Pomorskie Voivodeship). In Mazowieckie Voivodeship the percentage was 17.4% (8.4 thousand hospitalisations).156.97 hospitalisations per 100,000 population were reported due to mononeuropathies, nerve compression syndromes and radiculopathies.

Surgical hospitalisations accounted for 72.1% in Polandand 73.3% in Mazowieckie Voivodeship. For the healthcare providers in the voivodeship who reported over 100 hospitalisations, this percentage ranged from 16.4% to 100.0%.

The proportion of surgical hospitalisations would be worth pondering over. The next step should involve analysing the diseases that are treated surgically the most often. It seems that some of the non-surgical procedures, which accounted for 26.7% of all hospitalisations in Mazowiecki Voivodeship, could be carried out in outpatient specialist care.

No measure of treatment effectiveness is in place. As a further step, the impact of treatment on the patient's occupational activity should be analysed, as this could be a measure of treatment effectiveness with respect to radiculopathies and nerve compression syndromes.

Cerebral palsy, early developmental disorders and encephalopathies

A total of 17.83 thousand hospitalisations were reported in Poland for cerebral palsy, early developmental disorders and encephalopathies (which accounted for 5.6% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 3.9% in Świętokrzyskie Voivodeship to 9.2% in Kujawsko-Pomorskie Voivodeship). In Mazowieckie Voivodeship the percentage was 6.6% (3.1 thousand hospitalisations).

Due to cerebral palsy, early developmental disorders and encephalopathies, 132.49 out of 100,000 children, and 42.25 out of 100 thousand adults, were hospitalised.

In children, concentration of services within individual voivodeships is noteworthy. In Mazowieckie Voivodeship 5 hospitals together carried out over 80% of all hospitalisations of children. Other hospitals reported fewer than 43 hospitalisations in a year.

The median length of stay for children in Poland is 2 days, which may suggest that a large proportion of patients is hospitalised for evaluation only. This could justify the creation of a comprehensive

evaluation package in the form of one-day hospitalisation with coverage of the costs of necessary testing (including neuroimaging, metabolic and genetic testing).

Access to financial rehabilitation from public funds is limited. In Mazowieckie Voivodeship, rehabilitation within 90 days of the last day of hospitalisation was provided for merely 30.6% of hospitalised children (from 14.4% in Wielkopolskie to 49.5% in Świętokrzyskie Voivodeship).

The current reporting system does not include high-cost procedures, such as metabolic or genetic testing. Medical experts consider it justified to introduce a system for analysing these procedures.

Epilepsy

Epilepsy is a heterogenous disease syndrome characterised by a varied clinical course. A total of 37.65 thousand hospitalisations were reported in Poland for epilepsy (which accounted for 11.7% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 6.3% in Podlaskie Voivodeship to 14.7% in Małopolskie Voivodeship). In Mazowieckie Voivodeship the percentage was 12.9% (6.2 thousand hospitalisations).

A total of 1012 children (6.1%) in Poland were readmitted to any hospital within 30 days with a diagnosis from the analysed disease group, which makes it one of the highest readmission rates in the analysed group. In the voivodeship, this value came to 6.3%.

Considerable migrations between voivodeships were observed (up to 22.1% of hospitalisations in Mazowieckie Voivodeship for patients under the age of 18 were for patients from outside the voivodeship), which manifests in high hospitalisation rates in these voivodeships per 100,000 population. In the voivodeship, 319.33, per 100,000, children, and 70.44, per 100,000, adults, were hospitalised due to epilepsy.

Similar percentages of hospitalisations in Mazowieckie Voivodeship are found in the reported group “DRG a67 epilepsy: diagnosis and treatment > 3 days” (48.3%) and “a66 epilepsy: diagnosis and treatment” (40.4%). The proportion of reported transcranial doppler ultrasound scans (13.9%) is noteworthy. The basis for the diagnosis of drug-resistant epilepsy should be a long-term video-EEG monitoring (12h or a registered seizure). However, an analysis of the available data does not tell us how many of the video-EEG tests (performed in 15, out of 52, facilities in the voivodeship hospitalising epilepsy patients) met the aforementioned requirements. Consequently, the utilisation of video-EEG for drug-resistant epilepsy diagnosis cannot be determined. What is more, in 22.1% of DRG A67 hospitalisations in Mazowieckie Voivodeship, video-EEG monitoring was not carried out, but an ultrasound scan was.

Data available from the NFZ are insufficient to allow a comprehensive evaluation of care provided to patients with epilepsy in Poland, such as the accessibility of surgical treatment including implantation of vagus nerve stimulation devices.

The non-reporting of psychological consultations necessary for the differential diagnosis of epilepsy is noteworthy and is most likely due to the fact that the reporting of these consultations is not required for the reconciliation of specific DRGs. Also, no data are available to analyse the differential diagnosis completed in patients with non-epileptic seizures (e.g. psychogenic non-epileptic seizures). Thecurrent reporting system does not include high-cost procedures, such as patient qualification for treatment with the ketogenic diet, and treatment with the ketogenic diet itself, which makes it impossible to analyse their use.

The proportion of epilepsy diagnoses (G41, according the ICD-10 classification) differs among individual hospitals in the voivodeship (0.7% - 21.3% in adults and 0.00% - 69.5% in children hospitalised in facilities reporting at least 50 hospitalisations due to epilepsy).

In-hospital mortality rates for status epilepticus are also noteworthy. In adults, they ranged from 2.3% in Dolnośląskie Voivodeship to 21.1% in Lubelskie Voivodeship. Only 2 voivodeships reported in-hospital deaths of children diagnosed with status epilepticus. These findings may suggest a misdiagnosis and the lack of access to diagnostic tests, especially EEG.

No measure of treatment effectiveness is in place. As a further step, the impact of treatment on the patient's occupational activity should be analysed, as this could be a measure of treatment effectiveness.

Head injuries

A total of 46.52 thousand hospitalisations were reported in Poland for head injury (which accounted for 14.5% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 9.9% in Warmińsko-Mazurskie Voivodeship to 21.1% in Świętokrzyskie Voivodeship). In Mazowieckie Voivodeship the percentage was 15.0% (7.2 thousand hospitalisations). Head injuries resulted in 134.71 hospitalisations per 100,000 population.

Of note is the large difference between the average length of stay (7.87 days) and the median length of stay (4 days) in the voivodeship, which may suggest large bed occupancy by patients with a long duration of hospitalisation. This may suggest a problem with transferring patients to long-term care.

Due to the non-reporting of indicators (e.g. Glasgow coma scale) that would allow to assess the injury type and severity, and therefore to comment on the outcomes of treatment and the further course of patient treatment and rehabilitation (particularly in cases of severe head injuries), it is not possible to unequivocally compare individual facilities.

No measure of treatment effectiveness is in place. As a further step, the impact of treatment on the patient's occupational activity should be analysed, as this, in conjunction with a measure of injury severity, could be a measure of treatment effectiveness.

Spinal injuries

A total of 16.83 thousand hospitalisations were reported in Poland for spinal injury (which accounted for 5.2% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 3.8% in Kujawsko-Pomorskie Voivodeship to 6.4% in Śląskie Voivodeship). In Mazowieckie Voivodeship the percentage was 6.0% (2.9 thousand hospitalisations). Spinal injuries resulted in 53.77 hospitalisations per 100,000 population.

Of note is the variation of accessibility to rehabilitation services among voivodeships (from 13.4% in Świętokrzyskie Voivodeship to 30.7% in Lubuskie Voivodeship). In Mazowieckie Voivodeship the percentage of adult hospitalised patients who were rehabilitated within 90 days of hospitalisation amounted to 22.3%.

Due to the non-reporting of indicators that would allow to assess the injury severity it is difficult comment on the outcomes of treatment and the further course of patient treatment and rehabilitation, particularly in cases of severe spinal injuries.

As a further step, the impact of treatment on the patient's occupational activity should be analysed, as this, in conjunction with a measure of injury severity, could be a measure of treatment effectiveness.

Encephalitis, myelitis and meningitis

A total of 8.14 thousand hospitalisations were reported in Poland for encephalitis, myelitis or meningitis (which accounted for 2.5% of all the hospitalisations in the analysed group). The percentage contribution of this subgroup to all the hospitalisations in the analysed group varied from voivodeship to voivodeship (from 1.0% in Lubelskie Voivodeship to 9.2% in Podlaskie Voivodeship). In Mazowieckie Voivodeship the percentage was 2.9% (1.4 thousand hospitalisations). Encephalitis, myelitis and meningitis resulted in 26.01 hospitalisations per 100,000 population.

Infectious encephalitis predominates in this group. Cases of autoimmune encephalitis are not reported, as no relevant ICD-10 or ICD-9 codes exist.

A total of 319 (5.6%) adult patients in Poland are readmitted with a diagnosis from the analysed disease group within 30 days, which makes it one of the highest readmission rates in the analysed group. In the voivodeship, this value came to 9.4%.

Treatment of these patients is highly concentrated in hospitals with infectious diseases wards. In Mazowieckie Voivodeship, hospitalisations in infectious diseases wards accounted for 63.8% of all hospitalisations for infectious encephalitis.

Of note is the wide variation in (age-, sex-, and Charlson comorbidity index-) standardised mortality rates between voivodeships for the period of 365 days after hospitalisation (from 5.0% in Podlaskie Voivodeship to 14.6% in Łódzkie Voivodeship). The mortality rate in Mazowieckie Voivodeship was 7.5%.

2.4 Diseases of the aorta and peripheral vessels includinghypertension

Diseases of the aorta and peripheral vessels including hypertension have been divided on the basis of the ICD-10 classification into hypertension and resistant hypertension, and diseases of the aorta and peripheral vessels. In hypertension, hypertension and resistant hypertension have been defined. In diseases of the aorta and peripheral vessels: atherosclerosis, occlusion and stenosis of carotid arteries, ruptured and unruptured aneurysm of abdominal aorta and iliac artery, ruptured and unruptured aortic aneurysm and dissection (excluding abdominal aortic aneurysm), aneurysm of other arteries, arterial embolism and thrombosis, pulmonary thrombosis or embolism, ulcers, varicose veins of lower extremities, lymphoedema, atherosclerosis of renal artery and other vascular diseases, as well as limb amputations for vascular reasons, regardless of the diagnosis.

This document presents the summary of the most important information for hypertension and resistant hypertension, atherosclerosis, limb amputations, occlusion and stenosis of carotid arteries, ruptured and unruptured aneurysm of abdominal aorta and iliac artery, aortic aneurysm and dissection (excluding abdominal aortic aneurysm), arterial embolism and thrombosis, pulmonary thrombosis or embolism, varicose veins of lower extremities and ulcers of lower extremities. A detailed analysis of other subgroups is presented in the Map of Healthcare Needs for the diseases of the aorta and peripheral vessels including hypertension.

Hypertension and resistant hypertension

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of hypertension and resistant hypertension came to 11.77 thousand. Hypertension is most commonly managed in the outpatient setting, and hospitalisations for this diagnosis account for a relatively low percentage (0.86%) of all hospitalisations. A large percentage of hospitalisations is observed, however, where hypertension is a comorbid diagnosis (11.77 thousand hospitalisations were reported in the voivodeship with hypertension as the principal diagnosis, and 106.56 thousand with hypertension as a comorbid diagnosis). As a result, the actual number of patients managed in hospitals is higher.

Admissions for hypertension as the principal diagnosis (excluding resistant hypertension) were mainly emergency admissions. Emergency admissions accounted for 60.33% of all admissions in the voivodeship, and for 63.24% in Poland. The duration of hospitalisation for hypertension (excluding resistant hypertension) varied between service providers: the longest average length of stay (in days) was 7.7, and the shortest was 1.0. Providers with longer lengths of stay and higher readmission rates are noteworthy. The average length of stay in Poland was (in days) 4.30, and 4.41 in the voivodeship. The nationwide readmission rate (readmission within 90 days to any hospital with a diagnosis from the analysed group) was 2.82% in Poland and 3.17% in the voivodeship.

The number of hospitalisations for resistant hypertension in Poland was 1.81 thousand. This figure seems to be underestimated,most likely due to the poor quality of data available in the reporting system. In the voivodeship, hospitalisations with the diagnosis of resistant hypertension are characterised by a lower rate of emergency admissions than hospitalisations of the other cases of hypertension (49.09% in the case of resistant hypertension, and 60.33% in the case of hypertension), with the waiting time (the median waiting time from referral to consultation) of 19 days, and with a higher rate of readmissions within 90 days (8.45% in the case of resistant hypertension, and 3.17% in other cases). The currently available data refer to patients who appeared in the reporting system, which—given the long waiting times for visits in specialist outpatient care and for hospitalisations, and given the large proportion of emergency admissions—suggests much higher needs for hypertensive patient care.

Diseases of the aorta and peripheral vessels

In the case of some of the service providers, large differences in the reported procedures were observed in Poland. Some facilities, even though they have a contract covering “vascular surgery — hospitalisation”, perform only a few procedures in relevant scopes, which may affect the outcomes of treatment, especially in cases of procedures that require a specific number of surgeries to maintain a specific level of experience in that facility, and the possibility of training in vascular surgery (e.g. procedures on carotid arteries, procedures on the aorta).

A small part of reported hospitalisations for diseases of the aorta and peripheral vessels is provided on angiology wards/ as part of the scope of angiology. In Mazowieckie Voivodeship, patients with the diseases of peripheral vessels are often hospitalised in wards with an angiology profile that cannot report in the scope of angiology. No hospitalisations in angiology wards were reported in the voivodeship. Hospitalisation in the scope of angiology was also not reported. Further analyses should focus on the accessibility to angiology specialists within public healthcare.

Further analysis will need to evaluate the consultations that resulted in referrals to hospital, and those that included diagnostic tests or referred tests that would establish the final diagnosis and either qualify a patient for, or disqualify them from surgery. This is also associated with the need to evaluate the availability of diagnostic equipment in such clinics and the accessibility of specialist diagnostic tests to the patients in individual regions (voivodeships).

In the aspect of further analyses, it is necessary to evaluate accessibility and resources that can be used in comprehensive management of patients with diabetic foot, including the accessibility to surgical and endovascular treatment and multispecialty care for this group of patients.

In the context of the ageing population and the increasing number of patients requiring renal replacement therapy and patients with diabetes mellitus and co-existent renal failure, the analysis should also include accessibility and resources in terms of producing access to dialyses in individual voivodeships and regions of Poland. The analysis should also include the needs in this respect based on the assessment of the current epidemiology of renal failure in the Polish population.

There are no vascular surgery wards for children in Poland. In the further analyses, it is necessary to determine the capability to supply paediatric and other facilities that may potentially treat children. Specialist outpatient care counselling for children reveals a similar problem nationwide.

Atherosclerosis

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of atherosclerosis came to 10.26 thousand. Based on the currently available reporting system, it is not possible to differentiate between patients admitted with a limb at risk of amputation due to critical ischaemia and patients hospitalised for intermittent claudication. It is also impossible to reliably verify the presence of comorbidities and their severity in the population of hospitalised patients, which significantly interferes with a realistic assessment of quality in individual facilities. Among the hospitalisations for atherosclerosis, emergency admissions predominate (59.22% in the voivodeship, 59.67% in Poland).14.80% of all hospitalisations in the voivodeship with the diagnosis of atherosclerosis were carried out in general surgery wards (as defined by the 7th part of the Ministry of Health code).

In the voivodeship, hospitalisations with surgical procedures being indicated[22] account for 39.54% of hospitalisations for atherosclerosis. In Poland, it is 30.82%.

Of 59 facilities in Mazowieckie Voivodeship hospitalising in 2014 patients with the diagnosis of atherosclerosis, 15 reported hospitalisations with this diagnosis within the vascular ward or the scope of vascular surgery (including:15 facilities reporting hospitalisations within the scope “vascular surgery: hospitalisation”, including:5 facilities reporting hospitalisations within the scope “vascular surgery: hospitalisation, 2nd referral level”). Waiting time for a scheduled hospitalisation in the vascular surgery ward / within the scope of vascular surgery for patients with atherosclerosis in the voivodeship was 20 days (the median waiting time from referral to the admission to hospital). In the context of these data, the percentage of emergency admissions should be noted: these facilities reported 35.97% of emergency hospitalisations.

Differences between the providers can be observed in terms of the number of reported procedures, both vascular surgical procedures (including peripheral[23] or abdominal procedures[24]) and endovascular procedures[25]. Particular differences are observed with respect to patients undergoing vascular surgical procedures on abdominal vessels. These observations can be explained by both the continuous development of endovascular methods in vascular facilities and the selection of patients requiring treatment in facilities that offer the possibility of treating the underlying illness and complications in their broad sense.

A worrying, from the point of view of providing access to the full range of services, fact should be noted: 2 facilities in the voivodeship reported fewer than 10 (and more than zero) procedures of this type in 2014 (vascular surgery procedures in the abdominal area). From the viewpoint of accessibility to specialist care, it is justified to base the system of healthcare provided to this patient group on facilities that can offer a full range of procedures to the degree that ensures achievement of appropriate experience and quality of the services provided.

An increasing number of procedures in vascular facilities are conducted as endovascular procedures: in the voivodeship, the proportion of patients who underwent an endovascular procedure for atherosclerosis was 31.20%, while nationwide it was 21.54% (this concerns the whole population of patients hospitalised with this disease). Individual facilities vary in terms of proportions of patients

22ICD-9-CM codes:38.124, 38.126, 38.146, 38.324, 38.424, 38.426, 39.251, 39.252, 39.253, 39.254, 39.255, 39.256, 39.257, 39.261, 39.262, 39.492, 39.493, 39.496, 38.113, 38.120, 38.123, 38.128, 38.140, 38.143, 38.148, 38.318, 38.320, 38.323, 38.328, 38.418, 38.423, 38.428, 39.231, 39.29, 39.291, 39.292, 39.293, 39.294, 39.295, 39.296, 39.297, 39.298, 39.299, 39.491, 39.494, 39.495, 39.497, 39.56, 39.57.00.45, 00.46, 00.47, 00.48, 00.634, 00.671, 00.672, 39.427, 39.501, 39.502, 39.503, 39.504, 39.507, 39.521, 39.528, 39.529, 39.751, 39.904, 39.905,

23ICD9-CM:38.113, 38.120, 38.123, 38.128, 38.140, 38.143, 38.148, 38.318, 38.320, 38.323, 38.328, 38.418, 38.423, 38.428, 39.231, 39.29, 39.291, 39.292, 39.293, 39.294, 39.295, 39.296, 39.297, 39.298, 39.299, 39.491, 39.494, 39.495, 39.497, 39.56, 39.57

24ICD9-CM:38.124, 38.126, 38.146, 38.324, 38.424, 38.426, 39.251, 39.252, 39.253, 39.254, 39.255, 39.256, 39.257, 39.261, 39.262, 39.492, 39.493, 39.496

25ICD9-CM:00.45, 00.46, 00.47, 00.48, 00.634, 00.671, 00.672, 39.427, 39.501, 39.502, 39.503, 39.504, 39.507, 39.521, 39.528, 39.529, 39.751, 39.904, 39.905

treated with surgery and those treated with endovascular procedures. In some facilities, however, there is a predominance of one or the other type of treatment.

Mortality after vascular surgical procedures in the abdominal area varies from voivodeship to voivodeship. The voivodeship was characterised by higher standardised in-hospital mortality (9.22%) than the nationwide rate (6.23%). The current reporting data make it impossible to determine the characteristics of the treated population (critical ischaemia, intermittent claudication, comorbidities), and the assessment of standardised mortality adopted in our analysis requires verification in the form of a prospective clinical observation that would take into account the risk factors for complications and deaths in the patients.

A low proportion of hospitalisations was preceded, within 90 days, by a visit to a clinic (46.61% in the voivodeship, 27.62% in Poland). A further analysis will need to look into where the patients are referred from to vascular surgery facilities as elective and emergency patients and how many of them have had investigations, including imaging studies, done before the hospitalisation.

Analysis of treatment outcomes expressed as amputation rates for specific types of procedures requires that the degree of limb ischaemia (critical ischaemia) is taken into account; however, these data are not currently available in the reporting system. These findings point to the necessity to modify the current reporting system for the purposes of further analyses necessary to evaluate the healthcare system in this aspect.

Amputations

In Mazowieckie Voivodeship, the number of hospitalisations with a reported amputation came to 0.91 thousand. A large proportion of primary major lower limb amputations[26] for vascular reasons are observed. In the voivodeship, the proportion of primary amputations (i.e. not preceded by a vascular intervention within 4 years before the amputation — according to the definition determined by the availability of data from the reporting system) was 54.5% of major amputations (compared to 51.6% for Poland).

Further analysis should focus on: early hospitalisation or consultation at a vascular clinic / vascular surgery clinic, and previous imaging studies, including angio-CT, which facilitate decision-making in regard to revascularisation or disqualification from reconstructive treatment (most of the primary amputations were carried out on general surgery wards). It should also be borne in mind that the analysis of “primary” amputations may be associated with an error resulting from the lack of access to data on patients treated more than 4 years before, which results from the availability of data. The value of this indicator should, however, be regularly monitored.

The currently available data on the number of amputations, including amputations after vascular procedures, and the number of “minor” limb amputations may be underestimated. This is due to the method of reporting which results from the system of financial settlements and the reporting of only the most expensive procedure performed at a given facility (excluding other procedures, such as amputations) — all these comments should be taken into account when modifying the reporting system.

Occlusion and stenosis of precerebral arteries

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of occlusion and stenosis of precerebral arteries came to 1.44 thousand. Differences in the number of procedures (both surgical[27] and endovascular[28]) can be observed in individual facilities. The biggest number of reported procedures, both surgical and endovascular, with the diagnosis analysed by a healthcare provider operating in the

26ICD9-CM:84.05, 84.06, 84.07, 84.08, 84.09, 84.13, 84.14, 84.151, 84.169, 84.171, 84.172, 84.173, 84.174, 84.18, 84.003, 84.101, 84.31
27ICD9-CM38.112, 38.122, 38.132, 38.142, 38.192, 38.312, 38.313

28ICD9-CM00.631, 00.633, 00.634

voivodeship, was 169, and the smallest (apart from 0) was 8. In some facilities, however, there is a predominance of one or the other type of treatment.

A significant observation in terms of treatment accessibility but potentially also in terms of treatment quality is the fact that some facilities do not carry out many carotid artery procedures. In 2014 in Poland, fewer than 10 (but more than 0) surgical[29] procedures were carried out in 14 facilities, and more than 0 and fewer than 10 endovascular[30] procedures on precerebral arteries were carried out in 24 facilities.(No facility in the voivodeship reported fewer than 10 and more than zero surgical procedures. At the same time, 7 reported fewer than 10 and more than 0 endovascular procedures). These findings call into question the realistic possibility to maintain treatment quality and ensure that the staff can be trained in this respect.

In Poland, among the hospitalisations for occlusion and stenosis of precerebral arteries, scheduled admissions predominate (63.29% in Poland, 67.17% in the voivodeship). The fact that is impossible to verify emergency admissions in 2014 makes it impossible to identify the population of symptomatic patients with carotid and vertebral artery stenosis. The current reporting system does not provide information on the proportion of symptomatic patients among patients hospitalised for this condition, or on what percentage of them had had a stroke or TIA before hospitalisation. The absence of these data renders a reliable evaluation of the results of treatment, divided into symptomatic and non-symptomatic patients, impossible.

In Poland, 7.16% of hospitalisations in this group of patients ended in a readmission to a neurology ward within 365 days. In the voivodeship, this value came to 6.30%.

No reliable data are available on the actual frequency of neurological complications, as only readmissions for stroke are recorded. On a vascular ward, for instance, stroke is not reported if the patient is subsequently transferred to a neurology ward.

Aneurysm of abdominal aorta and iliac artery (unruptured)

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of aneurysm of abdominal aorta and iliac artery (unruptured) came to 1.20 thousand. Differences between the providers can be observed in terms of the number of reported surgical[31] and endovascular[32] procedures for abdominal aorta and iliac artery aneurysms. Endovascular treatment of abdominal aorta and iliac artery aneurysms prevails in Poland over surgical treatment, with 36.27% of the procedures being endovascular procedures and 20.91% being based on surgical procedures (in the voivodeship, respectively:46.03% and 11.45%); this concerns the whole population of patients hospitalised with this disease.
Of note is the wide variation in the proportion of patients receiving endovascular treatment in individual facilities within specific voivodeships. At the same time, some facilities reported a small number of procedures that were traditional surgical procedures for the treatment of abdominal aortic aneurysm: the number of facilities that reported fewer than 10 but more than 0 procedures of this type was 9.

Even though surgical procedures for abdominal aortic aneurysm are carried out in both primary and secondary referral facilities, a considerable nationwide predominance of facilities classified as secondary referral facilities for vascular surgery is seen, both in terms of the total number of patients hospitalised and provided with surgical treatment for this condition, and in terms of the number of reported traditional surgical procedures (coupled with a high proportion of patients also receiving endovascular treatment in these facilities).

29ICD-9-CM:38.112, 38.122, 38.132, 38.142, 38.192, 38.312, 38.313.

30ICD-9-CM:00.631, 00.633, 00.634

31ICD9-CM:38.324, 38.414, 38.424, 38.426, 38.64, 38.816, 39.251, 39.252, 39.255, 39.256, 39.257

32ICD9-CM:39.711, 39.712, 39.713

An in-depth analysis is also needed with respect to the variation in 30-day mortality among patients receiving surgical treatment for abdominal aortic aneurysm. The currently reported data are insufficient to allow us to evaluate the indications for surgical treatment (e.g. symptomatic patient, ineligibility for stent-graft placement in a patient with adverse anatomy) or to verify the actual severity of comorbidities, which makes it difficult to unequivocally establish whether the differences in mortality result from the quality of care or the unique characteristics of this group of patients.

Further analysis should assess the detection and monitoring of patients with abdominal aortic aneurysm. It would be important to determine the number of patients referred to hospital without prior care being provided by vascular clinics or vascular surgery clinics, namely the patients diagnosed with abdominal aortic aneurysm or iliac artery aneurysm the sizes of which required emergency hospitalisation (no possibility to analyse emergency admissions in 2014). Given the large number of patients receiving specialist consultation for this diagnosis at vascular clinics and hospitalised in Poland, it would also be justified to determine the principles of screening to early detect abdominal aortic aneurysm in the elderly population (especially, in line with the literature reports, in the population of male smokers over the age of 60 years).

Aneurysm of abdominal aorta and iliac artery (ruptured)

125 hospitalisations with the diagnosis of ruptured aneurysm of abdominal aorta and iliac artery were reported in the voivodeship, including 80 reported procedures:55 surgical procedures and 25 endovascular procedures. A total of 870 hospitalisations were reported for ruptured aneurysm of the abdominal aorta and/or iliac artery, including 638 hospitalisations for which surgical or endovascular procedures were reported (513 and 125 hospitalisations, respectively).

There is a wide variation between the facilities in terms of the number of patients hospitalised for ruptured aneurysm of the abdominal aorta or iliac artery: individual facilities treated from 1 to 26 patients with one of these conditions in a year (the median for the voivodeship was 2, and the average was 4 patients).

Of note is the fact that in some facilities only a few surgeries of a ruptured aneurysm of abdominal area and/or iliac artery are performed: in 11 facilities, more than 0 and fewer than 5 surgeries were performed in a year, and only 1 or 2 surgeries of this type in another 11 facilities. In 2014 in Poland 62 facilities were operating that reported at least 1 and fewer than 5 surgeries of a ruptured aneurysm of abdominal aorta or iliac artery, including 52 facilities reporting 1 or 2 procedures in a year.

Due to the small number of surgery patients in the facilities reporting only a few surgeries from this scope, it is not possible to evaluate the treatment quality in this scope in all vascular wards. This analysis is only possible in high volume centres, which are dedicated to treating this patient group, and to which patients from a given region are referred. Standardised in-hospital mortality of patients with a ruptured aneurysm of abdominal aorta or iliac artery, who were treated surgically, was 57.89% in Poland; in the case of endovascular procedures, it was 32.54%. In the voivodeship, these values were 42.24% and 37.83%, respectively.
Further analysis should include evaluating the rescue system for this patient group, taking into account the geographical factor: distance from specialised facilities, referring patients to referral facilities with the highest standard of care, including multispecialty postoperative care for this patient group. On the voivodeship level, defining the rules of referring patients, and selecting facilities dedicated to this patients group, is justified. At the same time, the analysis should include a patient's place of residence and the time of their commute to the facility.

Aortic aneurysm and dissection (excluding abdominal aortic aneurysm)

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of aortic aneurysm and dissection (excluding abdominal aortic aneurysm) came to 0.74 thousand. The proportion of emergency admissions of patients with this diagnosis in the voivodeship was 40% (52% in Poland), and only 14%

of all admissions with this diagnosis was preceded within 90 days with a visit in specialist outpatient care (8% in Poland). Based on the currently available reporting system, it is not possible to evaluate the outcomes of endovascular treatment with reference to the type of disorder being diagnosed (dissection, aneurysm of descending aorta, aneurysm with chronic dissection), its extent (segmental aortic dissection or dissection of the whole descending aorta) and its duration (acute, subacute, chronic dissection). Detailing diagnoses and patient groups is, in this aspect, justified. Evaluating the number of patients whose (scheduled and emergency) hospitalisation was preceded by diagnostic imaging of the suspected disorder (an analysis of access to diagnostic tests) is justified in further analysis.

Arterial embolism and thrombosis

The number of hospitalisations due to arterial embolism and thrombosis in 2014 was 6.03 thousand in Poland and 0.72 thousand in the voivodeship. Providing appropriate accessibility to this type of treatment is necessary in the whole country, and in the whole voivodeship. Analysing the variation between voivodeships in the number of hospitalisations with this diagnosis, per 100,000 population, is justified.

The majority of hospitalisations of patients with the diagnosis of arterial embolism and thrombosis are emergency admissions (91% in Poland, 89% in the voivodeship).

Treating patients with arterial embolism and thrombosis in Poland is still associated with a relatively high mortality rate and with a high percentage of amputations:after surgical treatment, 8.64% and 5.96%, respectively; after endovascular treatment, 3.31% and 4.62%. In the voivodeship: after surgical treatment,8.91% and 5.48%, respectively; after endovascular treatment, 2.07% and 7.21%.

Due to the method of reporting, and to the reporting of the most expensive procedures, and not all performed surgeries (including amputations), the number of amputations (including major amputations) in the current analysis, based on reported procedures, may be underestimated.

In analysing the results of surgical treatment in this patient group, evaluating the method of referring patients to the hospital seems significant: emergency admissions, scheduled admissions, where the patient is referred from, and how long before they are admitted to the hospital. These data should be compared with the percentage of amputations in this patient group.

The information on the proportion of patients who had been treated or consulted in vascular or vascular surgery clinics beforehand is also significant.32.1% of scheduled hospitalisations in the voivodeship were preceded within 90 days with a visit to a clinic of this type. In Poland, it was 21.0%.

The current reporting system does not allow for any conclusions to be formed regarding the quality of treatment, with reference to the degree of ischaemia and the risk of amputation at the moment of admission to the hospital.

Pulmonary thrombosis or embolism

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of pulmonary thrombosis or embolism came to 3.87 thousand. The ward with the biggest number of hospitalisations for pulmonary thrombosis and/or embolism in the voivodeship was the internal diseases ward.

It is justified for the further analysis to include the evaluation of the accessibility to the appropriate prehospital diagnosis of pulmonary thrombosis or embolism: an analysis of where the patient was referred from (specialist outpatient care clinic, family doctor’s clinic, admission without a referral). It is also necessary to determine what part of patients had imaging studies, confirming or suggesting thrombosis, and where they were done. In this respect, analysing the accessibility to duplex Doppler ultrasound diagnosis in facilities operating in particular voivodeships (including specialist outpatient care, emergency departments, and ERs) is necessary.

Due to the method of reporting, it is not possible, at the moment, to determine how long it takes for a patient to have tests done to confirm or rule out thrombosis. For this, further analysis of resources and their accessibility is necessary, including the 24-hour access to diagnostic tests for patients with deep vein thrombosis.

Varicose veins of lower extremities

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis varicose veins of lower extremities came to 8.68 thousand. The majority of varicose veins of lower extremities surgeries provided by the public healthcare system in 2014 were performed outside of vascular facilities: the surgical ward had the largest number of hospitalisations in the voivodeship.

The available reporting system does not allow for an analysis of performed surgeries from the point of view of the stage of the disease: patients with trophic changes, patients with venous leg ulcer, cosmetic procedures. In addition, for lack of data, it is not possible to evaluate the conservative treatment of a chronic vascular disease. There is no information on using compression treatment or other types of treatment.

On the basis of currently available data, treatment results and quality (the proportion of reoperations, the risk of varicose veins recurrence) cannot be evaluated.

Limb ulcers

In Mazowieckie Voivodeship, the number of hospitalisations with the diagnosis of ulcers came to 1.90 thousand. It is not possible to conclude, on the basis of the reported data, the number of new cases of ulcers of lower extremities; the reported incidence, which indicates the minimum number of new cases, was 5 thousand in the voivodeship in 2014. There is no information on what population of patients with an ulcer of a lower extremity remains in the care of a family doctor or outside of the healthcare system: the reported incidence, based on the data from specialist outpatient care, emergency departments and inpatient care, relates only to a part of the patient population.

Dermatology ward had the biggest number of hospitalisations for ulcers of lower extremities; proper diagnosis and causal treatment of patients with ulcers of the lower extremity, including multispecialty care dedicated to a particular pathogenesis of the ulcer (ulcers of vascular origin, diabetic foot, dermatological diseases, other causes) need to be further analysed.

2.5 Diseases of the respiratory system (chronic)

Diseases of the respiratory system (chronic) have been divided, on the basis of the ICD-10 classification, into asthma, chronic obstructive pulmonary disease, cystic fibrosis, interstitial lung disease, sleep-disordered breathing, chronic inflammatory lung diseases, and respiratory failure. This document presents the summary of the most important information for asthma, chronic obstructive pulmonary disease, cystic fibrosis, interstitial lung disease, sleep-disordered breathing, and respiratory failure. A detailed analysis of all disease groups and of children and adults separately is presented in the Map of Healthcare Needs for the diseases of the respiratory system (chronic).

Medical experts who are in cooperation with the Department of Analysis and Strategy indicated that, in the majority of cases, lung diseases ward and tuberculosis and lung diseases ward fulfil the same functions in the hospital, and the name difference derives from an old convention. Maintaining this division should be reconsidered. In order to prove this thesis, these wards have been shown separately in the Map of Healthcare Needs.36% of hospitalisation with the main diagnosis from the group “Diseases of the respiratory system (chronic)” in the voivodeship were carried out in lung diseases wards, and 7% in tuberculosis and lung diseases wards.

Asthma

In 2014, 4.17 thousand hospitalisations due to asthma were reported in Mazowieckie Voivodeship. Treating environmental diseases does not have to be centralised, so a small concentration of services is not abnormal. It should be emphasised, however, that patients with a severe course of illness and complications should be referred to those hospitals that have specialist wards.80% of hospitalisations of adults in the Asthma group in Mazowieckie Voivodeship took place in 21 hospitals (33% of all hospitals in the voivodeship). Among the patients under the age of 18 in Mazowieckie Voivodeship, 80% of hospitalisations took place in 13 hospitals (31% of all hospitals in the voivodeship).

In Mazowieckie Voivodeship, the reported value of hospitalisations per 100 thousand population (adults), was about 62.11, lower than that of Poland (91.57). The different number of hospitalisations may be caused by the quality of hospital reporting in this voivodeship, high accessibility to specialist outpatient care, and demographic and environmental factors. Therefore, recommendations on further action should be made in cooperation with the right voivodeship consultant.

In the case of the disease group in question, the number of hospitalisations is highly seasonal in nature, which causes variation in resource utilisation (e.g. hospital beds, medical staff), and so poses a challenge in organising flexible healthcare. In Mazowieckie Voivodeship, maximum number of patients over the age of 18 hospitalised in a day was 91 people, the minimum was 14 people, and the average was 50.6. In the case of children, the maximum was 37 people, the minimum was 4 people, and the average was 17.2.

In the case of adults, of note is the proportion, comparable with the rest of the country, of patients who received rehabilitation within 90 days after the end of hospitalisation: 10.4% in Mazowieckie Voivodeship. Even though the voivodeship is characterised by accessibility to rehabilitation services on the level of the national average, access to rehabilitation financed by the public payer is still limited. An analysis of patients under the age of 18 showed a proportion of patients, comparable with the rest of the country, who received rehabilitation within 90 days after the end of hospitalisation: 5.3% in Mazowieckie Voivodeship. Note that all rehabilitation scopes are analysed (not just the pulmonary one).

Both in children and in adults, the variation of the percentage of status asthmaticus (J46) among all hospitalised for asthma is seen across voivodeships (for adults: the minimum value was1%, the maximum was 13%; for children: minimum0.3%, maximum 8%). In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Asthma group was 31.8% in adults (in Poland:43.8%). Other patients gained emergency admission. Experts indicate that emergency admission should be granted mainly to the patients with status asthmaticus (J46), but the percentage of patients admitted this way was much higher than the percentage of patients with status asthmaticus. In the case of patients under the age of 18 in Mazowieckie Voivodeship, the proportion of scheduled admissions was 61.3% (in Poland:67.4%).

An analysis of the distribution of facilities providing medication programme “Treating severe allergic asthma with anti-IgE monoclonal antibody (omalizumab)” showed that accessibility to this medication programme is secured in all voivodeships. It is worthy of note that children of 12 years or older may receive treatment in the medication programme in all facilities (including the ones that treat adults).

In Mazowieckie Voivodeship, the percentage of hospitalisations of patients over the age of 18, during which the procedure offunction tests was reported was45.8% (in Poland:56.6%). In the group of patients over the age of 18, the percentage of hospitalisations involving the procedure of function tests was 25.4% (in Poland: 35.8%).

Chronic obstructive pulmonary disease

In 2014, 5.81 thousand hospitalisations due to chronic obstructive pulmonary disease were reported in Mazowieckie Voivodeship. Treating environmental diseases does not have to be centralised, so a

small concentration of services is not abnormal. It should be emphasised, however, that patients with a severe course of illness and complications should be referred to those hospitals that have specialist wards.80% of hospitalisations in the Chronic obstructive pulmonary disease group in Mazowieckie Voivodeship took place in 32 hospitals (51% of all hospitals in the voivodeship).

In the case of the disease group in question, the number of hospitalisations is highly seasonal in nature, which causes variation in resource utilisation (e.g. hospital beds, medical staff), and so poses a challenge in organising flexible healthcare. In Mazowieckie Voivodeship, the maximum number of patients hospitalised in a day was 225, the minimum was 38, and the average was 139.7.

Mortality within 30 days after discharge, standardised by age, sex, and comorbidity of a patient, was higher in Mazowieckie Voivodeship (7.1%) than in Poland6.2%). Standardised mortality within 60 days after discharge has also been analysed, and it, too, was higher than the nationwide average (9.1%,8.2%). Standardised mortality within 90 days after discharge was also higher for the given voivodeship than for the country (10.7%, and10.1%).

Of note is the proportion, comparable with the rest of the country, of patients who received rehabilitation within 90 days after the end of hospitalisation: 5.6% in Mazowieckie Voivodeship.

In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Chronic obstructive pulmonary disease group was 19.5% (in Poland:28.2%).

The analysis of the hospitalisations of patients with the diagnosis of Chronic obstructive pulmonary disease shows that 9.5% of patients in Mazowieckie Voivodeship are readmitted within 30 days to the same hospital; multiplied by the number of patients hospitalised with this diagnosis, it amounts to 549 hospitalisations in the voivodeship (in Poland, readmissions constitute 9.0% of all hospitalisations, which amounts to 3.9 thousand hospitalisations nationwide).

In Mazowieckie Voivodeship, the percentages of hospitalisations involving the procedures of arterial-blood gas (ABG) test and spirometry were, respectively:11.4% (in Poland:19.6) and 19.0% (in Poland:25.6%).

Cystic fibrosis

In 2014, 613 hospitalisations for cystic fibrosis were reported in Mazowieckie Voivodeship. It is a rare disease and its treatment should be administered in highly specialised facilities that provide comprehensive care. There is a great concentration of services in Mazowieckie Voivodeship: 79% of hospitalisations of adults in the Cystic fibrosis group took place in 1 hospital (the National Institute of Tuberculosis and Lung Diseases in Warsaw) (20% of all hospitals in the voivodeship). It is advisable to maintain the high concentration of services in this scope, and to support and develop the facilities dealing with a significant number of patients with this diagnosis. Following the world trends, the number of adults with cystic fibrosis is increasing (0.8 thousand hospitalisations in Poland). The analysis showed that there are voivodeships with no facilities providing care for such patients.58% of hospitalisations of children in the Cystic fibrosis group took place in 1 hospital (the Institute of Mother and Child) (25% of all hospitals in the voivodeship).

In the case of adults, of note is the tiny proportion of patients who received rehabilitation within 90 days after the end of hospitalisation: 2.0% in Mazowieckie Voivodeship and 3.1% in Poland. The Maps of Healthcare Needs show a very limited access to rehabilitation financed by the public payer. An analysis of patients under the age of 18 showed a proportion of patients higher than that of the rest of the country, who received rehabilitation within 90 days after the end of hospitalisation: 14.1% in Mazowieckie Voivodeship and 6.8% in Poland. Note that all rehabilitation scopes are analysed (not just the pulmonary one).

In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Cystic fibrosis group in adults was 30.5% (in Poland: 62.8%).

In the case of patients under the age of 18 in Mazowieckie Voivodeship, the proportion of scheduled admissions was 89.0% (in Poland: 78.4%).

Interstitial lung disease

In 2014, 4.12 thousand hospitalisations for interstitial lung disease were reported in Mazowieckie Voivodeship. This is a condition whose diagnosis and treatment require specialist equipment and experienced medical staff, and should, therefore, be given in highly specialised facilities that provide comprehensive care (including hospitalisation and specialist outpatient care). There is a great concentration of services in Mazowieckie Voivodeship: 77% of hospitalisations of adults in the Interstitial lung disease group took place in 4 hospitals (7% of all hospitals in the voivodeship).73% of hospitalisations of children in the Interstitial lung disease group took place in 1 hospital (The Independent Public Paediatric Clinical Hospital) (8% of all hospitals in the voivodeship). It is advisable to maintain the high concentration of services in this scope, and to support and develop the facilities dealing with a significant number of patients with this diagnosis.

In Mazowieckie Voivodeship, the reported value of hospitalisations per 100 thousand population (adults), was about 91.86, higher than that of Poland (59.22). The different number of hospitalisations may be caused by the quality of hospital reporting in this voivodeship, low accessibility to specialist outpatient care, and demographic and environmental factors. Therefore, recommendations on further action should be made in cooperation with the right voivodeship consultant.

In Mazowieckie Voivodeship, the percentages of hospitalisations involving the procedures of: ANA, ANCA, function tests, immunology tests, biopsy were reported, were, respectively:12.0% (in Poland:3.4%), 3.1% (in Poland:1.0%), 78.1% (in Poland:67.8%), 12.6% (in Poland:3.7%), 6.4% (in Poland: 5.9%).

Sleep-disordered breathing- adults

In Mazowieckie Voivodeship, the reported value of hospitalisations per 100 thousand population (adults), was about 78.15, higher than that of Poland (56.51). The different number of hospitalisations may be caused by the quality of hospital reporting in this voivodeship, low accessibility to specialist outpatient care, and demographic and environmental factors. Therefore, recommendations on further action should be made in cooperation with the right voivodeship consultant.

It should be emphasised that in the case of 91% of all the hospitalisations, no comorbidities were reported. The most common comorbidity (reported in 6% of the hospitalisations) was I10 (essential (primary) hypertension). The second most common comorbidity in these hospitalisations was G47 (sleep disorder), reported in 4% of the hospitalisations.

In Mazowieckie Voivodeship, the percentage of hospitalisations during which polysomnography was reported was 81.3% (in Poland: 78.7%).

The next step should involve furthering the analysis of waiting time for the diagnosis and treatment of sleep apnea. Also an analysis of patients treated with CPAP would be justified. Lack of financial products (both in inpatient care (DRG), and in specialist outpatient care) dedicated to treating sleep-disordered breathing may have an influence on reporting and renders a detailed analysis of this health problem in Poland impossible. It also leads to poor access to treatment of sleep-disordered breathing and follow-up of that treatment. In addition, the quality of reporting the above may follow from the adopted reporting standards resulting from the settlement system requirements and reporting only the most costly of all procedures performed in a facility (to the exclusion of any other procedures).

Respiratory failure - adults

In 2014, 2.69 thousand hospitalisations for respiratory failure were reported in Mazowieckie Voivodeship. Treating environmental diseases does not have to be centralised, so a small concentration of services is not abnormal. It should be emphasised, however, that patients with a severe course of illness and complications should be referred to those hospitals that have specialist wards.80% of hospitalisations of adults in the Respiratory failure group in Mazowieckie Voivodeship took place in 23 hospitals (36% of all hospitals in the voivodeship). In Mazowieckie Voivodeship, the reported value of hospitalisations per 100 thousand population (adults), was about 60.29, lower than that of Poland (93.61). The different number of hospitalisations may be caused by the quality of hospital reporting in this voivodeship, high accessibility to specialist outpatient care, and demographic and environmental factors. Therefore, recommendations on further action should be made in cooperation with the right voivodeship consultant.

Of note is the limited access to noninvasive mechanical ventilation (DRG D45:Treating respiratory failure with noninvasive mechanical ventilation) for patients with respiratory failure in the analysed voivodeship. The proportions of the hospitalisations reported with this DRG differ significantly between voivodeships. In Mazowieckie Voivodeship, it was reported with 0.4% of hospitalisations, and with 1.0% of hospitalisations in Poland. The uneven access to chronic oxygen therapy at home (home oxygen therapy - HOT) should also be noted. The number of patients who received HOT services, per 100,000 population, was the biggest in Świętokrzyskie Voivodeship (63.8), the smallest in Zachodniopomorskie Voivodeship (10.6), while the nationwide average was about 24.3 patients.

The quality of reporting comorbidities is highly unsatisfactory. It should be emphasised that in the case of 24% of all the hospitalisations, no comorbidities were reported. The most common comorbidity (reported in 40% of the hospitalisations) was J44 (chronic obstructive pulmonary disease). The second most common comorbidity in these hospitalisations was I50 (heart failure), reported in 21% of the hospitalisations. In the case of respiratory failure, it would be more reasonable to report conditions that lead to this disease instead of its comorbidities.

Mortality within 30 days after discharge, standardised by age, sex, and comorbidity of a patient, was higher in Mazowieckie Voivodeship (36.7%) than in Poland30.3%). Standardised mortality within 60 days after discharge has also been analysed, and it, too, was higher than the nationwide average (39.8%,33.7%). Standardised mortality within 90 days after discharge was also higher for the given voivodeship than for the country (42.1%, and35.8%).

The analysis of rehospitalisations of patients with the diagnosis of Respiratory failure shows that 8.2% of patients in Mazowieckie Voivodeship are readmitted within 30 days to the same hospital; multiplied by the number of patients hospitalised with this diagnosis, it amounts to 214 hospitalisations in the voivodeship (in Poland, readmissions constitute 7.2% of all hospitalisations, which amounts to 2.1 thousand hospitalisations nationwide).

In Mazowieckie Voivodeship, the percentage of hospitalisations involving the procedure of non-invasive mechanical ventilation (NMV) was 0.6% (in Poland: 1.1%).

2.6. Diseases of the respiratory system (acute)

Diseases of the respiratory system (acute) have been divided, on the basis of the ICD-10 classification, into pneumonias, bronchitis, pleura diseases, acute respiratory failure, tuberculosis, pulmonary oedema. This document presents the summary of the most important information on pneumonia, bronchitis, and pleura diseases in adults. A detailed analysis of other subgroups, and of children and adults separately, is presented in the Map of Healthcare Needs for the diseases of the respiratory system (acute).

Pneumonia in adults and children

The total number of hospitalisations for pneumonia in children and in adults was 16.76 thousand. The concentration of services in Mazowieckie Voivodeship is low: 79% of hospitalisations of adults and children in the Pneumonia group took place in 31 hospitals (46% of all hospitals in the voivodeship that treat patients with this diagnosis), and 76% of the hospitalisations in the voivodeships were reported in internal diseases wards. In the case of pneumonia in children, the concentration of services is also small: 79% of hospitalisations of children in the Pneumonia group took place in 25 hospitals (50% of all hospitals in the voivodeship that treat patients with this diagnosis), and 85% of the hospitalisations in the voivodeships were reported in general paediatric wards. Due to the high frequency of acute lung disorders, and their frequently severe course requiring immediate hospitalisation, it is necessary to maintain a quick and easy access to hospitalisation in the whole voivodeship.

The quality of reporting microbiological culture diagnosis for the Pneumonia group is highly unsatisfactory. In the Maps of Healthcare Needs, of note is a very large number of pneumonias reported as an inflammation of undetermined aetiology or bacterial but caused by undetermined bacteria. This type of diagnosis appeared with 7.38 thousand (90%) hospitalisations of adults and 7.52 thousand (88%) hospitalisations of children.

The DRG product that was reported most often for hospitalisations of adult patients with a diagnosis from the Pneumonia group was DRG D18 Atypical pneumonia (viral) (39.1% of hospitalisations reported with this DRG in Poland).Reporting in Poland varies significantly between voivodeships. In Mazowieckie Voivodeship, it was reported for 37.6% of hospitalisations.

The quality of reporting performed specialist procedures, significantly linked with diagnostics and therapy in the Pneumonia group, is highly unsatisfactory. In Mazowieckie Voivodeship, the percentages of hospitalisations of adults involving the procedures of: bronchoscopy, arterial-blood gas (ABG) test, microbiology, oxygen therapy, were, respectively:5.6% (in Poland:8.6%), 18.4% (in Poland:22.1%), 10.9% (in Poland:16.4%), 8.2% (in Poland: 14.9%). The percentages of hospitalisations of children involving the procedures of: arterial-blood gas (ABG) test, microbiology, oxygen therapy, were, respectively:13.3% (in Poland:18.9%), 5.5% (in Poland:10.0%), 5.3% (in Poland: 4.9%).

The quality of reporting comorbidities which may be responsible for the acute states that caused the hospitalisation is not sufficient. It should be emphasised that in the case of 33% of hospitalisations of adults, no comorbidities were reported. Taking into account the high average age (69 y.o.) in the group of adults with pneumonia, it is unlikely that patients hospitalised for pneumonia rarely suffered from other chronic illnesses. The most common comorbidity (reported in 24% of the hospitalisations) was I50 (heart failure). The second most common comorbidity in these hospitalisations was I10 (essential (primary) hypertension), reported in 16% of the hospitalisations.

In the case of the disease group in question, the number of hospitalisations is highly seasonal in nature. In Mazowieckie Voivodeship, the maximum number of patients hospitalised in a day was 374, the minimum was 176, and the average was 251.5 (for children: 378, 33, and 166.8, respectively). The seasonality causes variation in the utilisation of resources (e.g. hospital beds, medical staff), which poses a challenge in organising flexible healthcare.

An exceptionally high percentage of hospitalisations of elderly patients (65+) has been observed. The percentage of patients aged 65+ among adult patients in the Pneumonia group was66.0%. Therefore introducing organisational solutions that would allow for cooperation between internists, geriatricians, and family doctors, should be considered. The median time of stay in Mazowieckie Voivodeship in the Pneumonia group was 9 days (the same as the nationwide average).

In the case of adults, in-hospital mortality standardised by age, sex, and comorbidities of a patient, was higher in Mazowieckie Voivodeship (13.7%) than in Poland (11.6%). Standardised mortality within 30 days after discharge has also been analysed, and it, too, was higher than the nationwide average: 6.3% (6.8% in Poland).

Rehabilitation reduces disease symptoms, improves breathing capacity and quality of life, and prevents recurrence of the disease. It is required for some adults recovering from pneumonia, especially with complications. Of note is the proportion, comparable with the rest of the country, of adult patients who received rehabilitation within 90 days after the end of hospitalisation: 4.9% in Mazowieckie Voivodeship. Note that all rehabilitation scopes are analysed (not just the pulmonary one). Even though the voivodeship is characterised by accessibility to rehabilitation services on the level of the national average, access to rehabilitation financed by the public payer is still limited.

The quality of reporting hospital admission types is highly unsatisfactory. In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Cystic fibrosis group in adults was 11.3% (in Poland: 14.6 %) and 18.7% in children (in Poland: 12.3%). Experts point out that patients with acute diseases of the respiratory system should not be reported as admitted to hospital on a scheduled basis.

The analysis of rehospitalisations of patients with the diagnosis of Pneumonia shows that 8.4% of adult patients (5.4% of children) in Mazowieckie Voivodeship are readmitted within 30 days to the same hospital; multiplied by the number of patients hospitalised with this diagnosis, it amounts to 685 hospitalisations of adults (464 of children) in the voivodeship (in Poland, readmissions constitute 8.6% of all hospitalisations of adults (5.5% of children), which amounts to 5.1 thousand hospitalisations of adults (4.0 thousand of children) nationwide).

Bronchitis in adults and children

The total number of hospitalisations for bronchitis in children and in adults was 7 thousand. The concentration of services in Mazowieckie Voivodeship is low: 79% of hospitalisations of adults and children in the Bronchitis group took place in 29 hospitals (49% of all hospitals in the voivodeship that treat patients with this diagnosis), and 80% of the hospitalisations in the voivodeships were reported in internal diseases wards. In the case of bronchitis in children, the concentration of services is also small: 80% of hospitalisations of children in the Bronchitis group took place in 22 hospitals (49% of all hospitals in the voivodeship that treat patients with this diagnosis), and 88% of the hospitalisations in the voivodeships were reported in general paediatric wards. Due to the high frequency of acute lung disorders, and their frequently severe course requiring immediate hospitalisation, it is necessary to maintain a quick and easy access to hospitalisation in the whole voivodeship.

The quality of reporting comorbidities which may be responsible for the acute states that caused the hospitalisation is not sufficient. It should be emphasised that in the case of 42% of hospitalisations of adults, no comorbidities were reported. Taking into account the high average age (68 y.o.) in the group of adults with bronchitis, it is unlikely that patients hospitalised for bronchitis rarely suffered from other chronic illnesses. The most common comorbidity (reported in 21% of the hospitalisations) was I10 (essential (primary) hypertension). The second most common comorbidity in these hospitalisations was I50 (heart failure), reported in 13% of the hospitalisations. It is absolutely necessary to report comorbidities in the cases of hospitalisations for bronchitis in adults. This in particular applies to those comorbidities that could be directly related to acute conditions (e.g. chronic obstructive pulmonary disease, asthma, chronic heart failure, acute coronary syndromes, arrhythmias and surgical procedures). There are many doubts as to reporting acute bronchitis in adults as the cause of hospitalisation, considering that acute bronchitis without complications in adults does not even require antibiotic treatment. In this context, it seems important to analyse the Charlson index in patients with bronchitis.35% of patients with this diagnosis in the analysed voivodeship had comorbidity index above 0, meaning that they had been admitted to hospital during the year preceding their hospitalisation due to another disease greatly affecting the likelihood of death, or that such a disease was reported as a comorbidity.

In the case of the disease group in question, the number of hospitalisations is highly seasonal in nature. In Mazowieckie Voivodeship, the maximum number of patients hospitalised in a day was 91, the minimum was 9, and the average was 38.8 (for children, respectively:170, 5, and 74). The

seasonality causes variation in the utilisation of resources (e.g. hospital beds, medical staff), which poses a challenge in organising flexible healthcare.

An exceptionally high percentage of hospitalisations of elderly patients (65+) has been observed. The percentage of patients aged 65+ among adult patients in the Bronchitis group was65.1%. Therefore introducing organisational solutions that would allow for cooperation between internists, geriatricians, and family doctors, should be considered.

In the case of adults, in-hospital mortality standardised by age, sex, and comorbidity of a patient, was lower in Mazowieckie Voivodeship (1.4%) than in Poland (1.7%). Standardised mortality within 30 days after discharge has also been analysed, and it, too, was higher than the nationwide average: 3.7% (3.9% in Poland).

Rehabilitation reduces disease symptoms, improves breathing capacity and quality of life, and prevents recurrence of the disease. It is required for most adults recovering from acute bronchitis as long as it originated from any acute lung and/or heart disease. Of note is the proportion, comparable with the rest of the country, of adult patients who received rehabilitation within 90 days after the end of hospitalisation: 4.8% in Mazowieckie Voivodeship. Note that all rehabilitation scopes are analysed (not just the pulmonary one). Even though the voivodeship is characterised by accessibility to rehabilitation services on the level of the national average, access to rehabilitation financed by the public payer is still limited.

The quality of reporting hospital admission types is highly unsatisfactory. In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Bronchitis group was 13.8% in adults (in Poland:16.4%), 19.7% in children (in Poland:16.8%). Experts point out that patients with acute diseases of the respiratory system should not be reported as admitted to hospital on a scheduled basis.

The analysis of rehospitalisations of patients with the diagnosis of Bronchitis shows that 8.3% of patients in Mazowieckie Voivodeship are readmitted within 30 days to the same hospital; multiplied by the number of patients hospitalised with this diagnosis, it amounts to 158 hospitalisations in the voivodeship (in Poland, readmissions constitute 7.6% of all hospitalisations, which amounts to 1.1 thousand hospitalisations nationwide).

The quality of reporting performed specialist procedures, significantly linked with diagnostics and therapy in the Bronchitis group, is highly unsatisfactory. In Mazowieckie Voivodeship, the percentages of hospitalisations of adults involving the procedures of: bronchoscopy, arterial-blood gas (ABG) test, microbiology, oxygen therapy, were, respectively:2.2% (in Poland:2.2%), 8.0% (in Poland:15.7%), 4.7% (in Poland:7.4%), 6.2% (in Poland: 11.4%). The percentages of hospitalisations of children involving the procedures of: arterial-blood gas (ABG) test, microbiology, oxygen therapy, were, respectively:15.9% (in Poland:16.3%), 3.3% (in Poland:10.7%), 5.5% (in Poland: 3.5%).

Pleura diseases in adults

The number of hospitalisations for pleura diseases was 2.58 thousand. The concentration of services in Mazowieckie Voivodeship is low: 79% of hospitalisations of adults in the Pleura diseases group took place in 22 hospitals (33% of all hospitals treating patients with that diagnosis in the voivodeship). Furthermore, as much as 22% of hospitalisations in the region were reported for internal medicine wards. Literature and clinical experience suggest that high concentration of services in the group of pleura diseases in adults has a positive effect on treatment quality and effectiveness. It is therefore desirable to achieve high concentration of services in that scope.

The quality of reporting comorbidities which may be responsible for the acute states that caused the hospitalisation is not sufficient. It should be emphasised that in the case of 55% of all the hospitalisations, no comorbidities were reported. Taking into account the high average age (59 y.o.) in the group of adults with pleura diseases, it is unlikely that patients hospitalised for pleura diseases rarely suffered from

other chronic illnesses. The most common comorbidity (reported in 9% of the hospitalisations) was I10 (essential (primary) hypertension). The second most common comorbidity in these hospitalisations was I50 (heart failure), reported in 6% of the hospitalisations.

An exceptionally high percentage of hospitalisations of elderly patients (65+) has been observed. The percentage of patients aged 65+ among adult patients in the Pleura diseases group was40.5%. Therefore introducing organisational solutions that would allow for cooperation between internists, geriatricians, and family doctors, should be considered. The median time of stay in Mazowieckie Voivodeship in the Pleura diseases group was 8 days (the same as the nationwide average).

In the case of adults, in-hospital mortality standardised by age, sex, and comorbidity of a patient, was higher in Mazowieckie Voivodeship (4.8%) than in Poland4.7%). Standardised mortality within 30 days after discharge has also been analysed, and it, too, was higher than the nationwide average: 6.3% (6.4% in Poland).

Rehabilitation reduces disease symptoms, improves breathing capacity and quality of life, and prevents recurrence of the disease. It is required for most patients with pleura diseases. Of note is the proportion, comparable with the rest of the country, of patients who received rehabilitation within 90 days after the end of hospitalisation: 4.1% in Mazowieckie Voivodeship. Note that all rehabilitation scopes are analysed (not just the pulmonary one). Even though the voivodeship is characterised by accessibility to rehabilitation services on the level of the national average, access to rehabilitation financed by the public payer is still limited.

The quality of reporting hospital admission types is highly unsatisfactory. In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Pleura diseases group was 38.7% in adults (in Poland: 32.0%). Experts point out that patients with acute diseases of the respiratory system should not be reported as admitted to hospital on a scheduled basis.

The quality of reporting performed specialist procedures, significantly linked with diagnostics and therapy in the Pleura diseases in adults group, is highly unsatisfactory. In Mazowieckie Voivodeship, the percentages of hospitalisations involving the procedures of: biopsy, bronchoscopy, drain, thoracentesis, were, respectively: 1.2% (in Poland: 2.5%), 16.7% (in Poland: 15.3%), 22.5% (in Poland: 25.7%), 15.1% (in Poland: 20.6%).

2.7. Endocrine diseases

Endocrine diseases were divided according to the ICD-10 classification into disorders of reproductive glands, disorders of adrenal glands, disorders of pituitary gland, disorders of thyroid gland, disorders of parathyroid gland, diseases of pancreas, diseases with unspecified endocrine diagnosis, benign endocrine neoplasms and obesity. This document summarises key information about disorders of reproductive glands, pituitary gland, thyroid gland and obesity. A detailed analysis of other subgroups, and of children and adults separately is presented in the map of healthcare needs for endocrine diseases of the respiratory system.

Disorders of reproductive glands

In 2014, 15.5 thousand hospitalisations due to diseases from the analysed group were reported in Poland.5.3 thousand hospitalisations for disorders of reproductive glands in adults were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 adults varies significantly between voivodeships (121.1 in Mazowieckie Voivodeship against 40.9 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 4.5% to 31.9%. The migration rate may result from the presence of highly specialised facilities dedicated to disorders of reproductive glands in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The number of hospitalizations per 100 adults is approx. 4 times lower that the number of hospitalisations per 100,000 children (for Poland). This follows from the fact that diseases of reproductive glands are usually diagnosed in childhood, whereas adult patients often require only outpatient care, rather than hospitalisation.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of disorders of reproductive glands was 19 days in Mazowieckie Voivodeship and 20 days in Poland. The low median time of waiting for scheduled hospitalisations among patients diagnosed with disorders of reproductive glands may suggest the need for quick admission even where it was scheduled. In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: endocrinology ward (73.7%), obstetrics and gynaecology ward (17.1%) and gynaecology ward (8.2%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 0.5% (0.7%% in Poland), the percentage of emergency hospitalisations (other cases) was 8.4% (15.4% in Poland), and the percentage of scheduled hospitalisations was 91.0% (average for Poland: 83.9%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations for disorders of reproductive glands in Mazowieckie Voivodeship were provided by 4 hospitals. The predominant hospital in Mazowieckie Voivodeship was Princess Anna Mazowiecka Public Teaching Hospital (66.7% of all hospitalisations).

The following findings were made with regard to disorders of reproductive glands in children:

In 2014, 11.7 thousand hospitalisations due to diseases from the analysed group were reported in Poland.1.8 thousand hospitalisations for disorders of reproductive glands in children were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 children varies significantly between voivodeships (183.9 in Mazowieckie Voivodeship against 168.5 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 2.3% to 16.4%. The migration rate may result from the presence of highly specialised facilities dedicated to disorders of pituitary gland in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of disorders of reproductive glands was 26 days in Mazowieckie Voivodeship and 35 days in Poland. The low median time of waiting for scheduled hospitalisations among patients diagnosed with disorders of reproductive glands may suggest the need for quick admission even where it was scheduled. In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: paediatric surgery ward (66.5%), paediatric urology ward (8.9%) and paediatric endocrinology ward (6.5%).

Following an analysis of patient (child) admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 0.6% (0.4%% in Poland), the percentage of emergency hospitalisations (other cases) was 4.5% (7.7% in Poland), and the percentage of scheduled hospitalisations was 91.1% (average for Poland: 88.9%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations for disorders of reproductive glands in children in Mazowieckie Voivodeship were provided by 8 hospitals. The predominant hospital in Mazowieckie Voivodeship was Children's Memorial Health Institute in Warsaw (13.4% of all hospitalisations of children).

Median waiting time was 2.0 days, and 1.9% of patients were readmitted within 30 days of the original hospitalisations. This is caused by the character of disorders of reproductive glands, which in the case of children often require several stages of diagnostics.

Disorders of pituitary gland

In 2014, 8.1 thousand hospitalisations due to diseases from the analysed group were reported in Poland.0.9 thousand hospitalisations for disorders of pituitary gland in adults were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 adults varies significantly between voivodeships (21.4 in Mazowieckie Voivodeship against 21.1 nationwide). In terms of hospitalisations with disorders of pituitary gland as the main diagnosis, Wielkopolskie Voivodeship dominated (approx. 5 times as many hospitalisations per 100,000 population as the value for Poland).

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of disorders of pituitary gland was 18 days in Mazowieckie Voivodeship and 28 days in Poland. The low median time of waiting for scheduled hospitalisations among patients diagnosed with disorders of pituitary gland may suggest the need for quick admission even where it was scheduled. In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: endocrinology ward (82.6%), internal medicine ward (9.4%) and obstetrics and gynaecology ward (4.6%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 1.2% (0.6%% in Poland), the percentage of emergency hospitalisations (other cases) was 8.0% (8.3% in Poland), and the percentage of scheduled hospitalisations was 90.7% (average for Poland: 91.0%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations for disorders of pituitary gland in Mazowieckie Voivodeship were provided by 4 hospitals. The predominant hospital in Mazowieckie Voivodeship was Jerzy Popiełuszko Bielański Hospital – Independent Public Healthcare Centre (38.0% of all hospitalisations).

The following findings were made with regard to disorders of pituitary gland in children:

In 2014, 3.5 thousand hospitalisations due to diseases from the analysed group were reported in Poland.0.6 thousand hospitalisations for disorders of pituitary gland in children were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 children varies significantly between voivodeships (62.5 in Mazowieckie Voivodeship against 47.3 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 0.0% to 20.9%. The migration rate may result from the presence of highly specialised facilities dedicated to disorders of pituitary gland in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The number of hospitalizations per 100 adults is approx. 2 times lower that the number of hospitalisations per 100,000 children (for Poland). This follows from the fact that diseases of reproductive glands are usually diagnosed in childhood, whereas adult patients often require only outpatient care, rather than hospitalisation.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of disorders of pituitary gland was 60 days in Mazowieckie Voivodeship and 35 days in Poland. The low median time of waiting for scheduled hospitalisations among patients diagnosed with disorders of pituitary gland may suggest the need for quick admission even where it was scheduled. In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: paediatric ward (70.2%), paediatric endocrinology ward (29.0%) and endocrinology ward (0.5%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 0 (0.1% in Poland), the percentage of emergency hospitalisations (other cases) was 1.6% (4.6% in Poland), and the percentage of scheduled hospitalisations was 98.4% (average for Poland: 95.4%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations for disorders of pituitary gland in children in Mazowieckie Voivodeship were provided by 1 hospital. The predominant hospital in Mazowieckie Voivodeship was the “Children of Warsaw” Independent Public Complex of Healthcare Facilities in Dziekanów Leśny (62.9% of all hospitalisations).

Disorders of thyroid gland

In 2014, 12.1 thousand hospitalisations due to diseases from the analysed group were reported in Poland.2.1 thousand hospitalisations for disorders of thyroid gland in adults were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 adults varies significantly between voivodeships (48.5 in Mazowieckie Voivodeship against 36.9 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 1.6% to 17.7%. The migration rate may result from the presence of highly specialised facilities dedicated to disorders of thyroid gland in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of disorders of thyroid gland was 12 days in Mazowieckie Voivodeship and 15 days in Poland. The low median time of waiting for scheduled hospitalisations among patients diagnosed with disorders of thyroid gland may suggest the need for quick admission even where it was scheduled. In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: endocrinology ward (36.3%), internal medicine ward (35.9%) and surgical ward (18.7%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 4.1% (3.9%% in Poland), the percentage of emergency hospitalisations (other cases) was 36.1% (31.9% in Poland), and the percentage of scheduled hospitalisations was 59.6% (average for Poland: 64.1%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations for disorders of thyroid gland in adults in Mazowieckie Voivodeship were provided by 21 hospitals. The predominant hospital in Mazowieckie Voivodeship was the Independent Public Central Clinical Hospital (17.8% of all hospitalisations).

Obesity

In 2014, 12.9 thousand hospitalisations due to diseases from the analysed group were reported in Poland.2.5 thousand hospitalisations for obesity in adults were reported in Mazowieckie Voivodeship.

The number of hospitalisations per 100,000 adults varies significantly between voivodeships (56.7 in Mazowieckie Voivodeship against 39.7 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 5.0% to 34.3%. The migration rate may result from the presence of highly specialised facilities dedicated to obesity in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of obesity was 24 days in Mazowieckie Voivodeship and 22 days in Poland (the low median time of waiting for scheduled hospitalisations among patients diagnosed with obesity may suggest the need for quick admission even where it was scheduled). In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: internal medicine ward (39.9%), surgical ward (39.4%) and cardiology ward (5.2%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 3.9% (3.9%% in Poland), the percentage of emergency hospitalisations (other cases) was 30.0% (26.7% in Poland), and the percentage of scheduled hospitalisations was 66.1% (average for Poland: 69.3%). Due to the nature of the analysed conditions, scheduled admissions are predominant.

80% of all hospitalisations with obesity as the main diagnosis in Mazowieckie Voivodeship were provided by 10 hospitals. The predominant hospital in Mazowieckie Voivodeship was the Military Institute of Medicine (19.1% of all hospitalisations).

The following findings were made with regard to obesity in children:

In 2014, 3.5 thousand hospitalisations due to diseases from the analysed group were reported in Poland.0.7 thousand hospitalisations of children diagnosed with obesity were reported in Mazowieckie Voivodeship.

The number of hospitalisations does not reflect the actual epidemiology with regard to obesity in children, as most of the patients with this condition are treated in outpatient settings or by general practitioners.

The number of hospitalisations per 100,000 children varies significantly between voivodeships (67.1 in Mazowieckie Voivodeship against 49.0 nationwide). Furthermore, the percentage of hospitalisations of patients from outside the voivodeship ranges from 0.0% to 25.4%. The migration rate may result from the presence of highly specialised facilities dedicated to obesity in children in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

The median waiting time for scheduled hospitalisations among patients with the main diagnosis of obesity was 42 days in Mazowieckie Voivodeship and 39 days in Poland (the low median time of waiting for scheduled hospitalisations among patients diagnosed with obesity may suggest the need for quick admission even where it was scheduled). In this context, it is worthwhile to mention the distribution of hospitalisations by ward, which was as follows: paediatric ward (44.0%), paediatric endocrinology ward (32.7%) and neonatology ward (14.3%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 1.1% (1.0%% in Poland), the percentage of emergency hospitalisations (other cases) was 13.7% (15.7% in Poland), and the percentage of scheduled hospitalisations was 85.2% (average for Poland: 83.3%). Due to the nature of the analysed conditions, scheduled admissions are predominant; however, the percentage of emergency admissions is higher than for disorders of reproductive glands and adrenal glands.

80% of all hospitalisations with obesity in children as the main diagnosis in Mazowieckie Voivodeship were provided by 3 hospitals. The predominant hospital in Mazowieckie Voivodeship was the Independent Public Paediatric Clinical Hospital (50.7% of all hospitalisations).

2.8 Childhood diseases

The category of childhood diseases includes hospitalisations of patients under the age of 18 according to the year of birth. With this patient group in mind, the categories of general paediatrics, specialised paediatrics and neonatology were defined based on ICD-10[33]. The map of needs focuses mainly on hospitalisations due to general paediatric diagnoses. A detailed analysis of hospitalisations of children with diagnoses classified in the Specialised paediatrics group are included in Maps of Healthcare Needs dedicated to specific groups of diseases. For neonatology, see the map of needs for pregnancy, childbirth and the puerperium, and neonatal care.

226.3 thousand hospitalisations of patients below 18 years of age (hereinafter: children) were reported in Mazowieckie Voivodeship, which amounted to 22,907.23 hospitalisations per 100,000 children. For Poland, these statistics were 1,374.8 thousand hospitalisations in total and 19,801.61 hospitalisations per 100,000 children.

83.9 thousand hospitalisations in the voivodeship were reported with diagnoses classified as general paediatrics, which amounts to 8,492.52 general paediatric hospitalisations per 100,000 children. For Poland, these statistics were 559.6 thousand hospitalisations in total and 8,059.83 hospitalisations per 100,000 children.

71.1% of hospitalisations with general paediatric diagnoses in the voivodeship were reported for the scope of paediatrics (70.8% in Poland). General paediatric hospitalisations are also reported for specialised paediatric scopes (28.9% in the voivodeship, 29.2% in Poland). Since only 64% of hospitalisations with general paediatric diagnoses in the voivodeship were reported for paediatric wards, it should be concluded that some specialised wards in the region had contracts for the scope of paediatrics.

General paediatrics hospitalisations are characterised by high seasonality. It is influenced mainly by the 0-5 age group. The daily number of general paediatric hospitalisations in the 0-5 age group in Mazowieckie Voivodeship ranged from 297 to 915 patients (difference: 618). In the 6-10 group it ranged from 50 to 222 patients (difference: 172), whereas in the 11-18 group: 35 to 290 (difference: 255).

The number of general paediatric hospitalisations (regardless of ward or scope) ranges, depending on the hospital, from 1 hospitalisation to 11 thousand hospitalisations, with 40 hospitals (out of 79 hospitals in the voivodeship reporting at least 1 general paediatric hospitalisation) reporting fewer than 700 general paediatric hospitalisations and 28 hospitals reporting fewer than 100 general paediatric hospitalisations.

The most common general paediatric diagnosis groups in Poland were: diseases of the respiratory system (32.4% of all general paediatric hospitalisations nationwide) and gastrointestinal tract diseases (29.9%). The most common groups in the voivodeship were: diseases of the respiratory system (28.2% of all general paediatric hospitalisations in the region) and gastrointestinal tract diseases (27.8%).

There are significant differences as to the average length of stay for general paediatric patients. The average length of stay at facilities of healthcare providers that reported at least 100 hospitalisations due to general paediatric diagnoses ranged from 1.35 and 8.85 days. It should be emphasised that no significant correlation exists between the number of hospitalisations and the average length of stay.

In the voivodeship, 6.1% of hospitalisations were followed by readmission to any hospital within 30 days of discharge (5.6% in Poland). The largest proportion of hospitalisations followed by readmission to any hospital within 30 days of the date of discharge among healthcare providers

33Groups were identified based on a diagnosis glossary available as an appendix to the map of needs for childhood diseases.

reporting at least 100 hospitalisations due to general paediatric diagnoses was 9.4%, whereas the lowest was 2.1%.

2.9 Mental disorders

Mental disorders were analysed separately for adults and for children and adolescents. For adults, the following categories were identified based on ICD-10: organic disorders, addictions, schizophrenia, psychoses other than schizophrenia, mood disorders, anxiety disorders, disorders of adult personality and behaviour and mental retardation. The following categories were identified for children and adolescents: stress-related and somatoform anxiety disorders, hyperkinetic disorders and behavioural disorders, mixed disorders of conduct and emotions. This document summarises key information about addictions, schizophrenia, organic disorders and mood disorders in adults, stress-related and somatoform anxiety disorders in children and adolescents. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for mental disorders.

In 2014, Mazowieckie Voivodeship had a positive migration rate of patients with mental disorders. For adults, it amounted to 54 per 100,000 adults, and for children it amounted to 28 per 100,000 children below the age of 18 y.o. These figures were the 2nd and 3rd highest migration rates in Poland, respectively.

A vast majority of hospitalisations were reported as 'psychiatric care and addiction treatment', which accounted for 97.8% of hospitalisations for mental disorders in Mazowieckie Voivodeship. Hospitalisations reported as 'inpatient treatment' accounted for 2.2% of hospitalisations in the voivodeship. Hospitalisations reported as part of inpatient treatment were predominant for healthcare providers reporting less than 20% of hospitalisations in the voivodeship.

The principal cause of hospitalisations of adults in Mazowieckie Voivodeship was addiction (44.4% of hospitalisations of adults). Among children and adolescents the most common diagnosis was 'stress-related and somatoform anxiety disorders' (23.3% of hospitalisations of children and adolescents in the voivodeship).

In 2014, 3.1 thousand patients were admitted to day psychiatric wards for adults in Mazowieckie Voivodeship (23.6 thousand patients in Poland). The number of person-days reported in the voivodeship was:238.6 thousand patients were admitted predominantly due to a diagnosis known as Anxiety disorders (1.0 thousand patients).

In 2014, 1.8 thousand patients were admitted to psychiatric day care wards for adults in Mazowieckie Voivodeship (12.6 thousand patients in Poland). The number of person-days reported in the voivodeship was:121.7 thousand. In Mazowieckie Voivodeship, there were 18 healthcare providers with day addiction treatment wards for adults that reported services for at least one patient.

In Poland, in 2014, 3.1 thousand hospitalisations were recorded in forensic psychiatry wards. For the entire country, the number of service providers who hospitalised at least one adult patient was 24, out of which more than 80% of hospitalisations were reported by half of them. The number of service providers who hospitalised patients under the age of 18 was 5. The most frequent cause of hospitalisation in case of adults was schizophrenia (1.56 thousand hospitalisations), and hyperkinetic disorders and behavioural disorders in case of children and adolescents.

An important element, from the perspective of treatment of psychiatric disorders in Poland is the comprehensiveness of psychiatric facilities. Taking into consideration the following treatment settings: day care unit, psychiatric clinic, ER or hospital emergency department, community mental health service and 24h psychiatric unit, it can be concluded that in 2014 there were 25 facilities in Poland offering all of the above in one county. In Mazowieckie Voivodeship, there were a total of 6 facilities offering 'comprehensive' treatment.

However, in 2014, no healthcare provider in Poland offered all of the following treatment facilities in one county: day care unit for children and adolescents, psychiatric clinic for children and adolescents,

ER for children and adolescents or hospital emergency department for children and adolescents, community mental health service and 24h psychiatric unit for children and adolescents.

Addictions – adults

In Mazowieckie Voivodeship, there were 385.5 hospitalisations for addiction per 100,000 adults, (in total: 16.8 hospitalisations in the region), which was the 8th highest figure among all voivodeships of Poland. The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 5.9% in Świętokrzyskie to 38.6% in Opolskie. Hospitalisations from outside the voivodeship accounted for 14.8% of all hospitalisations in Mazowieckie Voivodeship.

40 healthcare providers in Mazowieckie Voivodeships hospitalised at least one patient due to the diagnosis analysed here. Moreover, 80% of all hospitalisations for addictions in the voivodeship were provided by 9 healthcare providers.

Alcohol withdrawal syndrome treatment (detoxification) wards/centres had the highest proportion of hospitalisations in Mazowieckie Voivodeship (45.5%). Note the large proportion of hospitalisations on the general psychiatric ward, which is not directly dedicated to this diagnosis group (29.7%).

The percentage of emergency admissions due to addictions accounted for 47.8% of hospitalisations in Poland in 2014. In Mazowieckie Voivodeship it amounted to 63.6%. Scheduled admissions accounted for 44.7% of hospitalisations in Poland (33.7% in Mazowieckie Voivodeship). The percentage of hospitalisations followed by readmission with diagnosed addictions within 30 days was 9.2%, ranking it 5th among all voivodeships. The average length of stay of patients with addictions in 2014 in Poland was 22 days. In Mazowieckie Voivodeship it was 18 days.

Schizophrenia – adults

In Mazowieckie Voivodeship, there were 155.0 hospitalisations for schizophrenia per 100,000 adults, which was the 6th highest figure among all voivodeships of Poland. The absolute number of hospitalisations of adult patients with this disease was 6.7 thousand. The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 4.4% in Śląskie to 16.4% in Lubuskie. Hospitalisations from outside the voivodeship accounted for 11.1% of all hospitalisations in Mazowieckie Voivodeship.

21 healthcare providers in Mazowieckie Voivodeships hospitalised at least one patient due to the diagnosis analysed here. Moreover, 80% of all hospitalisations for schizophrenia in the voivodeship were provided by 7 healthcare providers.

(General) psychiatric wards had the largest proportion of hospitalisations in Mazowieckie Voivodeship (93.9%).

The percentage of emergency admissions due to schizophrenia accounted for 69.9% of hospitalisations in Poland in 2014. In Mazowieckie Voivodeship it amounted to 79.9%. Scheduled admissions accounted for 23.9% of hospitalisations in Poland (15.2% in the voivodeship). The percentage of hospitalisations followed by readmission with diagnosed schizophrenia within 14 days was 6.1%, ranking it 4th among all voivodeships. The average length of stay of patients with addictions in 2014 in Poland was 45 days. In Mazowieckie Voivodeship it was 44 days.

Organic disorders – adults

In Mazowieckie Voivodeship, there were 124.8 hospitalisations for organic disorders per 100,000 adults, which was the 4th highest figure among all voivodeships of Poland. The absolute number of hospitalisations for organic disorders in the analysed voivodeship was 5.4 thousand. The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 3.7% in

Świętokrzyskie to 15.2% in Opolskie. Hospitalisations from outside the voivodeship accounted for 10.1% of all hospitalisations in Mazowieckie Voivodeship.

27 healthcare providers in Mazowieckie Voivodeships hospitalised at least one patient due to the diagnosis analysed here. Moreover, 80% of all hospitalisations for organic disorders in the voivodeship were provided by 7 healthcare providers.

(General) psychiatric wards had the largest proportion of hospitalisations in Mazowieckie Voivodeship (74.4%).

The percentage of emergency admissions due to organic disorders accounted for 60.6% of hospitalisations in Poland in 2014. In Mazowieckie Voivodeship it amounted to 75.5%. Scheduled admissions accounted for 33.9% of hospitalisations in Poland (20.3% in Mazowieckie Voivodeship).

The percentage of hospitalisations followed by readmission with diagnosed addictions within 30 days in Mazowieckie Voivodeship was 5.8%, ranking it 6th among all voivodeships. The average length of stay of patients with organic disorders in 2014 in Poland was 34 days, the same as in the analysed voivodeship.

Mood disorders – adults

In Mazowieckie Voivodeship, there were 81.4 hospitalisations for organic disorders per 100,000 adults (in total: 3.5 thousand), which was the 6th highest figure among all voivodeships of Poland. The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 5.4% in Śląskie to 21.6% in Opolskie. Hospitalisations from outside the voivodeship accounted for 14.9% of all hospitalisations in Mazowieckie Voivodeship.

20 healthcare providers in Mazowieckie Voivodeships hospitalised at least one patient due to the diagnosis analysed here. Moreover, 80% of all hospitalisations for mood disorders in the voivodeship were provided by 7 healthcare providers.

(General) psychiatric wards had the largest proportion of hospitalisations in Mazowieckie Voivodeship (89.0%).

The percentage of emergency admissions due to mood disorders accounted for 58.9% of hospitalisations in Poland in 2014. In Mazowieckie Voivodeship it amounted to 72.0%. Scheduled admissions accounted for 39.3% of hospitalisations in Poland (26.4% in the voivodeship). The percentage of hospitalisations followed by readmission with diagnosed addictions within 30 days in Mazowieckie Voivodeship was 8.5%, ranking it 3rd among all voivodeships. The average length of stay of patients with schizophrenia in 2014 in Poland was 37 days, the same as in the analysed voivodeship.

Stress-related and somatoform anxiety disordersin children

In Mazowieckie Voivodeship, there were 51.8 hospitalisations of children and adolescents for stress-related and somatoform anxiety disorders per 100,000 children, which was the 3rd highest figure among all voivodeships of Poland. The absolute number of hospitalisations in the analysed voivodeship was 512.

The analysed diagnosis group is highly diversified in terms of hospitalisations of patients from outside the voivodeship: from 5.1% in Śląskie to 14.7% in Zachodniopomorskie. Hospitalisations from outside the voivodeship accounted for 13.1% of all hospitalisations in Mazowieckie Voivodeship.

32 healthcare providers in Mazowieckie Voivodeships hospitalised at least one patient due to the diagnosis analysed here. Moreover, 80% of all hospitalisations for stress-related and somatoform anxiety disorders in the voivodeship were provided by 6 healthcare providers.

2.10 Pregnancy, childbirth and the puerperium, and neonatal care

The section on inpatient treatment in the scope of pregnancy, childbirth and the puerperium analysed the following four categories of publicly funded services: childbirth, pregnancy disorders, pregnancy with abortive outcome and complications related to the puerperium. It analysed all hospital services with diagnoses with codes 000-099, Z32-Z36 and Z39 in the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD–10).

The section dedicated to inpatient treatment in the scope of neonatal care analysed publicly funded services with diagnoses with the following codes in the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10): P00-P96, R09 and Z38.

Among deliveries, four subgroups were identified: complicated unassisted deliveries complicated assisted deliveries, uncomplicated unassisted deliveries and uncomplicated assisted deliveries. The complication of a delivery was determined on the basis of the ICD-10 diagnosis and reported Diagnosis-Related Groups (DRGs). The fact, whether the delivery was assisted, was determined on the basis of reporting procedures (assisted procedures include caesarean section, vacuum and forceps-assisted deliveries).

Among pregnancy disorders, severe and minor disordered were identified.

The number of deliveries reported in inpatient care in 2014 in Poland was nearly 430 thousand. It is the minimal value of the number of pregnancies in Poland, as miscarriages not reported in inpatient care and pregnancies managed completely outside of the healthcare system financed by the public payer (the NFZ) were not included in the analysis.

In 2014 61.5 pregnancies with abortive outcome were reported in inpatient care in Poland, including 9.5 thousand in Mazowieckie Voivodeship.

In 2014, approx. 365 thousand childbirths were reported under contracts with the NFZ in Poland (including 57.5 thousand in Mazowieckie Voivodeship). Out of these deliveries, about 160 thousand were uncomplicated unassisted deliveries, 99 thousand uncomplicated assisted deliveries, 59 thousand complicated assisted deliveries and 47 thousand complicated unassisted deliveries. Therefore, the total number of recorded assisted deliveries was 158 thousand, and of the unassisted deliveries – 207 thousand. In Mazowieckie Voviodeships, these figures were 23.0 thousand, 14.1 thousand, 9.7 thousand and 10.7 thousand, respectively.

Approx. 15.8 thousand complicated deliveries were also preterm (in the whole country). In Mazowieckie Voivodeship there were 2.7 thousand preterm labours reported.

In 2014, about 359 thousand neonatal hospitalisations were reported in Poland. Among them, 211 thousand were reported as a part of the N20 Diagnosis-Related Groups (Newborn requiring normal care). This means that out of 100 neonatal hospitalisations, only 59 referred to the care for fully healthy newborns. In Mazowieckie Voivodeship, 53 per 100 neonatal hospitalisations were reported with Diagnosis-Related Group N20, which was the lowest value among all voivodeships. This rate varies significantly between healthcare providers; in particular, there is a group of providers for which N20 was not the prevailing Diagnosis-Related Groups, i.e. providers that reported mostly hospitalisations of newborns requiring increased care.

Care indices

Average length of stay (ALOS)

As far as the average length of stay (ALOS) **in the 'pregnancy with abortive outcome' group** is concerned,Mazowieckie Voivodeship had the sixth shortest average time of stay (1.95 days).

As for the average length of hospitalisation for**minor pregnancy disorders**, Mazowieckie Voivodeship was above the median for all voivodeships of Poland, but as for**severe pregnancy disorders**, it was below the median – fourth highest rate among all voivodeships for minor disorders (3.90 days) and third lowest for severe disorders (3.69 days). In the case of minor pregnancy disorders, the statistic in question was significantly overstated due to the three largest service providers with high average number of hospitalisation person-days. Their ALOS values were 5.4, 5.4 and 4.5, that is, 37%, 37% and 14% higher than the voivodeship average. As for severe pregnancy disorders, the largest healthcare provider had a very low ALOS value (1.9 days – 49% shorter than the voivodeship average), clearly underestimating the average length of stay in the region.

Hospitalisations due to **complicated unassisted deliveries** in Mazowieckie Voivodeship were among the shortest in Poland (ALOS = 6.07, the second lowest value among all voivodeships). As for complicated assisted deliveries, the voivodeship was close to the country average. The average length of stay in this group in Mazowieckie Voivodeship amounted to 8.86 days, which was the sixth lowest value among all voivodeships. In the case of complicated assisted deliveries, the average length of stay for the voivodeship was clearly underestimated due to the low ALOS of the largest healthcare provider (7.1 days, 20% shorter than the voivodeship average). In the case of complicated unassisted deliveries, the average length of stay for the voivodeship was clearly underestimated due to the low ALOS of the largest healthcare provider (4.3 days, 30% shorter than the voivodeship average).

Hospitalisations due to **uncomplicated assisted deliveries** in Mazowieckie Voivodeship were among the shortest in Poland (ALOS = 4.43, the third lowest value among all voivodeships). As for uncomplicated unassisted deliveries, the voivodeship was close to the country average. The average length of stay in this group in Mazowieckie Voivodeship amounted to 3.71 days, which was the sixth lowest value among all voivodeships. As for uncomplicated assisted deliveries, the analysed index was significantly affected by low average values of hospitalisation person-days reported by the three largest healthcare providers. Their ALOS values were 4.0, 3.6 and 3.9, that is, 10%, 19% and 13% lower than the voivodeship average. Of all healthcare providers in the voivodeships, over 75% recorded lower ALOS values than the country average in the 'uncomplicated unassisted deliveries' subgroup.

In terms of average length of stay (ALOS)**for neonatology settings**, Mazowieckie Voivodeship had the fifth shortest ALOS (4.34 days). The analysed index was significantly affected by low average values of hospitalisation person-days reported by the three largest healthcare providers. Their ALOS values were 3.9, 4.0 and 3.4, that is, 10%, 8% and 22% lower than the voivodeship average.

Labour and delivery structure

In 2014, Mazowieckie Voivodeship had a higher reporting rate of **complicated deliveries** than the country average. Complicated deliveries accounted for 35% of all childbirths in Mazowieckie Voivodeship, as compared with 29% in Poland. As for **assisted deliveries** (the groups are not separable), they were reported roughly as frequently as across Poland.41 in 100 deliveries in Mazowieckie Voivodeship were assisted. In Poland, the rate was 43 in 100 deliveries.

In the labour and delivery structure in Mazowieckie Voivodeship, **preterm labours** amounted to 4.7%, which was the third highest result among all voivodeships.

Risk-weighted spontaneous delivery ratio (RWSDR)

A risk-weighted spontaneous delivery ratio (RWSDR) is the relationship between the reported number of spontaneous (i.e. uncomplicated unassisted) deliveries and the expected number of such deliveries in the facility. The expected number of spontaneous deliveries was assessed taking into consideration the structure of women giving birth in terms of pregnancy disorders, age and previous caesarean sections. This rate should be interpreted as follows: 1 means that a hospital reported spontaneous deliveries as often as on average in Poland at the same referral level.Ratio values below 1 indicate a higher incidence of assisted and/or complicated deliveries than on average in Poland (considering the aforementioned stricture), and ratio values above 1 indicate a higher incidence of spontaneous deliveries than the average for hospitals at the same referral level.

At the national level, the following regularities can be observed. For the first and the second referral level, the value of RWSDR positively correlates with the annual number of deliveries in the hospital. In other words, the more deliveries are reported by the hospital at the first or second referral level, the higher is the percentage of spontaneous deliveries. In case of the third referral level, the inverse correlation is observed, i.e. the more deliveries were reported in 2014, the smaller thepart of these deliveries which was spontaneous.

Compared to the entire country, Mazowieckie Voivodeship had the following RWSDR values: 1.00 for the first referral level, 0.93 for the second referral level and 0.89 for the third referral level. Thus, the value for the first referral level was exactly the same (considering the structure of hospitalised patients) as the country average. As for the second referral level, there were 7% less spontaneous deliveries that the country average, and for the third referral level even 11% less. The various values of RWSDR among voivodeships result from the differences between the service providers. Values of the Risk-Weighted Spontaneous Delivery Ratio are presented in the Map of Healthcare Needs.

Rate of caesarean sections for uncomplicated pregnancies with no previous caesarean sections reported

The rate of caesarean sections for uncomplicated pregnancies with no previous caesarean sections reported is defined as the number of caesarean section births per 100 births ending uncomplicated pregnancies for which no previous caesarean sections have been reported. An uncomplicated pregnancy is defined as one during which the patient was not hospitalised due to any pregnancy disorders (either minor or severe) and the delivery was not classified as complicated. This index is supposed to reflect, as accurately as possible, the scale of caesarean sections ‘on request’ in the voivodeship and for individual healthcare providers.

At the national level, it can be observed that the number of deliveries in the hospital negatively correlates with the number of caesarean sections for uncomplicated pregnancies with no previous caesarean sections reported. This means that in Poland, on average, the more delivery procedures were managed by the service provider, the less frequently did it perform caesarean sections in case of uncomplicated pregnancies, where no performed caesarean section was reported in the previous years.

Mazowieckie Voivodeship had the seventh lowest episiotomy rate in uncomplicated pregnancies in Poland (27.8).

Rate values vary among healthcare providers in the voivodeship. They range from 5 to 62 caesarean sections per 100 uncomplicated pregnancies. The rate for Poland was 28.9.

Rate of spontaneous deliveries after previous caesarean sections for uncomplicated pregnancies

The rate of spontaneous deliveries for uncomplicated pregnancies with previous caesarean sections reported is defined as the number of spontaneous (i.e. uncomplicated unassisted) deliveries per 100 births for uncomplicated pregnancies (defined as above) for which any previous caesarean sections have been reported.

In the whole country, it can be seen that the number of childbirths in a hospital has a positive correlation with the rate of spontaneous deliveries in uncomplicated pregnancies. This means that in Poland, on average, the more delivery procedures were managed by the service provider, the more frequently did it carry out spontaneous (uncomplicated unassisted) deliveries in case of uncomplicated pregnancies, where a performed caesarean section was reported in the previous years.

In terms of the analysed rate, Mazowieckie Voivodeship had the ninth highest value in Poland. The rate value for the region was 8.1, whereas for all voivodeships it ranged from 4.9 to -25.8.

Due to the small denominator, the spontaneous delivery rate for uncomplicated pregnancies should be analysed only for the largest healthcare providers in the voivodeship. For the five providers with the highest denominator, rate values ranged from 1.5 to 8.4. This means that the largest facilities in the

voivodeship had a relatively low rate of spontaneous deliveries in cases where there is a history of previous caesarean sections (the rate for Poland was 9.2).

Episiotomy rate for uncomplicated spontaneous deliveries

The episiotomy rate for uncomplicated spontaneous deliveries is defined as the number of deliveries during which episiotomy with subsequent episiorrhaphy was performed per 100 uncomplicated spontaneous deliveries. An uncomplicated spontaneous delivery is defined as a delivery classified in the spontaneous delivery group following pregnancy during which the patient was not hospitalised due to any complications (either minor or severe) and for which no previous caesarean section was reported.

At the national level, it can be observed that the number of deliveries in the hospital negatively correlates with the number of spontaneous deliveries for uncomplicated pregnancies.

In Mazowieckie Voivodeship, the procedure of episiotomy with subsequent episiorrhaphy was reported in 62 cases per 100 uncomplicated spontaneous deliveries, which was the fourth highest rate among all voivodeships.

Reporting data quality

Further work should focus on improving the quality of data reported by individual healthcare providers. Two most significant cases are discussed below.

One of the most frequently reported Diagnosis-Related Groups (DRGs) in hospitalisations related to pregnancy, childbirth and the puerperium is M16 ("threatened or actual miscarriage, termination of missed abortion"). The significance of this DRG is ambiguous, as it is not allow to determine whether a miscarriage/pregnancy loss occurred in the course of hospitalisation. This problem was address in the maps of healthcare needs by means of analysing the patient's history, in particular by checking if the patient had a childbirth reported in the months following her hospitalisation due to M16; in such a case, the hospitalisation for M16 was classified as minor pregnancy disorder. Otherwise, such hospitalisation was classified as pregnancy with abortive outcome. This method may, however, be flawed: if M16 is not a miscarriage, but no childbirth is reported through the public healthcare system (e.g. was funded privately or took place abroad), then such a pregnancy is incorrectly classified as a pregnancy with abortive outcome. Therefore, from the point of view of data reporting and analysis by the National Health Fund, it would be desirable to divide the M16 group so as to make it possible to determine when a pregnancy had an abortive outcome. This would give a much more accurate picture of the gynaecology and maternity care in Poland.

One problematic issue when analysing the pregnancy, childbirth and the puerperium group was to identify preterm labours from among all childbirths. Since it is impossible to determine, based on administrative data alone, when a pregnancy started; only a correctly reported ICD-10 (O60 – preterm labour) makes it possible to determine if a birth was preterm or full-term. However, only 15.8 thousand out of approx. 365 thousand childbirths (approx. 4.3%) were classified as preterm labours, which seems to be an underestimation. Another reporting problem, as far as preterm labours are concerned, is the possibility of reporting O60 with either of the Diagnosis-Related Groups N04, N05, N06, N07 (pregnancy disorders) and then reporting childbirth as part of a subsequent hospitalisation. This makes it much more difficult to determine the actual number of preterm labours in Poland. Considering the high costs of preterm labour care, it is reasonable to demand an improvement of reporting quality in this regard.

2.11 Diabetes mellitus

Diabetes mellitus has been analysed in two separate groups of patients: children and adults. This document summarises the key information on diabetes mellitus. Detailed analysis for children and for adults can be found in the Map of Healthcare Needs for diabetes mellitus.

Diabetes mellitus in adults

The number of hospitalisations for diabetes mellitus in adults in the analysed voivodeship was 10.79 thousand. Of all hospitalisations for diabetes mellitus in adults, one-day hospitalisations accounted for 3.2% (1.4% in Poland). However, for some healthcare providers this percentage amounted to as much as 58.6% (only healthcare providers reporting at least 100 hospitalisations were considered).

An analysis of hospitalisation breakdown by scope suggests that hospitalisations for diabetes mellitus in adults in Mazowieckie Voivodeship took place predominantly on internal medicine wards (68% of hospitalisations).

The number of hospitalisations for acute diabetic complications in adults (diabetic coma, diabetic ketoacidosis and diabetes with other defined complications) in Mazowieckie Voivodeship was 1,222, that is, 11% of all hospitalisations of adults due to diabetes mellitus in the voivodeship. These hospitalisations were provided in 57 hospitals across the voivodeship (by a total of 86% of healthcare providers reporting hospitalisation for diabetes mellitus).

This suggests that diabetes mellitus is a disease that co-occurs with many others. In Poland, diabetes mellitus was most often reported as comorbidity in hospitalisations due to the following diagnoses (according to ICD-10):

- E66 - Obesity (24% of hospitalisations)
- E78 - Metabolic, lipoprotein and lipidemic disorders (18% of hospitalisations)
- H26 - Other forms of cataract (14% of hospitalisations)
- I11 - Hypertensive heart disease (14% of hospitalisations).

One very important problem relating to diabetes is diabetic foot amputation. Poland has a large proportion of primary major lower limb amputations for vascular reasons (i.e. not preceded by a vascular intervention within 4 years prior to the amputation, according to the definition determined by the availability of data from the reporting system). In Poland, it accounted for 51.6% of major amputations. Detailed information on the subject can be found in the detailed map for the analysed voivodeship focusing on diseases of the aorta and peripheral vessels, including hypertension.

Insulin pump fitting was reported for 138 adult patients by year of birth in Mazowieckie Voivodeship (in SOK (Services Contracted Separately), AOS (Specialist Outpatient Care) and inpatient treatment). Additional information on insulin pumps is provided under ICD-9-CM procedure 86.081, which encompasses insulin pump insertion or adjustment. In the analysed voivodeship, this procedure was reported for a total of 1,028 adult patients (by year of birth).

Emergency admissions of adults due to diabetes mellitus accounted for 74.6% of hospitalisations in the analysed voivodeship (in Poland:66.8%). In the group of healthcare providers hospitalising more than 100 patients, this percentage ranged from 8.4% to 100.0%.

The average age of adult patients hospitalised for diabetes mellitus was 63 y.o. for Poland and 61 y.o. for Mazowieckie Voivodeship. Moreover, significant differences in terms of average length of stay were identified. This may be due to the fact that hospitals vary in terms of the Charlson comorbidity index, which describes comorbidities in hospitalised patients.

Diabetes mellitus in children

The number of hospitalisations for diabetes mellitus in children in the analysed voivodeship was 2.08 thousand. Of all hospitalisations for diabetes mellitus in children, one-day hospitalisations accounted for 6.1% (17.1% in Poland). In Mazowieckie Voivodeship, hospitalisations of children from outside the voivodeship accounted for 12.5% of those.

The concentration of services in Mazowieckie Voivodeship is high: 59% of hospitalisations for diabetes mellitus in children took place in 1 hospital (Independent Public Paediatric Clinical Hospital) (3% of all hospitals treating patients below the age of 18 y.o. with that diagnosis in the voivodeship).

The number of hospitalisations for acute diabetic complications in children (diabetic coma, diabetic ketoacidosis and diabetes with other defined complications) in Mazowieckie Voivodeship was 113, that is, 5% of all hospitalisations of children due to diabetes mellitus in the voivodeship. In Poland, it amounted to 1.08 thousand (12.6% of all hospitalisations for diabetes mellitus in children). Hospitalisations due to acute diabetic complications in children were provided in 16 hospitals in the voivodeship (by 53% of healthcare providers reporting hospitalisations for diabetes mellitus in children).

Insulin pump fitting was reported for 345 patients below the age of 18 y.o. by year of birth in Mazowieckie Voivodeship (in SOK, AOS and inpatient treatment). Additional information on insulin pumps is provided under ICD-9-CM procedure 86.081, which encompasses insulin pump insertion or adjustment. In the analysed voivodeship, this procedure was reported for a total of 1,457 patients below the age of 18 y.o. (by year of birth).

2.12 Neoplasms of haematopoietic or lymphoid tissue

Neoplasms of haematopoietic or lymphoid tissue have been analysed separately for children and for adults. As for adult patients, the following groups were identified based on ICD-10:Acute neoplasms of haematopoietic tissue, Chronic neoplasms of haematopoietic tissue, Precursor B- and T-cell neoplasms, Mature B-cell neoplasms, Mature T- and NK-cell neoplasms, Hodgkin's lymphoma, Histiocytic and dendritic cell neoplasms, Transplantations. No disease subgroups were identified for children; however, transplantations were analysed separately. This document summarises key information for the following subgroups: Acute neoplasms of haematopoietic tissue, Chronic neoplasms of haematopoietic tissue and Mature B-cell neoplasms. A detailed analysis of other subgroups, and of children and adults separately is presented in the map of healthcare needs for Neoplasms of haematopoietic or lymphoid tissue.

In 2014, 9.6 thousand hospitalisations due to diagnoses classified as neoplasms of haematopoietic or lymphoid tissue in adults were reported in Mazowieckie Voivodeship. Number of hospitalisations per 100 thousand people was 180.6. The largest subgroup in terms of hospitalisations in Mazowieckie Voivodeship is the ICD-10 diagnosis set called Mature B-cell neoplasms. Hospitalisations with the diagnosis belonging to this subgroup accounted for 46.8% hospitalisations with analised diagnosis.

Acute neoplasms of haematopoietic tissue

716 hospitalisations of adults from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 adults was 16.48, which was the 6th highest value among all voivodeships.80% of all hospitalisations were provided by a total of 6 hospitals. Hospitalisations from outside the voivodeship accounted for 5.7% of those.71.2% of hospitalisations were reported for haematology wards and 20.9% for internal medicine wards (67.5% in the scope of haematology and 21.8% in the scope of internal medicine). Among those, the ‘INTENSIVE TREATMENT OF ACUTE LEUKAEMIA > 17 y.o.’ (S01) group accounted for 70 hospitalisations, provided in a total of 3 facilities in

Mazowieckie Voivodeship. Moreover, there were 520 hospitalisations reported for chemotherapy, 94.8% of which took place in 3 facilities.

Catalogue 1a and 1b hospitalisations of patients from outside the voivodeship were provided by 3 healthcare providers providing more than 50[34] hospitalisations, accounting for 5.2% to 8.6% of all hospitalisations. On the one hand, this may suggest that the facilities in question are highly specialised (in the case of diagnostic hospitalisations), but on the other hand, this may also indicate that patients are not successfully referred to facilities located closer to home (in the case of hospitalisations due to transfusion of blood components or treatment of infections). A further, more in-depth analysis of the causes of such hospitalisations is recommended.

Chronic neoplasms of haematopoietic tissue

3782 hospitalisations of adults from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 adults was 87.03, which was the 2nd highest value among all voivodeships.80% of all hospitalisations were provided by a total of 10 hospitals. Hospitalisations from outside the voivodeship accounted for 8.6% of those.60.5% of hospitalisations were reported for haematology wards and 30.5% for internal medicine wards (47.6% in the scope of haematology and 31.0% in the scope of internal medicine). Of these, groups S03 and S04 accounted for 1413 and 916 hospitalisations, respectively.

Moreover, there were 853 hospitalisations reported for chemotherapy, 99.5% of which took place in 6 facilities.

Catalogue 1a and 1b hospitalisations of patients from outside the voivodeship were provided by 12 healthcare providers providing more than 50 hospitalisations, accounting for 1.4% to 24.5% of all hospitalisations. On the one hand, this may suggest that the facilities in question are highly specialised (in the case of diagnostic hospitalisations), but on the other hand, this may also indicate that patients are not successfully referred to facilities located closer to home (in the case of hospitalisations due to transfusion of blood components or treatment of infections). A further, more in-depth analysis of the causes of such hospitalisations is recommended.

331 patients in Mazowieckie Voivodeship were treated under the medication programme titled “Treatment of chronic myeloid leukaemia”, that is, 14.61% of all patients treated in Poland. The region was characterised by exceptionally high positive migration rate of patients undergoing the programme:180. The utilisation rate of hospitalisations for this medication programme varies significantly among healthcare providers in Poland.

The number of patients with chronic neoplasms of haematopoietic tissue undergoing chemotherapy in 2015 and 2016 is likely to increase due to adding a medication used in the treatment of neoplasms coded as D46 (myelodysplastic syndromes) to the chemotherapy catalogue.

Blood transfusion in neoplasms of haematopoietic tissue

575 hospitalisations on haematology wards for the sole purpose of transfusion of blood components were reported in Mazowieckie Voivodeship; they accounted for 20.55% of all catalogue 1a and 1b hospitalisations of patients with acute and chronic neoplasms of haematopoietic tissue provided on haematology wards.

A further analysis is recommended to reconsider the need for hospitalising patients exclusively for blood transfusion in highly specialised facilities.

34An arbitrary threshold established to exclude movements of single patients, e.g. to facilities located close to the border between two voivodeships.

Mature B-cell neoplasms

4508 hospitalisations of adults from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 adults was 103.74, which was the 4th highest value among all voivodeships.80% of all hospitalisations were provided by a total of 5 hospitals. Hospitalisations from outside the voivodeship accounted for 10.8% of those.75.4% of hospitalisations were reported for haematology wards and 11.2% for internal medicine wards (64.6% in the scope of haematology and 12.4% in the scope of internal medicine). Of these, groups S03 and S04 accounted for 1436 and 2139 hospitalisations, respectively.

Moreover, there were 6884 hospitalisations reported for chemotherapy, 99.7% of which took place in 10 facilities.

Catalogue 1a and 1b hospitalisations of patients from outside the voivodeship were provided by 9 healthcare providers providing more than 50 hospitalisations, accounting for 1.2% to 16.5% of all hospitalisations. On the one hand, this may suggest that the facilities in question are highly specialised (in the case of diagnostic hospitalisations), but on the other hand, this may also indicate that patients are not successfully referred to facilities located closer to home (in the case of hospitalisations due to transfusion of blood components or treatment of infections). A further, more in-depth analysis of the causes of such hospitalisations is recommended.

357 patients in Mazowieckie Voivodeship were treated under the medication programme titled “Treatment of malignant lymphomas”, that is, 20.01% of all patients treated in Poland. The region was characterised by exceptionally high positive migration rate of patients undergoing the programme:224. In addition, the utilisation rate of hospitalisations for this medication programme varies significantly among healthcare providers in Poland (ranging from 60.6% to 100.0%).

155 patients in Mazowieckie Voivodeship were treated under the medication programme titled “Lenalidomide in treatment of patients with resistant or recurring multiple myeloma”, that is, 20.31% of all patients treated in Poland. The region was characterised by exceptionally high positive migration rate of patients undergoing the programme:111. The utilisation rate of hospitalisations for this medication programme varies significantly among healthcare providers in Poland.

Transplantations

In 2014, there were 1278 bone marrow transplantations in adults in Poland (regardless of the diagnosis reported), 262 of which (20.50%) were performed in Mazowieckie Voivodeship. They were performed in a total of 4 facilities, 3 of which provided all the services in question (i.e. items S21, S22, S23).

2.13 Diseases of the blood and the immune system

The statistics presented in the Map of Healthcare Needs for the ‘Diseases of blood and immune system’ group might be, in the opinion of medical experts working with the Ministry of Health and according to data presented in literature, understated to a lesser or greater extent, which results directly from the quality of the reporting data, especially as far as the reporting of ICD-10 diagnoses is concerned.

Based on the ICD-10 classification, diseases of blood and immune system were divided into: Deficiency anaemias, Haemolytic anaemias (hereditary), Haemorrhagic conditions (acquired), Aplastic anaemias, Other anaemias, Coagulation defects and other haemorrhagic conditions (hereditary), Coagulation defects and other haemorrhagic conditions (acquired), Diseases of the immune system (primary), Diseases of the immune system (secondary), Diseases of the immune system (unspecified), Porphyria. This document summarises the key information for the following subgroups: Deficiency anaemias, Other anaemias, Coagulation defects and other haemorrhagic conditions (acquired) and

Other diseases of blood in adult patients. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for the diseases of the blood and immune system.

In 2014, about 10.25 thousand hospitalisations of adult patients due to diagnoses classified as diseases of blood and immune system were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 adult inhabitants was 192. In 2014, about 3.68 thousand hospitalisations of children due to diagnoses classified as diseases of blood and immune system were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 children was 69.

Deficiency anaemias

2576 hospitalisations from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 48.30, which was the 3rd highest value among all voivodeships.80% of all hospitalisations were provided by a total of 27 hospitals. Hospitalisations from outside the voivodeship accounted for 5.9% of those.26.7% of hospitalisations were reported for haematology wards and 64.1% for internal medicine wards (26.4% in the scope of haematology and 66.5% in the scope of internal medicine).

Causes of hospitalisation from group S05 require further analysis, as in the event of prolonged diagnostics, services could be provided in outpatient settings (especially for patients below the age of 65 y.o., accounting for 30 to 80% of all hospitalised patients).

According to the experts assisting the Ministry of Health, diagnostics and treatment of deficiency anaemias do not require highly specialised haematology procedures, so they can be performed closed to the patient's home, in primary care settings, and any necessary hospital-based diagnostics can be provided in units other than specialised haematology wards.

A vast majority of healthcare providers hospitalise patients with deficiency anaemias on internal medicine wards on an emergency basis, although emergency admission should be for patients with severe, life-threatening anaemia. A further, more in-depth analysis is recommended in order to find out whether patients hospitalised on an emergency basis appeared in the healthcare system for the first time. Correct diagnostics and properly implemented and monitored treatment in primary care eliminates almost completely the need for emergency admissions.

Scheduled hospitalisations of patients with deficiency anaemias may result from the need to administer intravenous iron preparations. Due to the risk of hypersensitivity reactions, intravenous iron preparations have to be administered by trained staff in a location with readily available resuscitation equipment. After the administration of intravenous iron preparations, the patient should be monitored for at least 30 minutes.

Administration of intravenous iron preparations in inpatient settings may pose a burden for haematology wards providing day care chemotherapy. Administration of intravenous iron preparations as part of day care units other than specialised haematology wards, e.g. internal medicine wards or hospital treatment rooms could have a positive impact on the availability of the service in question.

Other anaemias

3,138 hospitalisations from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 58.84, which was the 5th highest value among all voivodeships.80% of all hospitalisations were provided by a total of 26 hospitals. Hospitalisations from outside the voivodeship accounted for 4.3% of those.12.8% of hospitalisations were reported for haematology wards and 75.3% for internal medicine wards (11.9% in the scope of haematology and 77.2% in the scope of internal medicine). Most hospitalisations were provided on internal medicine

wards due to the fact that, in the majority of cases, anaemias coded as D62, D63 and D64 are unrelated to haematology diseases.

In Mazowieckie Voivodeship, 11.9% of those were reported for haematology wards in the scope of haematology. A further, more in-depth analysis of the grounds for hospitalisation on haematology wards when there is no need for highly specialised diagnostics or haematology treatment.

Coagulation defects and other haemorrhagic conditions (acquired)

1432 hospitalisations from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 26.85, which was the highest value among all voivodeships.80% of all hospitalisations were provided by a total of 6 hospitals. Hospitalisations from outside the voivodeship accounted for 15.4% of those.18.9% of hospitalisations were reported for haematology wards and 66.3% for internal medicine wards (17.7% in the scope of haematology and 67.1% in the scope of internal medicine).

Other diseases of blood

1071 hospitalisations from catalogues 1a and 1b were reported in Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 20.08, which was the 5th highest value among all voivodeships.80% of all hospitalisations were provided by a total of 8 hospitals. Hospitalisations from outside the voivodeship accounted for 11.9% of those.53.5% of hospitalisations were reported for haematology wards and 24.4% for internal medicine wards (52.1% in the scope of haematology and 26.1% in the scope of internal medicine).

2.14 Benign neoplasms

Benign neoplasms were divided based on the ICD-10 classification into 10 subgroups, according to their location. This document summarises the key information. A detailed analysis of the subgroups is presented in the Map of Healthcare Needs for benign neoplasms.

The total number of hospitalisations with a diagnosis from the benign neoplasms and neoplasms of an uncertain or unknown character group (excluding those patients that were later diagnosed with cancer and as such have already been included in the map of healthcare needs for malignant neoplasms) in Poland was 280.1 thousand; 80% of those hospitalisations were reported by 314 healthcare providers (36.9% of providers reporting hospitalisations from the analysed group).

As for individual subgroups, the highest number of hospitalisations were due to causes from the subgroup of benign neoplasms of sex organs (68.4 thousand), whereas the fewest hospitalisations were due to other benign neoplasms (1.6 thousand).

43.8 hospitalisations due to benign neoplasms were reported in Mazowieckie Voivodeship by a total of 111 healthcare providers; this was the highest value in the whole country. The median number of hospitalisations was 236. For 55 healthcare providers, the number of hospitalisations recorded was above the median. At the same time, 79 healthcare providers reported fewer than 100 hospitalisations in a year.

As for individual subgroups, the highest number of hospitalisations in the analysed voivodeship were due to causes from the subgroup of benign neoplasms of the gastrointestinal tract (10.8 thousand), whereas the fewest hospitalisations were due to other benign neoplasms (0.2 thousand).

6 voivodeships had positive migration rates, with the highest in Mazowieckie Voivodeships. The migration rate in the analysed voivodeship was 2728, the highest in the country. A positive migration

rate indicates the inflow of patients from adjacent voivodeships and may suggest good accessibility of services. Based on the data, it can be concluded that patients migrate to academic centres and oncology centres.

Patients who were later diagnosed with malignant neoplasms had their data excluded from the analysis of benign neoplasms. This patient group is included in the Map of Healthcare Needs for malignant neoplasms. However, in order to obtain a clear picture of diagnoses of uncertain or unknown character, all the information on neoplasms of uncertain or unknown character is included in the analysis. The analysed disease group includes a large proportion of diagnoses of uncertain or unknown character (41.7% in Poland). The largest percentage of such diagnoses was reported in Świętokrzyskie Voivodeship (51.6%). In Mazowieckie Voivodeship, 20.1 thousand hospitalisations due to neoplasms of uncertain or unknown character were reported (36.1% of all diagnoses from the analysed group in the voivodeship), most of them in the subgroup of benign neoplasms of the urinary tract (96.6%). Based on the data, it can be concluded that reporting of diagnoses in the analysed group was not accurate or that it was impossible to carry out full diagnostics of a patient or obtain any conclusive results of the histopathological examination before discharging the patient. This may also be the result of the lack of a uniform histopathological classification (histopathological classification glossary) for histopathology laboratories. It should be also noted that in the case of 84.0 thousand hospitalisations with a diagnosis of uncertain or unknown character, patient reappeared later with a cancer diagnosis (in Mazowieckie Voivodeship this was the case for 11.3 thousand hospitalisations). This was the case in 55.1% of hospitalisations due to neoplasms of an uncertain or unknown character in Poland. In Mazowieckie Voivodeship this percentage was 56.3%.

During the analysis the varied percentage of surgical hospitalisations was recorded. Of individual subgroups reported in the analysed voivodeship, the highest value was reported for diagnoses from the benign breast neoplasms subgroup (94.1%), and the lowest for the benign neoplasms of respiratory and intrathoracic organs subgroup (28.2%). In case of benign neoplasms, a high rate of surgical hospitalisations should be considered correct.

According to the data, the 30-day readmission rate (with a diagnosis from the analysed group, in any hospital) in Mazowieckie Voivodeship was highest for the subgroup of benign endocrine neoplasms (4.1%) and lowest for the subgroup of benign breast neoplasms (1.0%). For 87 healthcare providers in the voivodeship, it was higher than 5%. In these cases, it seems appropriate to analyse the reasons for such a state of affairs.

Differences between healthcare providers in terms of the length of stay were also observed. In the group of benign neoplasms (including those of uncertain or unknown character), the average length of stay for Poland was 3.9 days. The longest ALOS was recorded for the subgroup of benign neoplasms of the nervous system (9.9 days) and the shortest for the subgroup of benign neoplasms of respiratory and intrathoracic organs (1.5 days).21 out of 111 healthcare providers in Mazowieckie Voivodeship reported length of stay above the voivodeship average. As for those healthcare providers that reported long average length of stay, this situation needs to be analysed, taking into consideration the fact that it may be so due to waiting for the result of a conclusive histopathological examination (which has a positive impact on reporting only) or due to the comorbidity index (patients with a higher index require longer preparation for the procedure and a longer related hospitalisation).

2.15 Congenital disorders

Congenital disorders were divided, based on the ICD-10 classification, into: multiple disorders, including chromosome aberrations; defects of blood vessels; hernias; defects of sex organs; defects of the nervous system; eye, ear, face, neck defects; others, including defects of the respiratory system, cleft lip and/or palate, gastrointestinal tract defects, defects of the urinary system, defects of the musculoskeletal system, defects of the integumentary system. In the voivodeship, there were 12,437 hospitalisations due to congenital disorders. This document summarises the key information for the

defects of the urinary system, gastrointestinal tract defects and hernias. A detailed analysis of the other subgroups is presented in the Map of Healthcare Needs for congenital disorders.

In Mazowieckie Voivodeship, in the groups of defects of the urinary system (newborns and infants), gastrointestinal tract defects (newborns and infant), defects of the urinary system (children aged 1 y.o. and over), gastrointestinal tract defects (children aged 1 y.o. and over), hernias, 79%, 78%, 71%, 77% and 78% of hospitalisations, respectively, were provided in 10, 4, 3, 1, 7 hospitals, respectively (25%, 14%, 15%, 11%, 37%, respectively, of all hospitals in the voivodeship treating patients with those diagnoses).

The DRGs most frequently used to report hospitalisations in the defects of the urinary system (1 y.o. and over) group, gastrointestinal tract defects (1 y.o. and over), hernias were: L84 OTHER DISEASES OF KIDNEYS, F34 MEDIUM AND ENDOSCOPIC PROCEDURES ON THE DIGESTIVE TRACT, F73 ABDOMINAL HERNIA SURGERIES (36.7%, 36.9% and 80.6% of hospitalisations reported with DRGs in the voivodeship, respectively).

In the groups: defects of the urinary system, gastrointestinal tract defects, hernias in Mazowieckie Voivodeship, there were 1, 9, 4 healthcare providers, respectively, reporting at least one, but no more than twelve specialised procedures. Moreover, these facilities performed fewer than 50 specialist procedures for all congenital disorders. It is worth monitoring these statistics for potential impact on the inferior quality of treatment due to the small experience of the provider.

In Mazowieckie Voivodeship, the median length of stay of patients with urinary tract defects (newborns and infants), gastrointestinal defects (newborns and infants), urinary system defects (children over 1 year of age), gastrointestinal tract defects (children over 1 year of age), hernias was 3, 5, 2, 1, 2 days, respectively (in Poland: 3, 6, 2, 2, 2 days, respectively). In Mazowieckie Voivodeship there were 0 and 14 healthcare providers that reported one or two patients with diagnoses that should be treated in neonatal age in the groups of urinary tract defects of and gastrointestinal tract defects, respectively. It needs to be verified why they are not treated in the most experiences hospitals in the voivodeship.

Part III
Inpatient Healthcare – Module B

3.1 Metabolic diseases

Metabolic diseases were divided, based on the ICD-10 classification, into: malnutrition, other nutritional deficiencies, obesity, metabolic disorders, water-electrolyte balance disorders, osteoporosis and other metabolic disorders of bone, vitamin D deficiency. This document summarises the key information for these disease groups. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for metabolic diseases.

Malnutrition

The number of hospitalisations per 100,000 adults varied between voivodeships (20.53 hospitalisations per 100,000 adults in Mazowieckie Voivodeship (total number of hospitalisations due to malnutrition in the voivodeship: 892), as compared to 17.21 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 1.75% to 6.78%. In Mazowieckie Voivodeship it amounted to 4.82%. For patients under 18 years of age, the number of hospitalisations per 100,000 children also varied between voivodeships (22.77 hospitalisations per 100,000 children in Mazowieckie Voivodeship against 9.10 nationwide). Medical experts concluded that this variation most likely results from reporting differences rather than from the actual epidemiology. It should be also noted that the above differences may result from the presence of highly specialised facilities treating a specific disease group in the same voivodeship and the adjacent regions or from the lack thereof, as well as from location and demographic structure of the voivodeship and the adjacent ones.

80% of all hospitalisations with malnutrition as the main diagnosis in Mazowieckie Voivodeship were provided by 23 hospitals. Among adults, the largest age group was 55-85 y.o. Among children, the largest age group was 0-3 y.o. Distribution of hospitalisations of adult patients by ward was as follows: internal diseases ward (73.21%), surgical ward (12.22%) and gastroenterology ward (5.49%) (in the case of children: paediatric ward (53.33%), paediatric gastroenterology ward (25.78%) and neonatal ward (17.33%)).

The analysis of patient admission types indicates that in Mazowieckie Voivodeship the percentage of emergency admissions of adults (brought in by paramedics) was 31.17% (of children: 1.78%) (value for Poland: 22.42% - adults, 2.24% - children), the percentage of emergency admissions of adults (other cases) was 53.92% (of children: 26.22%) (value for Poland: 57.41% - adults, 50.99% - children) and the percentage of scheduled admissions of adults was 14.8% (of children: 72%) (value for Poland: 19.81% - adults, 46.64% - children).

However, the analysis of discharge type indicates that there is a high percentage of deaths during hospitalisation, where the main cause was malnutrition in adults (in Mazowieckie Voivodeship: 28.14%, in Poland: 26.05%). These values are probably due to the nature of the disease. The analysis of discharge types shows that no deaths were recorded due to malnutrition of children in the voivodeship.

The large share of readmissions (within 30 days, to the same hospital with any diagnosis) in Mazowieckie Voivodeship (10.43%) may suggest that hospitalised patients suffer from several conditions and require comprehensive and frequent care. This thesis is confirmed by the value of the Charlson index (the share of patients with an index value higher than 0 in Poland was 56.80%).

Other nutritional deficiencies

The number of hospitalisations per 100,000 adults varied between voivodeships (20.71 hospitalisations per 100,000 adults in Mazowieckie Voivodeship against 24.17 nationwide.

The total number of hospitalisations in the analysed subgroup in the voivodeship was 900). These differences cannot be explained by patient migration; the percentage of hospitalization of patients from outside the voivodeship ranges from 0% to 6.51%, and in the Mazowieckie Voivodeship it was 4.22%. Medical experts concluded that this variation most likely results from reporting differences rather than from the actual epidemiology.

80% of all hospitalisations for other nutritional deficiencies in adults as the main diagnosis in Mazowieckie Voivodeship were provided by 15 hospitals. Data analysis shows that the distribution of hospitalisations due to other nutritional deficiencies across wards was as follows: internal diseases ward (86.33%), haematology ward (6%) and gastroenterology ward (2.22%).

Following an analysis of patient admission types, it can be concluded that the percentage of emergency hospitalisations (brought in by paramedics) was 12.89% (10.88%% in Poland), the percentage of emergency hospitalisations (other cases) was 69.56% (61.25% in Poland), and the percentage of scheduled hospitalisations was 17.44% (27.77% in Poland).

A large share of rehospitalisations in Mazowieckie Voivodeship (12.33%) may suggest that these are rehospitalisations of patients suffering from many diseases, requiring comprehensive and frequent care. Among adults, the largest age group was 65-90 y.o. This thesis is confirmed by the value of the Charlson index (the share of patients with an index value higher than 0 in Poland was 27.30%). The proportion of patients above 80 years of age, hospitalised due to other nutritional deficiencies as the main diagnosis was 27.4% for Poland and 31.58% for Mazowieckie Voivodeship.

Metabolic disorders

The number of hospitalisations per 100,000 adults varied significantly between voivodeships (61.33 hospitalisations per 100,000 adults in Mazowieckie Voivodeship against 48.81 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 2.43% to 19.75%. In Mazowieckie Voivodeship it amounted to 16.66%. For patients under 18 years of age, the number of hospitalisations per 100,000 children also varied significantly between voivodeships (241.19 hospitalisations per 100,000 children in Mazowieckie Voivodeship against 95.22 nationwide). The total number of hospitalisations due to metabolic disorder in the voivodeship amounted to 5048.

In Mazowieckie Voivodeship, 13 hospitals provided 80% of all hospitalisations of adults where the main diagnosis was metabolic disorders (for children: 80% of all hospitalisations were provided by 3 hospitals). Data analysis suggests that adult patients are mainly hospitalised on internal diseases wards (67.69%) and haematology wards (13.55%). Child and adolescent patients are mainly hospitalised on paediatric wards (63.11%) and paediatric gastroenterology wards (11.67%).

The proportion of patients above 80 years of age, hospitalised due to metabolic disorders as the main diagnosis was 7.69% for Poland and 6.38% for Mazowieckie Voivodeship.

The decrease in the number of hospitalisations of young adults may be caused by problems with transition from child healthcare to adult care (one of the reasons may be the lack of specialised centres for hospital treatment of adults).

An important issue in metabolic disorders in children is access to medication programs.

Facilities implementing the medication programme “Treatment of severe congenital hyperhomocysteinaemia” were located in 2 voivodeships (3 facilities, 17 patients in the whole country).

Facilities implementing the medication programme “Treatment of Hurler's disease” were located in 11 voivodeships (14 facilities, 17 patients in the whole country). The high number of encounters per patient is noticeable (42.7), which results from the specificity of the medication administered.

Facilities implementing the medication programme “Treatment of mucopolysaccharidosis type II (Hunter syndrome)” were located in 7 voivodeships (13 facilities, 20 patients in the whole country). The

high number of encounters per patient is noticeable (48.8), which results from the specificity of the medication administered.

Facilities implementing the medication programme “Treatment of Pompe’s disease” were located in 10 voivodeships (15 facilities, 33 patients in the whole country). The high number of encounters per patient is noticeable (23.4), which results from the specificity of the medication administered.

Facilities implementing the medication programme “Treatment of mucopolysaccharidosis type IV (Maroteaux-Lamy syndrome)” were located in 2 voivodeships (2 facilities, 2 patients in the whole country). The high number of encounters per patient is noticeable (40.5), which results from the specificity of the medication administered. No patient was recorded in Mazowieckie Voivodeship.

Facilities implementing the medication programme “Treatment of type 1 Gaucher’s disease” were located in 4 voivodeships (4 facilities, 6 patients in the whole country).

At the next stage of the analysis it is justified to analyse the migration of patients participating in drug programmes.

Water-electrolyte balance disorders

The number of hospitalisations per 100,000 adults varies between voivodeships (45.68 hospitalisations per 100,000 adults in Mazowieckie Voivodeship (total number of hospitalisations of adults in the subroup in the voivodeship: 1985), as compared to 42.88 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 1.57% to 6.14%. The migration rate depends on the presence of highly specialised facilities dedicated to water-electrolyte balance disorders in the same voivodeship and the adjacent regions or from the lack thereof, as well as on the location and demographic structure of the voivodeship and the adjacent ones.

For patients under 18 years of age, the number of hospitalisations per 100,000 children also varied between voivodeships (67.10 hospitalisations per 100,000 children in Mazowieckie Voivodeship against 65.61 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 1% to 18%. In Mazowieckie Voivodeship it amounted to 4.22%.

80% of all hospitalisations for water-electrolyte balance disorders in adults as the main diagnosis in Mazowieckie Voivodeship were provided by 28 hospitals. Data analysis suggests that adult patients are mainly hospitalised on internal diseases wards (91.64%) and nephrology wards (1.81%).

80% of all hospitalisations for water-electrolyte balance disorders as the main diagnosis in Mazowieckie Voivodeship were provided by 3 hospitals. Data analysis indicates that the most important wards on which children were hospitalised were: paediatric ward (97.89%), paediatric endocrinology ward (0.6%) and paediatric nephrology ward (0.45%).

A high proportion of hospitalised children diagnosed with water-electrolyte disorders occurred in the youngest patients group, which results from the necessity of early intervention in this age group (parenteral fluids / diagnostics).

Osteoporosis and other metabolic disorders of bone

The number of hospitalisations per 100,000 adults varied between voivodeships (54.08 hospitalisations per 100,000 adults in Mazowieckie Voivodeship against 41.99 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 1.97% to 18.55%. In Mazowieckie Voivodeship it amounted to 10.72%. The number of hospitalisations of patients under the age of 18 per 100,000 children also varied between voivodeships (11.74 hospitalisations per 100,000 children in Mazowieckie Voivodeship against 20.38 nationwide). The percentage of hospitalisations of patients from outside the voivodeship ranges from 0% to 33.33%. In Mazowieckie

Voivodeship it amounted to 15.52%. The total number of hospitalisations for osteoporosis in the voivodeship was 2466. The variation likely does not result from actual epidemiology, but rather from differences in reporting and localisation of specialist centres.

80% of all hospitalisations for osteoporosis and other metabolic disorders of bone in children as the main diagnosis in Mazowieckie Voivodeship were provided by 11 hospitals. Data analysis shows that the most important wards where adult patients were hospitalised were: trauma and orthopaedic surgery (47.96%), internal diseases (26.94%) and endocrinology (12.77%).

80% of all hospitalisations for osteoporosis and other disorders of bone in children as the main diagnosis in Mazowieckie Voivodeship were provided by 6 hospitals. Data analysis shows that the distribution of hospitalisation of children by ward was as follows: paediatric trauma and orthopaedic surgery ward (44.83%), paediatric surgery ward (31.03%) and trauma and orthopaedic surgery ward (17.24%).

The analysis of patient admission types indicates that in Mazowieckie Voivodeship the percentage of emergency admissions of adults (brought in by paramedics) was 1.57% (of children: 0.86%) (value for Poland: 1.96% - adults, 0.49% - children), the percentage of emergency admissions of adults (other cases) was 15.83% (of children: 32.76%) (value for Poland: 18.56% - adults, 17.64% - children) and the percentage of scheduled admissions of adults was 82.55% (of children: 66.38%) (value for Poland: 79.05% - adults, 81.51% - children).

The proportion of patients above 80 years of age, hospitalised due to osteoporosis and other metabolic disorders of bone as the main diagnosis was 15.79% for Poland and 14.75% for Mazowieckie Voivodeship.

Worthy of note is the significant percentage of adult patients rehabilitated after hospitalisation due to osteoporosis and other metabolic bone diseases (22.11% in Poland and 26.98% in Mazowieckie Voivodeship). The value of this rate varies slightly between individual voivodeships. The large variation in the number of patients rehabilitated in individual voivodeships in Poland seems to correlate with the number of patients treated in a given voivodeship.

Fractures over the age of 50 years

According to information provided by medical experts, a diagnosis of a fracture after the age of 50 y.o. is almost synonymous with a diagnosis of osteoporosis. Therefore, the total number of hospitalisations in the groups of osteoporosis and other bone diseases in adults and fractures after the age of 50 better reflects (although not fully) the actual epidemiology of osteoporosis. A joint analysis of these two groups shows that osteoporosis and other metabolic bone diseases are the most common cause of hospitalisation in the group of metabolic diseases.

In the group of fractures after the age of 50, the number of hospitalisations does not vary significantly between voivodeships (in Mazowieckie Voivodeship it amounted to 11,369).

3.2 Diseases of the eye and adnexa

Diseases of the eye and adnexa were divided based on the ICD-10 classification into the following subgroups: cataracts (including post-cataract conditions), glaucoma, AMD, strabismus and amblyopia, disorders of retina and vitreous body excluding AMD, disorders of eyelid, lacrimal system and orbit, disorders of cornea. The following document summarises the key information for each subgroup. A detailed analysis can be found in the Map of Healthcare Needs for diseases of the eye and adnexa.

Cataracts

In 2014, there were 31.0 thousand hospitalisations in Mazowieckie Voivodeship that were classified as cataracts, which accounted for 63.4% of all hospitalisations due to diagnoses analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 580.8, which was the 9th highest value among all voivodeships.

In Poland, there were disproportions in the number of one-day hospitalisations among voivodeships. Wielkopolskie (37%), Kujawsko-Pomorskie (34%) and Małopolskie (30%) voivodeship had the highest percentage of one-day hospitalisations, whereas Podlaskie (0%), Zachodniopomorskie (4%) and Śląskie (5%) voivodeships had the lowest percentage of such hospitalisations. In Mazowieckie Voivodeship, the percentage of one-day hospitalisations in facilities with over 300 patients ranged from 0% to 100%.

The percentage of treatment of complicated cataracts (reported products from DRG B18) in comparison with treatment of uncomplicated cataracts (reported products from DRG B19) varied among voivodeships. The highest percentage of reported B18 was found in Śląskie (48.7%), Warmińsko-Mazurskie (48.5%) and Świętokrzyskie (45.8%) Voivodeships. The lowest percentage of reported B18 was found in Łódzkie (30.6%), Zachodniopomorskie (28.6%) and Podlaskie (17.3%) Voivodeships. These proportions also differ among facilities in the voivodeship in question. In the next step, the distribution of the length of stay of patients with complicated cataract should be evaluated.

In further steps, the analysis should be extended by information on cataract treatment in the so-called cross-border directive (Directive of 10 October 2014 amending the Directive on Healthcare Services Financed from Public Funds and some other directives).

Post-cataract conditions

In 2014, there were 0.22 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 0.4% of all hospitalisations due to diagnoses analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 4.1, which was the 9th highest value among all voivodeships.

The percentage of patients diagnosed with cataract conditions in AOS varies from 0.1% to 98.5% among facilities in the voivodeship in question. In the next step, the percentage of the reported capsulotomy procedures should be analysed within the group of diagnoses of post-cataract conditions diagnoses in AOS and in hospitals.

Glaucoma

In 2014, there were 2.5 thousand hospitalisations in Mazowieckie Voivodeship due to glaucoma, which accounted for 5.1% of all hospitalisations due to diagnoses analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 46.8, which was the 2nd highest value among all voivodeships. The analysis has also shown that 13.5% of hospitalisations of patients with registered place of residence outside the voivodeship of hospitalisation were reported in Mazowieckie Voivodeship.

There are certain differences in the percentage of surgical hospitalisations between voivodeships. The highest percentage of surgical hospitalizations occurs in Lubelskie (77.1%), Podkarpackie (73.6%) and Małopolskie (72.4%) Voivodeships, and the lowest in the Świętokrzyskie (50.4%), Podlaskie (33.0%) and Opolskie (22.4%) Voivodeships. In Poland, the rate was 59.3%. In the analysed voivodeship, the rate was 53.7%. The share of major surgeries in surgical hospitalisations for glaucoma varied among

facilities in the region, with a maximum of 97%. Major glaucoma procedures were defined as procedures 12.69 (Other scleral fistulisation) and 12.59 (Other facilitation of intraocular circulation).

In Poland, the most frequently reported Diagnosis-Related Groups within the glaucoma subgroup was B98 - CONSERVATIVE OPHTHALMOLOGIC TREATMENT (40.7%); in Mazowieckie Voivodeship this rate was 46.3%.

AMD

In 2014, there were 5.39 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 11.0% of all hospitalisations due to diagnoses analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 101.1, which was the 3rd highest value among all voivodeships.

In Poland, there were differences in reporting of DRG B02 - treatment of wet AMD with the use of intravitreal injections of the anti-VEGF monoclonal antibody / recombinant fusion protein. In Poland, this rate was 84.1%, and in Mazowieckie Voivodeship – 90.8%.

The analysis and inference from AMD-related hospitalisation data in 2014 has a small impact on the current needs of patients in Poland due to the medication programme introduced in 2015 regarding the treatment of wet AMD.

Strabismus and amblyopia

In 2014, there were 0.98 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 2.0% of all hospitalisations analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 18.4, which was the 9th highest value among all voivodeships.

Strabismus and amblyopia are problems of the developmental age, and the average age of patients hospitalised for strabismus and amblyopia in Poland in 2014 was 18 y.o. This may suggest that patients were hospitalised and treated too late. This hypothesis is supported by the fact that the share of hospitalised patients aged 5-8 y.o. for Poland was only 32%. The next step should involve the analysis of the functioning of AOS and primary healthcare services in terms of the early detection of strabismus and amblyopia, including screening examinations. According to the information provided by medical experts, international practice indicates the need to conduct visual acuity tests in 4-year-old children, preferably during paediatric examination.

Disorders of retina and vitreous body excluding AMD

In 2014, there were 3.9 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 7.9% of all hospitalisations due to diagnoses classified into the group in question, analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 72.5, which was the 5th highest value among all voivodeships.

Substantial differences occured in the percentage of surgical hospitalizations among voivodeships. The highest value of this ratio was found in Wielkopolskie (81.0%), Warmińsko-Mazurskie (75.7%) and Łódzkie (74.1%) Voivodeships, while the lowest value was found in Świętokrzyskie (36.9%) and Opolskie (30.8%) and Lubuskie (30%) Voivodeships. At the same time, differences within voivodeships can be observed.

There were large differences in the reporting of vitrectomy and vitrectomy with injection of vitreous substitute among voivodeships. The percentage of hospitalisations involving the vitrectomy procedure

was highest in Warmińsko–Mazurskie (69.1%), Śląskie (63.4%) and Wielkopolskie (55.1%) voivodeships (average value for Poland: 44.4%) and lowest in Podlaskie (24.7%), Kujawsko–Pomorskie (24.5%) and Opolskie (19%) voivodeships. The percentage of hospitalisations involving the vitrectomy with injection of vitreous substitute procedure was highest in Śląskie (48.9%), Wielkopolskie (44.6%) and Pomorskie (35.9%) voivodeships (average value for Poland: 27.7%) and lowest in Podkarpackie (12.3%), Opolskie (6.5%) and Podlaskie (3.8%) voivodeships. Medical experts have indicated that this situation may be caused by an inconsistent qualification system for urgent vitreoretinal procedures. In the analysed voivodeship, these values were 36% and 17%, respectively.

Disorders of eyelid, lacrimal system and orbit

In 2014, there were 3.5 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 7.1% of all hospitalisations due to diagnoses analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 65.2, which was the 4th highest value among all voivodeships. The analysis has also shown that 9.3% of hospitalisations of patients with registered place of residence outside the voivodeship of hospitalisation were reported in Mazowieckie Voivodeship.

The percentage of surgical hospitalisations varied among voivodeships. It was highest in Wielkopolskie (95.6%), Pomorskie (94.6%) and Mazowieckie (94.5%) voivodeships and lowest in Warmińsko-Mazurskie (88.6%), Lubelskie (88.4%) %) and Śląskie (78.3%) voivodeships. In Poland, it was 91.1%.

According to the information provided by medical experts, international practice indicates that major procedures on eyelid, lacrimal system and orbit should be performed as part of hospitalisation and minor ones should be performed in AOS. The percentage of hospitalisations involving minor procedures in the analysed voivodeship was 24%.

Disorders of cornea

In 2014, there were 0.66 thousand hospitalisations in Mazowieckie Voivodeship due to the above diagnoses, which accounted for 1.3% of all hospitalisations due to diagnoses, analysed in the map of healthcare needs in the area of diseases of the eye and adnexa for Mazowieckie Voivodeship. The number of hospitalisations per 100,000 people was 12.3, which was the 3rd highest value among all voivodeships. The analysis has also shown that 23.6% of hospitalisations of patients with registered place of residence outside the voivodeship of hospitalisation were reported in Mazowieckie Voivodeship.

In Poland, the distribution of hospitalisations per 100,000 population was diverse, with considerable migrations (mostly to Mazowieckie and Śląskie voivodeships). This is most likely due to the provisions governing permissions to carry out transplantations in Poland.

In Poland, the share of hospitalisations with penetrating keratoplasty as part of surgical hospitalisation for corneal disorders was 18%, with differences between voivodeships. The percentage was highest in Pomorskie (33.3%) and Śląskie (27.6%) voivodeships, and lowest in Kujawsko-Pomorskie (5.1%) and Małopolskie (2.1%) voivodeships. In six voivodeships, no hospitalisations involving penetrating keratoplasty were reported.

In Poland, the share of hospitalisations with limbal stem cell transplantation as part of surgical hospitalisation for corneal disorders was 1.4%, with differences between voivodeships. The percentage was highest in Śląskie (3.2%) and Lubelskie (1.0%) voivodeships, and lowest in Mazowieckie (0.8%) and Pomorskie (0.6%) voivodeships.

According to the information provided by medical experts, international practice indicates that the number of transplantations performed in Poland is limited due to too few cornea donations.

Enucleations and eviscerations

In Poland, the percentage of enucleation and evisceration without implant ranged from 40% to 100% among voivodeships. In the analysed voivodeship it amounted to 47.4%. The percentage of enucleations without implants should be minimised for enucleations not related to neoplastic diagnoses. According to the information provided by medical experts, international standards indicate a tendency towards minimising the proportion of enucleations without implants (for enucleations not related to cancer diagnoses).

3.3 Diseases of the skin

Diseases of the skin were divided based on the ICD-10 classification into selected infections, selected benign neoplasms, dermatitis and eczema, burns, frostbite, decubitus ulcers, ulcers, connective tissue diseases and selected systemic diseases, inflammatory skin diseases, psoriasis, non-melanoma skin cancers, precancerous conditions, *in situ* carcinomas, urticaria and angioedema, congenital skin defects, infections with a predominantly sexual mode of transmission, cutaneous T-cell lymphoma, autoimmune bullous diseases. This document summarises the key information for groups: selected infections, selected non-malignant neoplasms, and dermatitis and eczema. A detailed analysis of the remaining subgroups is presented in the Map of Healthcare Needs for diseases of the skin.

Inpatient treatment of skin diseases is characterized by disproportions in the number of hospitalisations reported in individual voivodeships. The greatest number of hospitalisations was reported in Mazowieckie Voivodeship (39.76 thousand), whereas the lowest in Lubuskie Voivodeship (4.28 thousand).

Reported hospitalisation distribution in Poland per 100,000 inhabitants according to the place of service is not even. The highest value was recorded in Mazowieckie Voivodeship (745). In contrast, the lowest value was recorded in Lubuskie Voivodeship (419). As for hospitalisation rates per 100,000 children, the highest value was recorded in Warmińsko–Mazurskie Voivodeship (968), whereas the lowest in Opolskie Voivodeship (509). The same rate for adults was highest in Mazowieckie Voivodeship (742) and lowest in Lubuskie Voivodeship (376).

Full conclusions regarding the quality of healthcare in the area of skin diseases can be drawn after a full analysis including outpatient care.

In Mazowieckie Voivodeship, the most frequent DRG from the group of selected infections used to report hospitalisations in the analysed diagnosis group was S60, which accounted for 22% of all hospitalisations reported with a DRG. In the group of selected benign neoplasms, hospitalisations with group J33 were reported most frequently (52% of all hospitalisations with a DRG). In the dermatitis and eczema category, the largest group was J39 (47%), whereas J38 accounted for 24%.

In the group of selected infections, the highest percentage of readmissions to the same hospital within 30 days from the discharge date in all voivodeships was 8.6% and was recorded in Mazowieckie Voivodeship. For the group of benign neoplasms, the highest percentage was 3.4% in Podlaskie Voivodeship, and for dermatitis and eczema group it was 7.6%, also in Podlaskie Voivodeship.

In the group of selected infections, the percentage of scheduled admissions was 36.3%. In the group of selected benign neoplasms, this percentage was 88.5%, and for the group of dermatitis and eczema it was 43.3%.

3.4. Diseases of male genital organs (non-neoplastic)

Non-neoplastic diseases of male genital organs were divided based on the ICD-10 classification into: benign hyperplasia of prostate, male infertility, redundant prepuce, phimosis and paraphimosis, non-inflammatory diseases of testes and inflammatory diseases. This document presents a summary of the

most important information for benign hyperplasia of prostate, redundant prepuce, phimosis and paraphimosis, non-inflammatory diseases of testes and inflammatory diseases. A detailed analysis of other subgroups is presented in the Map of Healthcare Needs for non-neoplastic diseases of male reproductive system.

Benign hyperplasia of prostate

Benign hyperplasia of prostate is one of the most important problems among diseases of male genital organs (42.15% of all hospitalizations in the analysed diagnosis group in Mazowieckie Voivodeship). The number of hospitalised patients with this diagnosis varies between voivodeships, ranging from 65.48 in Zachodnioporskie Voivodeship to 127.44 in Podkarpackie Voivodeship (per 100,000 population). In Mazowieckie Voivodeship, this rate was 74.70 per 100,000 inhabitants.

The number of hospitalised patients over 65 y.o. was largest in Podkarpackie Voivodeship (584.74/100,000 population) and lowest in Zachodniopomorskie Voivodeship (308.32/100,000 population). In the analysed voivodeship, this value came to 328.14.

As fas as this condition is concerned, surgical hospitalisations are dominant. It accounted for 93.4% of hospitalisations in Poland. In Mazowieckie Voivodeship, hospitalisations from outside the voivodeship accounted for 93.1% of admissions.

As far as surgical treatment of benign hyperplasia of prostate is concerned, there are certain differences in the operating methods used. In Mazowieckie Voivodeship, the share of hospitalisations with open prostatectomy was 8.0% (5.4% in Poland), while the share of hospitalisations with transurethral operations on the prostate was 43.6%, or 0.5 pp. more than the average value of this rate in Poland. In 2 hospitals, the percentage of open prostatectomy procedures was higher than the percentage of transurethral procedures. Medical experts have indicated that differences between healthcare providers may indicate different patient selection or operational methods used in individual centres.

In the voivodeship, significant differences in the percentage of patients rehospitalized in the facility providing the original hospitalisation are observed: from 0.69% to 9.94% among healthcare providers with more than 50 reported hospitalisations due to benign hyperplasia of prostate.

There are differences between hospitals regarding the diagnosis groups of hospitalised patients, which may be explained by ward specialisations, selection of patients, e.g. 23.9% to 87.9% in the N40 group among facilities that reported more than 50 hospitalisations of patients with this diagnosis.

Redundant prepuce, phimosis and paraphimosis

The number of hospitalisations per 100,000 population due to redundant prepuce, phimosis and paraphimosis ranged from 25.21 in Śląskie Voivodeship to 52.75 in the Podkarpackie Voivodeship (in Mazowieckie Voivodeship: 41.30 per 100,000).

In the voivodeship, as far as this group of diseases is concerned, attention is drawn to the high (over 50%) percentage of emergency admissions to one hospital among those that have reported more than 50 hospitalisations. The short average length of stay (average for Poland: 1.4 days) and the low median length of stay (1.0 for Poland) suggest that the major part of hospitalisations could be provided on a one-day basis.

This group includes healthcare providers hospitalising only patients below 18 y.o., only patients above 18 y.o. and with ranges enabling hospitalisations of both those groups of patients.

Non-inflammatory diseases of testes

The number of hospitalisations per 100,000 population due to non-inflammatory diseases of testes ranged from 26.11 in Dolnośląskie Voivodeship to 49.81 in Świętokrzyskie Voivodeship. In Mazowieckie Voivodeship, this rate was 30.19 per 100,000 inhabitants.

No significant concentration of treatment was observed in Mazowieckie Voivodeship. A division into patients hospitalized on paediatric surgery and urology wards is clearly visible, which in most cases reflects age differences between patients.

Inflammatory diseases

The number of hospitalisations per 100,000 population due to non-inflammatory diseases of testes ranged from 6.88 in Zachodniopomorskie Voivodeship to 25.73 in Świętokrzyskie Voivodeship. In Mazowieckie Voivodeship, this rate amounted to 13.89 per 100,000 inhabitants. These pronounced differences cannot be due to demographic differences only; perhaps their cause is the availability of treatment in both outpatient and inpatient settings. No significant concentration of treatment was observed in Mazowieckie Voivodeship.14 hospitals (32.6%) provided over 80% of hospitalisations in the voivodeship.

3.5. Diseases of the genitourinary system (in females)

Diseases of the genitourinary system (in females) were divided based on the ICD-10 classification into: Abnormal hyperplasia or location of genital mucosa, Disorders of menstruation, Non-inflammatory, non-neoplastic diseases of sex organs, Pelvic organ prolapse, Inflammation of female sex organs, Disorders of fertility, Non-neoplastic disorders of mammary gland, Fistulas. This document summarises the key information on abnormal hyperplasia or location of genital mucosa, disorders of menstruation and inflammation of female sex organs. A detailed analysis of other subgroups is presented in the Map of Healthcare Needs for diseases of the genitourinary system (in females)

Abnormal hyperplasia or location of genitalmucosa

The number of hospitalisations due to abnormal hyperplasia or location of genital mucosa was 16.27 thousand. Worthy of note is the large variation in the number of hospitalisations per 100,000 inhabitants of individual voivodeships (min: 156.65, max: 304.98, analysed voivodeship: 304.98). A precise explanation of this situation requires the analysis to be extended to include outpatient care, as some of the services provided in the context of hospital treatment, e.g. colposcopy, may be provided in AOS as well.

In should be noted that 29.7% of hospitalisations due to abnormal hyperplasia or location of genital mucosa in Mazowieckie Voivodeship were provided on wards at the third referral level.

The concentration of services in Mazowieckie Voivodeship is low: 79% of hospitalisations in the abnormal hyperplasia or location of genital mucosa group took place in 32 hospitals (48% of all hospitals treating patients with that diagnosis in the voivodeship).

The DRG product that was reported most often for hospitalisations of patients with diagnoses from the abnormal hyperplasia or location of genital mucosa group was DRG M14 MEDIUM PROCEDURES OF UPPER REPRODUCTIVE SYSTEM. Despite the fact that there is no significant difference in the percentage of hospitalisations reported with this DRG between the Mazowieckie Voivodeship (37.6%) and Poland (29.5%), the value of this rate differs between individual hospitals in the voivodeship. Taking into account only those hospitals that reported in total 80% of hospitalisations, the minimum was 0% and the maximum was 78.2%.

Disorders of menstruation

The number of hospitalisations for disorders of menstruation was 11.82 thousand. Worthy of note is the large variation in the number of hospitalisations per 100,000 inhabitants of individual voivodeships (min: 127.54, max: 362.74, analysed voivodeship: 221.65). A precise explanation of this condition requires the analysis to be extended to include outpatient care.

In Mazowieckie Voivodeship, the proportion of scheduled admissions in the Disorders of menstruation group was 62.1% (in Poland: 58.5%).

In should be noted that 21.6% of hospitalisations due to disorders of menstruation in Mazowieckie Voivodeship were provided on wards at the third referral level.

The concentration of services in Mazowieckie Voivodeship is low: 80% of hospitalisations of adults in the Disorders of menstruation group took place in 33 hospitals (51% of all hospitals treating patients with that diagnosis in the voivodeship).

The percentage of surgical DRGs in the analysed voivodeship was 88%. Among hospitals reporting a total of 80% of hospitalisations in the voivodeship, the proportion varies from 61% to 99%.

The DRG product that was reported most often for hospitalisations of patients with diagnoses with menstrual disorders was DRG M15 MINOR PROCEDURES OF UPPER REPRODUCTIVE SYSTEM. Despite the fact that there is no significant difference in the percentage of hospitalisations reported with this DRG between the Mazowieckie Voivodeship (78.7%) and Poland (81.4%), the value of this rate differs between individual hospitals in the voivodeship. Taking into account only those hospitals that reported in total 80% of hospitalisations, the minimum was 44.3% and the maximum was 97.1%.

Inflammation of female sex organs

The number of hospitalizations due to inflammation of female sex organs was 2.40 thousand. Worthy of note is the large variation in the number of hospitalisations per 100,000 inhabitants of individual voivodeships (min: 32.09, max: 123.87, analysed voivodeship: 45.00). A precise explanation of this condition requires the analysis to be extended to include outpatient care.

In Mazowieckie Voivodeship, the proportion of scheduled admissions in the inflammation of female sex organs group was 48.2% (in Poland: 46.8%).

The concentration of services in Mazowieckie Voivodeship is low: 79% of hospitalisations in the inflammation of female sex organs group took place in 32 hospitals (48% of all hospitals treating patients with that diagnosis in the voivodeship).

The percentage of surgical DRGs in the analysed voivodeship was 53%. Among hospitals reporting a total of 80% of hospitalisations in the voivodeship, the proportion varies from 4% to 91%.

The DRG product that was reported most often with hospitalisations of patients with diagnoses from the inflammation of female sex organs group was DRG M04 MINOR PROCEDURES OF LOWER REPRODUCTIVE SYSTEMDespite the fact that there is no significant difference in the percentage of hospitalisations reported with this DRG between the Mazowieckie Voivodeship (32.1%) and Poland (25.5%), the value of this rate differs between individual hospitals in the voivodeship. Taking into account only those hospitals that reported in total 80% of hospitalisations, the minimum was 0% and the maximum was 73.5%.

3.6 Diseases of the kidneys and urinary tract

Diseases of the kidneys and the urinary tract have been divided, based on the ICD-10 classification, into glomerular diseases, renal tubulointerstitial diseases, renal failure, other disorders of kidney and ureter, urinary tract defects, disorders of mineral metabolism, other disorders of fluid, electrolyte and acid-base balance, hypertension in children and secondary hypertension and hypertensive renal disease in adults, urolithiasis, other diseases of lower urinary tract, urinary tract infection, urinary incontinence, symptoms and signs involving the urinary system. This document summarises key information for the following subgroups: renal failure, glomerular diseases, renal tubulointerstitial diseases, urolithiasis, urinary tract infection, urinary incontinence, and for kidney transplants and post-transplant complications. A detailed analysis of other subgroups, analysis of children and adults separately and analysis of kidney transplants and post-transplant complications are presented in the Map of Healthcare Needs for the diseases of the kidneys and urinary tract.

In 2014, in Poland, 358.5 thousand hospitalisations due to the diseases classified as the diseases of the kidneys and urinary tract were recorded, which gives 931 hospitalisations per 100,000 people. The value of this rate varies from 655 in Małopolskie Voivodeship to 1192 in Mazowieckie Voivodeship.What draws attention is the very large variation of this rate between voivodeships in each of the analysed subgroups of diseases.

It should be noted that full inference about the care of patients with diseases of the kidneys and urinary tract will be possible after analysing all forms of treatment, including, in particular, outpatient specialist care.

Renal failure

Within the analysed subgroup, the number of hospitalisations per 100,000 population varies significantly between voivodeships (from 191.77 in Śląskie Voivodeship to 281.23 in Mazowieckie Voivodeship for adults, and from 3.71 in Opolskie Voivodeship to 52.46 in Wielkopolskie Voivodeship for children).

In Mazowieckie Voivodeship, 12.22 thousand adults and 0.34 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 281.23 and 34.61. The percentage of patients hospitalised outside the voivodeship was 8.22% for adults and 30.41% for children (values for Poland were 5.05% and 15.51%, respectively).

It is postulated to deepen the analysis of patients with renal failure, in particular according to acute and chronic cases. A detailed analysis in terms of dialysis should also be performed.

Glomerular diseases

Within the analysed subgroup, the number of hospitalisations per 100,000 population varies significantly between voivodeships (from 18.67 in Warmińsko-Mazurskie Voivodeship to 59.86 in Dolnośląskie Voivodeship for adults, and from 9.28 in Opolskie Voivodeship to 153.71 in Kujawsko-Pomorskie Voivodeship for children).

In Mazowieckie Voivodeship, 1.66 thousand adults and 1.28 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 38.27 and 129.55. The percentage of patients hospitalised outside the voivodeship was 11.06% for adults and 15.78% for children (values for Poland were 8.93% and 11.26%, respectively).

In the case of 10.9% of hospitalisation of adults and 2.6% hospitalisations of children, the kidney biopsy procedure was reported. The small number of such procedures may be due to the quality of reporting, which results from the settlement system requirements and reporting only the most costly of all procedures performed at a specific facility (to the exclusion of any other procedures).

Renal tubulointerstitial diseases

Within the analysed subgroup, the number of hospitalisations per 100,000 population varies significantly between voivodeships (from 23.18 in Małopolskie Voivodeship to 61.84 in Pomorskie Voivodeship for adults, and from 20.45 in Świętokrzyskie Voivodeship to 91.41 in Zachodniopomorskie Voivodeship for children).

In Mazowieckie Voivodeship, 2.14 thousand adults and 0.77 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 49.31 and 78.24. The percentage of patients hospitalised outside the voivodeship was 5.97% for adults and 2.72% for children (values for Poland were 4.12% and 2.67%, respectively).

Urolithiasis

Within the analysed subgroup, the number of hospitalizations per 100 thousand people varies significantly among voivodeships (from 138.11 in Dolnośląskie Voivodeship to 391.31 in Łódzkie Voivodeship in case of adults and from 22.88 in Opolskie Voivodeship to 149.61 in Lubuskie Voivodeship in case of children).

In Mazowieckie Voivodeship, 14.16 thousand adults and 0.79 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 325.81 and 79.76. The percentage of patients hospitalised outside the voivodeship was 8.31% for adults and 28.68% for children (values for Poland were 9.10% and 15.61%, respectively).

In the case of adults, 73% of DRGs reported for hospitalisations of were surgical DRGs. As far as reporting of hospitalisations of adults is concerned, 39% involved the procedure of extracorporeal shock wave lithotripsy (ESWL) and 14% involved the procedure of ureterorenoscopic lithotripsy (URSL). It is worth noting that 91% of hospitalisations of children were reported with a conservative DRG.

Urinary tract infection

Within the analysed subgroup, the number of hospitalisations per 100,000 population varies significantly between voivodeships (from 36.11 in Zachodniopomorskie Voivodeship to 78.51 in Łódzkie Voivodeship for adults, and from 116.00 in Podkarpackie Voivodeship to 287.63 in Świętokrzyskie Voivodeship for children).

In Mazowieckie Voivodeship, 2.50 thousand adults and 1.97 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 57.60 and 198.99. The percentage of patients hospitalised outside the voivodeship was 5.19% for adults and 1.88% for children (values for Poland were 4.06% and 2.86%, respectively).

Urinary incontinence

Within the analysed subgroup, the number of hospitalisations per 100,000 population varies significantly between voivodeships (from 23.44 in Dolnośląskie Voivodeship to 90.19 in Kujawsko-Pomorskie Voivodeship for adults, and from 9.24 in Łódzkie Voivodeship to 132.27 in Lubelskie Voivodeship for children).

In Mazowieckie Voivodeship, 2.50 thousand adults and 0.25 thousand children were hospitalised due to causes from the analysed subgroups. The respective rates per 100,000 adults and children were 57.42 and 24.90. The percentage of patients hospitalised outside the voivodeship was 5.73% for adults and 6.50% for children (values for Poland were 7.51% and 7.89%, respectively).

Kidney transplant and complications of kidney transplant

In Poland, in 2014, 1.14 thousand kidney transplants were reported, including 1.09 thousand kidney transplants in adults (in 20 facilities across the country), 26 kidney transplants in children (in 1 facility) and 25 kidney and pancreas transplants (in 4 facilities).

In Mazowieckie Voivodeship, 310 kidney transplantations were reported in a total of 4 centres.88% of cases involved transplantation of a kidney taken from a deceased donor; in 32% of cases, the patient was admitted on an emergency basis. The percentage of hospitalisations of patients from outside the region was 62.9% (for Poland: 70.4%), and the median length of stay was 13 days (for Poland: 17 days).

In 2014, there were 6.21 thousand hospitalisations of adults and 0.19 thousand hospitalisations of children classified as hospitalisations related to complications after kidney transplantation[35] .

In the voivodeship, there were 1.88 thousand hospitalisations of adults related to the treatment of complications after renal transplantation, and the percentage of hospitalisations of patients from outside the voivodeship amounted to 44.2% (for Poland: 32.5%).

One of the only 2 centres in Poland treating chidlren for complications after kidney transplantation is located in the voivodeship. The number of hospitalisations of children with post-transplant complications was 127, which accounted for 68% of all hospitalisations in the country. The percentage of hospitalisations of patients from outside the region was 83%.

In further steps, the analysis of transplantation should be deepened, in particular regarding the waiting time for transplantation and the management of patients after transplantation.

3.7 Diseases of liver, biliary tract and pancreas

Diseases of liver, biliary tract and pancreas were divided on the basis of the ICD-10 classification into: Cirrhosis of liver (excluding alcoholic liver disease), Fatty liver diseases, Alcoholic liver disease, Complications of liver diseases, Liver failure, Toxic liver diseases (excluding alcoholic liver disease), Disorders of gallbladder (with or without cholelithiasis), Disorders of biliary tract (with or without calculus), Congenital malformations of liver, pancreas and biliary tract, Acute pancreatitis, Chronic pancreatitis (including complications), Other liver diseases. This document summarises the key information for this group of diseases. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for the diseases of liver, biliary tract and pancreas.

In Mazowieckie Voivodeship, the number of hospitalisations due to diseases of liver, biliary tract and pancreas came to 34.84 thousand. The number of hospitalisations per 100,000 adults amounted to 0.65, which was the 3rd highest figure among all voivodeships[36].

The number of healthcare providers with at least one reported hospitalisation due to diseases of liver, biliary tract and pancreas came to 84. The concentration of services was moderate, with 38 healthcare providers reporting more than 80% of hospitalisations in voivodeships.

The highest standardised 30-day mortality rate[37] for Mazowieckie Voivodeship was recorded in the 'complications of liver diseases' group (29.49%[38] out of a total 0.21 thousand hospitalisations, the second highest value among all voivodeships). The lowest rate was recorded in the group of 'fatty liver diseases'. The value of the analysed variable in this case was 0.74%[39], for a total of 0.65 thousand hospitalisations, which was the 9th highest value in Poland. On the other hand, in the case of the most

35hospitalizations for which Z94.0 or T86.1 was reported as the primary diagnosis or Z94.0 was reported as a coexistent diagnosis

36It should be noted that drawing definitive conclusions about the care of patients with diseases of the gastrointestinal tract will be possible only after analysing all forms of treatment, including in particular specialist outpatient care.In addition, it should be borne in mind that maps of healthcare needs have also been elaborated for diseases within other parts of the digestive system, neoplasms (malignant and non-malignant) and congenital defects.

37since the beginning of hospitalisation

38raw rate:11.96%

39raw rate:0.61%

numerous group in terms of hospitalisation, i.e. diseases classified as 'disorders of gallbladder (with or without cholelithiasis)' (12.07 thousand hospitalisations), a 30-day mortality rate of 0.76% was recorded[40] (6th highest value in Poland).

There were pronounced differences between voivodeships in terms of the share of hospitalisations with reported cholecystectomy in the 'disorders of gallbladder (with or without cholelithiasis)' group. In Mazowieckie Voivodeship, this rate amounted to 14.55%, while the lowest rate among voivodeships was 7.43%, the highest 21.80%, and the value for Poland was 13.95%. These differences are particularly pronounced at the level of individual providers. At the same time, it should be emphasised that due to the poor quality of the reporting data resulting from systemic constraints, it is not possible to draw any conclusions regarding liver biopsy.

The number of hospitalisations due to the analysed diagnoses with endoscopy reported amounted to 8.65 thousand in the voivodeship (24.83% of hospitalisations). Of those, 0.11 thousand hospitalisations were reported with an endoscopic procedure of interventional nature. The largest number of hospitalisations involving endoscopy was reported for ‘disorders of biliary tract (with or without calculus)', both in absolute (3.90 thousand) and relative terms (65.41%). Due to the fact that the analysed types of endoscopy are also performed in other diagnoses, an analysis was carried out for an extended group of diagnoses including also such other diagnoses. In the course of that analysis, 4.99 thousand hospitalisations involving endoscopic procedures in other diseases of liver, biliary tract and pancreas (including neoplasms) indicated by experts were identified in Mazowieckie Voivodeship. For these diagnoses, the share of hospitalisations in the voivodeship involving endoscopic procedures amounted to 21.36%, as compared to 18.33% for Poland. In this group, the percentage of hospitalizations with reported anaesthesia recorded in the analysed voivodeship was 38.34% (the second highest value among all voivodeships), whereas the value of this variable for the country was 21.64%.

3.8 Diseases of the upper digestive tract

Based on the ICD- 10 classification, diseases of the upper digestive tract were divided into: Gastro-oesophageal reflux disease, Other diseases of oesophagus (not included in the other subgroups), Peptic ulcer disease, Other diseases of stomach and duodenum (not included in the other subgroups), Upper gastrointestinal haemorrhage, Functional disorders of the upper digestive tract, Intestinal malabsorptionThis document summarises the key information for this group of diseases. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for the diseases of the upper digestive tract.

In Mazowieckie Voivodeship, the number of hospitalisations due to diseases of the upper digestive tract amounted to 54.60 thousand (for 48.20 thousand patients). The number of hospitalisations per 100,000 adults amounted to 1.02, which was the 4th highest figure among all voivodeships[41].

The number of healthcare providers with at least one reported hospitalisation due to disorders of the upper digestive tract came to 93. The concentration of services was moderate, with 40 healthcare providers reporting more than 80% of hospitalisations in voivodeships.

The highest standardised 30-day mortality rate[42] in Mazowieckie Voivodeship was recorded in the 'upper gastrointestinal haemorrhage' group (9.28% [43] for a total of 4.10 thousand hospitalisations, which was the third lowest value among voivodships). The lowest rate was recorded for the group of 'other diseases of oesophagus (not included in the other subgroups)'. The value of the analysed variable in

40raw rate:0.83%

41It should be noted that drawing definitive conclusions about the care of patients with diseases of the gastrointestinal tract will be possible only after analysing all forms of treatment, including in particular specialist outpatient care.In addition, it should be borne in mind that maps of healthcare needs have also been elaborated for diseases within other parts of the digestive system, neoplasms (malignant and non-malignant) and congenital defects.

42since the beginning of hospitalisation

43raw rate:8.76%

this case was 0.22%[44], for a total of 0.25 thousand hospitalisations, which was the 5th highest value in Poland. On the other hand, in the case of the most numerous group in terms of hospitalisation, i.e. diseases classified as 'functional disorders of the upper digestive tract' (16.76 thousand hospitalisations), a 30-day mortality rate of 1.76% was recorded[45] (12th highest value in Poland).

The number of hospitalisations due to the analysed diagnoses with endoscopy reported amounted to 21.24 thousand in the voivodeship (38.91% of hospitalisations). Of those, 1.86 thousand hospitalisations were reported with an endoscopic procedure of interventional nature. The highest (absolute) number of hospitalisations with endoscopy was reported for the 'other diseases of stomach and duodenum (not included in the other subgroups)' group (9.27 thousand), whereas the largest share of hospitalisations with endoscopy was reported for the 'gastro-oesophageal reflux disease' group (76.26%).3.29 thousand hospitalisations involving endoscopic procedures in other diseases of the upper digestive tract (excluding neoplasms) indicated by experts were identified in Mazowieckie Voivodeship. For these diagnoses, the share of hospitalisations in the voivodeship involving endoscopic procedures amounted to 51.62%, as compared to 49.03% for Poland. In this group, the percentage of hospitalizations with reported anaesthesia recorded in the analysed voivodeship was 28.57% (the 4th highest value among all voivodeships), whereas the value of this variable for the country was 20.44%.

3.9. Diseases of the lower digestive tract (excluding malignant and non-malignant neoplasms)

Diseases of the lower gastrointestinal tract were divided, based on the ICD-10 classification, into: diseases requiring urgent surgical operation on the lower digestive tract, other diseases requiring surgical operation on the lower digestive tract, non-neoplastic diseases of anus and rectum, Crohn's disease, ulcerative colitis (UC), enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis), lower gastrointestinal haemorrhage (including vascular disorders), functional intestinal disorders, cystic fibrosis, other reasons for hospitalisation (follow-up and screening examinations), other diseases of intestines, neonatal obstructions and perforations. This document summarises the key information on the number of hospitalisations, concentration of services, patient mortality and surgical and endoscopic procedures. A detailed analysis for all subgroups as well as a summary of surgical and endoscopic procedures on the lower gastrointestinal tract can be found in the Map of Healthcare Needs for the diseases of the lower gastrointestinal tract.

In Mazowieckie Voivodeship, the number of hospitalisations due to diseases of the lower digestive tract amounted to 88.55 thousand (for 79.48 thousand patients). The number of hospitalisations per 100,000 population amounted to 1.66, which was the second highest figure among all voivodeships[46].

The number of healthcare providers with at least one reported hospitalisation due to disorders of the lower digestive tract came to 104. The concentration of services was moderate, with 45 healthcare providers reporting more than 80% of hospitalisations in voivodeships.

The highest standardised 90-day mortality rate[47] in Mazowieckie Voivodeship was recorded in the 'lower gastrointestinal haemorrhage, including vascular disorders' group (14.91% [48] for a total of 3.39 thousand hospitalisations of adults, which was the 10th highest figure among all voivodeships). The lowest rate was recorded for the group of 'non-neoplastic diseases of anus and rectum'. The value of the analysed variable in this case was 0.43%[49], for a total of 7.48 thousand hospitalisations, which was

44raw rate:0.40%

45raw rate:1.81%

46It should be noted that drawing definitive conclusions about the care of patients with diseases of the gastrointestinal tract will be possible only after analysing all forms of treatment, including in particular specialist outpatient care.In addition, it should be borne in mind that maps of healthcare needs have also been elaborated for diseases within other parts of the digestive system, neoplasms (malignant and non-malignant) and congenital defects.

47since the end of hospitalisationValue calculated for adult population.

48raw rate:14.59%

49raw rate:0.44%

the fourth lowest value in Poland. On the other hand, in the case of the most numerous group in terms of hospitalisation, i.e. diseases classified as 'Enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis)' (5.92 thousand hospitalisations of adults), a 90-day mortality rate of 10.84% was recorded[50] (4th highest value in Poland).

There were significant differences between voivodeships in terms of the share of hospitalisations with a reported surgical procedure in the 'non-neoplastic diseases of anus and rectum' group. In Mazowieckie Voivodeship, this rate amounted to 36.9% (the lowest value among all voivodeships), whereas the highest rate among voivodeships was 75.23%, and the value for Poland was 54.53%. These differences are even more pronounced at the level of individual providers.

The number of hospitalisations due to the analysed diagnoses with endoscopy reported amounted to 20.24 thousand in the voivodeship (31.65% of hospitalisations). Of those, 1.23 thousand hospitalisations were reported with an endoscopic procedure of interventional nature. The highest (absolute) number of hospitalisations with endoscopy was reported for the 'functional intestinal disorders' group (5.19 thousand), whereas the largest share of hospitalisations with endoscopy was reported for the 'diverticular disease of intestine' group (73.49%).

Additional 10.45 thousand hospitalisations involving endoscopic procedures in other diseases of the lower digestive tract (excluding neoplasms) indicated by experts were identified in Mazowieckie Voivodeship. For these diagnoses, the share of hospitalisations in the voivodeship involving endoscopic procedures amounted to 44.54%, as compared to 39.31% for Poland. In this group, the percentage of hospitalizations with reported anaesthesia recorded in the analysed voivodeship was 35.95% (the second highest value among all voivodeships), whereas the value of this variable for the country was 26.14%.

3.10. Diseases of the nose, nasal sinuses, ear, pharynx and larynx

Diseases of the nose, nasal sinuses, ear, pharynx and larynx were divided into 7 subgroups on the basis of ICD-10 classification. This document summarises the key information. Detailed analysis for subgroups is presented in the map of healthcare needs for diseases of the nose, paranasal sinuses, ear, pharynx and larynx.

In 2014, service providers reported 288.4 thousand hospitalisations for diseases of the nose, paranasal sinuses, ear, pharynx and larynx. Most hospitalisations were reported in the subgroup of diseases of oral cavity and pharynx (98.0 thousand), and the fewest for sleep apnea (1.2 thousand). In Mazowieckie Voivodeship, 58.7 thousand of hospitalisations were reported within the analysed group of diseases, the most for diseases of oral cavity and pharynx (16.3 thousand), and the fewest for sleep apnea (570).

There are differences in the number of hospitalisations per 100,000 people between the voivodeships. The index was the highest in Mazowieckie Voivodeship (1.1 thousand), and the lowest in Lubelskie Voivodeship (0.5 thousand). In the analysed voivodeship, this value came to 1.1 thousand.

The highest rate of hospitalisations per 100,000 adults was in Mazowieckie Voivodeship (0.7 thousand), the lowest one was in Małopolskie Voivodeship (0.3 thousand). In the case of the number of hospitalisations per 100,000 children it was respectively Opolskie (2.9 thousand) and Małopolskie Voivodeship (1.4 thousand).

The data indicate significant migrations between voivodeships. The highest share of hospitalisation of patients from outside the voivodeship was observed in Mazowieckie voivodeship (18.2%), and the lowest one in Dolnośląskie Voivodeship (4.5%). In the analysed voivodeship, this value came to 18.2%.

The observed differences in the percentage of hospitalisation of patients from outside the voivodeship in the analysed subgroup may be the result of the presence of highly specialised facilities

50raw rate:11.83%

performing unique nationwide treatments. It may also be due to differences in the availability of outpatient and inpatient treatment between voivodeships.

The highest positive migration per 100,000 people is observed in Mazowieckie Voivodeship, and the largest negative one in Świętokrzyskie Voivodeship. With regard to adults, these were Mazowieckie and Świętokrzyskie Voivodeship, respectively. In the case of children these were Opolskie and Świętokrzyskie Voivodeship. In 2014 in the analysed voivodeship, a positive migration balance per 100,000 people was observed (158.3, 1st place).

In Mazowieckie Voivodeship, 89 healthcare providers reported hospitalisations for diagnosis from the analysed scope.80% of hospitalisations was reported by 16 healthcare providers (18.0%), the largest of which reported 26.2% of all hospitalisations in the voivodeship (within the analysed group).

In 2014, 154.5 thousand surgical DRG hospitalisations were reported for the analysed group of diseases. The largest percentage of surgical hospitalisations was demonstrated in the case of a subgroup defined as diseases of the nose and paranasal sinuses (79.8%), and the lowest in the case of a subgroup disorders of voice, speech and language (8.4%).

In the case of the analysed voivodeship, data regarding surgical hospitalisation within individual subgroups is as follows: diseases of the ear and mastoid process - 6.5 thousand.(79.1%), diseases of the organs of hearing and balance: 2.0 thousand(30.1%), diseases of oral cavity and pharynx: 11.6 thousand(72.4%), diseases of nose and paranasal sinuses: 10.3 thousand(84.1%), diseases of larynx and trachea: 0.9 thousand(16.7%), disorders of voice, speech and language: 0.3 thousand(9.2%).

In 2014 in Poland, the average length of stay of a patient with a diagnosis from the analysed group was 2.8 days. The longest average length of stay was observed in the subgroup defined as diseases of the ear and mastoid process (3.6 days), and the shortest - disorders of voice, speech and language (1.2 days).

In the analysed voivodeship, the average length of stay for particular subgroups was respectively: diseases of the ear and mastoid process - 2.5 days (in Poland: 3.6), diseases of the organs of hearing and balance - 2.7 days (in Poland: 3.1), diseases of oral cavity and pharynx - 2.2 days (in Poland: 2.5), diseases of nose and paranasal sinuses - 3.0 days (in Poland: 3.1), diseases of larynx and trachea - 3.3 days (in Poland: 3.2), sleep apnea - 2.8 days (in Poland: 2.7), disorders of voice, speech and language - 1.2 days (in Poland: 1.2).

The analysis also includes data on rehabilitation. In 2014, 21.4 thousand rehabilitation services provided within 90 days of hospitalisation for diagnosis from the analysed group were recorded. In the analysed subgroups, the highest percentage of rehabilitation services was found in the case of diseases of the organs of hearing and balance (29.6%), and the lowest - sleep apnea (1.1%). The highest percentage of rehabilitationwas those that were performed under specialist outpatient care (66.8%). Services provided in day care wards (29.4%) came second. There were differences in the number of rehabilitation services between individual voivodeships. The percentage of AOS rehabilitation services was the highest in Mazowieckie (24.8%) and the lowest in Lubuskie Voivodeship (1.8%). In the case of day care ward rehabilitation, these were respectively: Mazowieckie (50.5%) and Lubuskie Voivodeship (0.8%).

3.11 Infectious diseases: viral hepatitis

Infectious diseases: viral hepatitis are divided on the basis of ICD-10 classification into: chronic viral hepatitis C, chronic viral hepatitis B, acute viral hepatitis and liver fibrosis and cirrhosis as a complication of chronic viral hepatitis B or C. This document presents a summary of the most important information for these groups of diseases. A detailed analysis of other subgroups, and of children and adults separately is presented in the Map of Healthcare Needs for viral hepatitis.

Chronic viral hepatitis C

The largest subgroup of viral hepatitis in terms of the number of hospitalisations in Poland was chronic hepatitis C (12.5 thousand hospitalisations in the country). In Mazowieckie Voivodeship, the number of hospitalisations for this group came to 2.2 thousand.

For chronic hepatitis C, there is a significant difference in the number of hospitalisations per 100,000 people in individual voivodeships:from 13.3 hospitalisations per 100,000 people in Podkarpackie Voivodeship to 79.2 hospitalisations per 100,000 people in Świętokrzyskie Voivodeship. In Mazowieckie Voivodeship, the number of hospitalisations per 100,000 people was 41.

The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 2.6% in Lubelskie to 35.8% in Zachodniopomorskie. Hospitalisations from outside the voivodeship accounted for 16.8% of all hospitalisations in Mazowieckie Voivodeship.

Waiting time and admission type statistics indicate a high degree of diversity between voivodeships. The largest share of hospitalisations of patients admitted on an emergency basis occurs in Pomorskie Voivodeship (94.3%). In Mazowieckie Voivodeship, this value came to 20.1%.

The share of hospitalisation followed by rehospitalisation within 30 days with the diagnosis of chronic hepatitis C was 5.3% for Poland. The highest value of this index is in Świętokrzyskie Voivodeship and it is 13.9%. In the analysed voivodeship, this value came to 8.4%.

In Poland in 2014, a medication programme called 'Treatment of chronic viral hepatitis C' was carried out by 73 healthcare providers, 9 of which were in Mazowieckie Voivodeship. The largest concentration of healthcare providers was in the southern part of the country.

Chronic viral hepatitis B

The second largest group of viral hepatitis in terms of the number of hospitalisations in Poland was chronic hepatitis B (5.6 thousand hospitalisations in the country). In Mazowieckie Voivodeship, the number of hospitalisations for this group came to 929.

For chronic hepatitis B, there is a significant difference in the number of hospitalisations per 100,000 people in individual voivodeships:from 13.3 hospitalisations per 100,000 people in Podkarpackie Voivodeship to 79.2 hospitalisations per 100,000 people in Świętokrzyskie Voivodeship. In Mazowieckie Voivodeship, the number of hospitalisations per 100,000 people was:17.

The number of children's hospitalisations is small in the voivodeship; hence, it can be assumed that it results from the obligatory children's immunisation program.

The analysed diagnosis group is highly diversified in terms of patients from outside the voivodeship: from 2.2% in Wielkopolskie to 34.7% in Mazowieckie.

Waiting time and admission type statistics indicate a high degree of diversity between voivodeships. The largest share of patients admitted on an emergency basis occurs in Pomorskie Voivodeship (96.4%). In Mazowieckie Voivodeship it amounted to 14.1%.

The average share of hospitalisation followed by rehospitalisation within 30 days with the diagnosis of chronic hepatitis B was 2.8% for Poland. The highest value of this index is in Kujawsko-Pomorskie Voivodeship and it is 7.5%. In the analysed voivodeship, this value came to 3.4%.

In Poland in 2014, a medication programme called 'Treatment of chronic viral hepatitis B' was carried out by 64 healthcare providers, 7 of which were in Mazowieckie Voivodeship. The largest concentration of healthcare providers was in the southern part of the country.

Liver fibrosis and cirrhosis

One of the complications of chronic viral hepatitis B or C is liver fibrosis and cirrhosis. In Poland, there were 764 hospitalisations for this diagnosis, 184 of which were in the analysed voivodeship. It should be noted that mortality of patients hospitalised with this diagnosis was high. In Mazowieckie Voivodeship, on average 23 out of 100 patients hospitalised for this diagnosis did not survive 365 days from the date of admission to hospital.

3.12 Infectious diseases: HIV infection

In the section dedicated to inpatient treatment in the scope of acquired immune deficiency syndrome (AIDS) and HIV infections, all hospitalisation services for B20-B24 diagnoses according to the International Statistical Classification of Diseases and Related Health Problems, tenth edition (ICD-10), were analysed.

In Poland, 50 hospitals reported 3.6 thousand hospitalisations for the main diagnosis of B20-B24 under contracts with the National Health Fund (NFZ). In hospitals in Mazowieckie Voivodeship (6) a total of 35.8% of hospitalisations in Poland were reported.

Due to low annual number of hospitalisations, hospital services provided to patients with AIDS or those infected with HIV in Poland are centralised and supraregional. For this reason, the largest number of hospitalisations was recorded in Mazowieckie Voivodeship (1.3 thousand), while in five voivodeships (Lubelskie, Opolskie, Podkarpackie, Świętokrzyskie and Warmińsko-Mazurskie) there were less than 50 hospitalisations and at the same time less than 2.5 hospitalisations per 100,000 residents. At the same time, 12 hospitals in Poland recorded over 100 hospitalisations. The number of such healthcare providers in Mazowieckie Voivodeship was 1.

A significant share in the patients' structure in the largest hospitals treating patients with AIDS and HIV are patients coming from other voivodeships than the one in which the hospital is located. This is a result of the mentioned centralisation. Men prevail in the patients' structure. In Poland in 2014, only every fourth person hospitalised for B20-B24 diagnoses was a woman. In Mazowieckie Voivodeship, 27% of the hospitalised were women.

3.13 Infectious diseases (excluding hepatitis and HIV infection)

Infectious diseases (excluding HIV and viral hepatitis) were divided based on the ICD-10 classification into groups: respiratory, generalised, skin, circulation diseases, diseases of genitourinary system, gastrointestinal tract nervous system, Lyme disease and tuberculosis. This document summarises the key information for the respiratory and generalised infectious diseases and infectious diseases of gastrointestinal tract. A detailed analysis of other subgroups is presented in the Map of Healthcare Needs for infectious diseases (excluding hepatitis and HIV infection).

In Mazowieckie Voivodeship in the following groups: respiratory, gastrointestinal tract, generalised, respectively 79%, 79%, 79% of hospitalisations took place in 35, 28, 25 hospitals (47%, 42%, 33% of all hospitals in this voivodeship treating patients for this diagnosis).

In Mazowieckie Voivodeship, the median length of stay in the following groups: respiratory, gastrointestinal tract, generalised, is respectively 6, 3, 8 days (in Poland: 6, 3, 6 days). DGR groups most frequently used to report hospitalisation in the following groups: respiratory, gastrointestinal tract, generalised, were P04 DISEASES OF THE LOWER RESPIRATORY TRACT, P22 INFECTIOUS AND NON-INFECIOUS GASTROENTERITIS, S56 SEVERE SEPSIS (26.3% and 77.4% and 34.6%, respectively, of hospitalisations reported according to DGR in the voivodeship).

In Mazowieckie Voivodeship, the percentage of scheduled admissions in the following groups: respiratory, gastrointestinal tract and generalised, was 16.6%, 15.9% and 21.9%, respectively (in Poland: 14.8%, 10.3%, 15.4%). In turn, the percentage of emergency admissions was 83.3%, 84.0%, 77.7%, respectively. In Poland, these values were 85.0%, 89.6%, 84.2%, respectively.

3.14 Diseases of the oral cavity and dentistry

This document summarises key information about diseases of the oral cavity and dentistry. A detailed analysis can be found in the map of healthcare needs for diseases of the oral cavity and dentistry.

Treatment of the analysed disease group is provided mainly in outpatient settings. Inpatient services are usually surgical procedures or procedures for people requiring anaesthesia (e.g. children, disabled people, requiring special care). In Mazowieckie Voivodeship, 2,037 hospitalisations were reported, and 83% of DRG hospitalisations were reported as surgical hospitalisations.

The number of hospitalisations per 100,000 population ranged from 11.05 in Małopolskie Voivodeship to 69.75 in the Warmińsko-Mazurskie Voivodeship (in Mazowieckie Voivodeship: 38.19 per 100,000).

The analysis of the structure of wards on which patients were hospitalised in Mazowieckie Voivodeship showed that 73% of all hospitalisations were reported on the maxillofacial surgery ward and 14% on the otorhinolaryngology ward.

Significant concentration of services was observed in Mazowieckie Voivodeship. The largest healthcare provider reported 41% of all hospitalisations; the two largest reported 66%.

In the case of 90% of hospitalisation in the region, the admission mode was reported as a scheduled mode.

As part of inpatient treatment in the case of the given group of diseases, the maxillofacial surgery wards were additionally analysed. The analysis was conducted according to diagnoses and procedures. The procedures are divided into (in parentheses, there are given shares of hospitalisations with a procedure from a given group of procedures in Mazowieckie Voivodeship): basic maxillofacial surgery (47.7%), advanced maxillofacial surgery (22.3%), dental surgery (15.5%), dentistry (0.0%) and procedures of specialities other than maxillofacial surgery (25.2%). In 2014, the number of wards in Mazowieckie Voivodeship was 6.

3.15 Injury, poisoning, symptoms, signs, and certain other consequences of external causes

Symptoms, signs and abnormal laboratory findings

Data indicate that despite difference in the hospitalisation number due to diagnoses from this group between hospitals, their share in the total hospitalisation number was negligible (approx. 3.3%). However, analyses show differences between the services provided to these patients in terms of the reported procedures. The frequency of these hospitalisations is also different between wards (they were most commonly found for audiology and phoniatrics wards).

Traumas

In the Map of Healthcare Needs, the diagnoses assigned to the Traumas group were divided into the following subgroups: limb traumas, head injuries, spinal injuries, thorax injuries, abdominal traumas, pelvic traumas and other injuries.

Limb traumas

29.75 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Kujawsko-Pomorskie (382.96), the most in Podkarpackie Voivodeship (717.66). In Mazowieckie Voivodeship, this index equalled 557.79. Significant service concentration: 80% of hospitalisations were reported by 22 healthcare providers out of 79 (28% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 6.9% of all hospitalisations. The average length of hospitalisation in the voivodeship was 5.8 days (the same as its standardized value); the nationwide average length of hospitalisation of these patients is 5.5 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 5.9 days (ranging from 1 to 9.6 days).1.2% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.0% in Poland). For healthcare providers that reported more than 50 hospitalisations, the average death rate was 1.2% (ranging from 0% to 3.5%).

Head injuries

14.98 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Pomorskie (174.23), the most in Łódzkie Voivodeship (314.70). In Mazowieckie Voivodeship, this index equalled 280.92. No clear concentration of services: 80% of hospitalisations were reported by 27 healthcare providers out of 70 (39% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 7.8% of all hospitalisations. The average length of stay in the voivodeship was 4.9 days (standardised value: 4.8 days); the nationwide average length of stay of these patients was 4.8 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 4.9 days (ranging from 1.4 to 15.9 days).2.8% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 2.8% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 2.8% (ranging from 0% to 18.9%).

Spinal injuries

2.94 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Lubuskie (34.31), the most in Mazowieckie Voivodeship (55.20). No clear concentration of services: 80% of hospitalisations were reported by 22 healthcare providers out of 60 (37% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 10.8% of all hospitalisations. The average length of stay in the voivodeship was 6.6 days (standardised value: 6.8 days); the nationwide average length of stay of those patients was 6.4 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 7.2 days (ranging from 3 to 17.4 days).1.7% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.1% in Poland). For healthcare providers that reported more than 50 hospitalisations, the average death rate was 1.8% (ranging from 0% to 10.1%).

Thorax injuries

1.81 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Małopolskie (20.28), the most in Świętokrzyskie Voivodeship (37.53). In Mazowieckie Voivodeship, this index equalled 33.92. Service dispersion: 80% of hospitalisations were reported by 30 healthcare providers out of 62 (48% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 7.3% of all hospitalisations. The average length of stay in the voivodeship was 5.5 days (standardised value: 5.4 days); the nationwide average length of stay of those patients was 5.3 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 4.5 days (ranging from 3.6 to 5.5 days).1.9% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.5% in Poland). For healthcare providers that reported more than 50 hospitalisations, the average death rate was 1.4% (ranging from 0% to 2.9%).

Abdominal traumas

1.21 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Pomorskie (15.47), the most in Podlaskie Voivodeship (25.59). In Mazowieckie Voivodeship, this index equalled 22.67. No clear concentration of services: 80% of hospitalisations were reported by 28 healthcare providers out of 64 (44% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 6.2% of all hospitalisations. The average length of stay in the voivodeship was 6 days (standardised value: 5.9 days); the nationwide average length of stay of those patients was 5.6 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 4.6 days (ranging from 3.3 to 5.7 days).1.7% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 2.2% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 1.5% (ranging from 0% to 2.8%).

Pelvic traumas

0.67 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Podlaskie (5.62), the most in Opolskie Voivodeship (12.70). In Mazowieckie Voivodeship, this index equalled 12.58. No clear concentration of services: 80% of hospitalisations were reported by 16 healthcare providers out of 41 (39% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 24.6% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. For healthcare providers that reported more than 50 hospitalisations, the average length of stay was 16.6 days (ranging from 7.5 to 19.7 days).

Poisoning and certain other consequences of external causes

The diagnoses included in the group: 'Poisoning and other specific external causes' have been divided into the following subgroups: trauma consequences and complications, poisoning by medicaments, other external causes not elsewhere classified, medical procedure complications burns, poisoning by alcohol, foreign body, poisoning by chemical substances, poisoning: venoms, mushrooms, plants, poisoning: narcotics, other poisoning and frostbite.

Trauma consequences and complications

6.14 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Pomorskie (84.42), the most in Świętokrzyskie Voivodeship (172.62). In Mazowieckie Voivodeship, this index equalled 115.18. Significant service concentration: 80% of hospitalisations were reported by 19 healthcare providers out of 65 (29% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 10.2% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. For healthcare providers that reported more than 50 hospitalisations, the average length of stay was 3.3 days (ranging from 1 to 5.8 days).

Poisoning by medicaments

2.41 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Podlaskie (22.32), the most in Łódzkie Voivodeship (78.70). In Mazowieckie Voivodeship, this index equalled 45.24. No clear concentration of services: 80% of hospitalisations were reported by 27 healthcare providers out of 63 (43% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 18.0% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 4.2 days (ranging from 2.1 to 7.8 days).1.2% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 0.8% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 0.7% (ranging from 0% to 2.4%). The greatest number of in-patients in the voivodeship received treatment relative to the scope of internal diseases - hospitalisation (54.91%).17.70% received treatment relative to the scope of clinical toxicology (27.27% in Poland).

Medical procedure complications

1.98 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Opolskie (22.99), the most in Dolnośląskie Voivodeship (43.16). In Mazowieckie Voivodeship, this index equalled 37.03. Significant service concentration: 80% of hospitalisations were reported by 15 healthcare providers out of 64 (23% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 20.9% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. As for the healthcare providers that reported over 50 hospitalisations, the average length of stay was 14.3 days (ranging from 7 to 20.5 days).1.3% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.2% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 1.0% (ranging from 0% to 5.5%).

Burns

1.23 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Opolskie (15.10), the most in Świętokrzyskie Voivodeship (31.99). In Mazowieckie Voivodeship, this index equalled 23.02. Significant service concentration: 80% of hospitalisations were reported by 20

healthcare providers out of 59 (34% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 14.4% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. With the healthcare providers that reported over 50 hospitalisations, the average length of stay was 7.6 days (ranging from 5.3 to 18.1 days).2.3% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 2.6% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 2.6% (ranging from 0% to 19.1%).

Poisoning by alcohol

1.00 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Opolskie (6.20), the most in Łódzkie Voivodeship (46.86). In Mazowieckie Voivodeship, this index equalled 18.71. No clear concentration of services: 80% of hospitalisations were reported by 21 healthcare providers out of 53 (40% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 9.6% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. For healthcare providers that reported more than 50 hospitalisations, the average length of stay was 2.5 days (ranging from 1.7 to 3.8 days).1.5% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.3% in Poland). With the healthcare providers that reported over 50 hospitalisations, the average death rate was 0.6% (ranging from 0% to 1.4%). The greatest number of in-patients in the voivodeship received treatment relative to the scope of internal diseases - hospitalisation (70.84%).2.10% received treatment relative to the scope of clinical toxicology (19.22% in Poland).

Foreign body

0.85 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Noticeable differences in the number of hospitalisations per 100 thousand people: the fewest in Małopolskie (7.96), the most in Świętokrzyskie Voivodeship (16.79). In Mazowieckie Voivodeship, this index equalled 15.96. Significant service concentration: 80% of hospitalisations were reported by 13 healthcare providers out of 56 (23% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 18.4% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. For healthcare providers that reported more than 50 hospitalisations, the average length of stay was 1.8 days (ranging from 1.3 to 2.3 days).

Poisoning by chemical substances

0.43 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Podlaskie (3.78), the most in Śląskie Voivodeship (23.16). In Mazowieckie Voivodeship, this index equalled 7.99. No clear concentration of services: 80% of hospitalisations were reported by 24 healthcare providers out of 55 (44% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 10.3% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days.1.4% of hospitalisations in Mazowieckie Voivodeship ended in patient's death (as compared to 1.0% in Poland). The greatest number of in-patients in the voivodeship received treatment relative to the scope of paediatrics - hospitalisation (57.04%).8.22% received treatment relative to the scope of clinical toxicology (26.41% in Poland).

Poisoning: venoms, mushrooms, plants

0.26 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Podlaskie (2.35), the most in Łódzkie Voivodeship (7.67). In Mazowieckie Voivodeship, this index equalled 4.93. No clear concentration of services: 80% of hospitalisations were reported by 16 healthcare providers out of 39 (41% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 15.6% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. The greatest number of in-patients in the voivodeship received treatment relative to the scope of paediatrics - hospitalisation (85.55%).2.28% received treatment relative to the scope of clinical toxicology (10.87% in Poland).

Poinsoning: narcotics

0.23 thousand hospitalisations were reported within this subgroup in Mazowieckie Voivodeship. Significant differences in the number of hospitalisations per 100 thousand people: the fewest in Podlaskie (2.43), the most in Łódzkie Voivodeship (23.41). In Mazowieckie Voivodeship, this index equalled 4.33. Service dispersion: 80% of hospitalisations were reported by 22 healthcare providers out of 46 (48% of all in the voivodeship that reported at least one patient from this group). The biggest healthcare provider reported 14.7% of all hospitalisations. The average length of stay in the voivodeship was 11.1 days (standardized value: 10.6 days); the nationwide average length of stay of these patients was 10 days. The greatest number of in-patients in the voivodeship received treatment relative to the scope of paediatrics - hospitalisation (64.07%).9.09% received treatment relative to the scope of clinical toxicology (44.60% in Poland).

3.16 Comorbidities in the elderly

In many disease groups, a significant percentage of elderly patients was observed when analysing the age of patients. In addition, demographic forecasts predict an increase in the elderly population in the coming years, which will directly lead to an increase in the number of elderly patients. Medical experts working with the Department of Analysis and Strategy have pointed out that, in the majority of cases, patients in this age group, apart from the condition being the cause of hospitalisation, suffer from many other conditions as well. Such patients require comprehensive care and are a greater burden for hospitals in which they are hospitalised.

Therefore, in the next step of the analysis, it would be reasonable to carefully analyse comorbidities in elderly patients and to determine what percentage of patients over 80 years of age were provided with the following service during hospitalisation:Comprehensive Geriatric Assessment (CGA)

During consultations concerning the maps of healthcare needs, the geriatric community represented, among others, by the national consultant in the field of geriatrics, indicated that the problem with comorbidities in elderly patients was significant mainly in the following groups of diseases:

- Disorders of bone mineralisation and structure (Diseases of the musculoskeletal system)
- Joint diseases (Diseases of the musculoskeletal system)
- Diseases of the aorta and peripheral vessels, including hypertension
- Diabetes mellitus
- Alzheimer's disease and other dementias (Diseases of the nervous system (diseases of the nervous system in the elderly))
- Parkinson's disease and other movement disorders (Diseases of the nervous system (diseases of the nervous system in the elderly))
- Ischaemic stroke (Diseases of the nervous system (diseases of the nervous system in the elderly))

- Mood disorders other than schizophrenia (mental disorders)
- Malnutrition (metabolic diseases)
- Other nutritional deficiencies (metabolic diseases)
- COPD (diseases of the respiratory system (chronic))
- Asthma (diseases of the respiratory system (chronic))
- Pneumonia (diseases of the respiratory system (chronic))
- Thyroid gland diseases (endocrine diseases)
- Anaemia (non-neoplastic haematology)
- Cataracts (diseases of the eye and adnexa)
- Glaucoma (diseases of the eye and adnexa)
- Urinary incontinence (diseases of the genitourinary system)
- Renal failure (diseases of the genitourinary system)
- Diseases of the organs of hearing and speech (diseases of the ear and mastoid process)
- Injury (injury, symptoms, poisoning)

Part IV

Specialist Outpatient Care

For individual groups of diseases discussed in the maps of healthcare needs, the functioning of specialist outpatient care was analysed. In the first step of the analysis, each disease group was analysed according to the types of clinics defined on the basis of the 8th element of the Ministry of Health in which the patients with the analysed diagnosis group according to ICD-10 appeared. Table 4.1 shows the clinics in which 80% of consultations for specific disease groups was carried out.

Table 4.1:Clinics in which 80% of consultations for specific disease groups was carried out

Disease group	Clinics
Diseases of the musculoskeletal system	Trauma and orthopaedic surgery clinic, rheumatology clinic
	Neurology clinic, general surgery clinic
Diseases of the nervous system (diseases of the nervous system in the elderly)	Neurology
Diseases of the nervous system (other than in the elderly)	Neurology clinic, trauma and orthopaedic surgery clinic, pain management clinic
Diseases of the aorta and peripheral vessels	General surgery, vascular surgery, vascular diseases, dermatology
Hypertension	Cardiology
Diseases of the respiratory system (chronic)	Tuberculosis and pulmonary clinic, allergology clinic, pulmonary clinic
Diseases of the respiratory system (acute)	Tuberculosis and pulmonary clinic, pulmonary clinic, paediatric tuberculosis and pulmonary clinic, allergology clinic
Endocrine diseases	Endocrinology clinic, paediatric endocrinology clinic
Mental disorders – adults	mental health clinic, alcohol addiction and co-addiction treatment clinic, addiction treatment clinic
Mental disorders – children	Logopedics clinic, paediatric mental health clinic, autism treatment clinic
Pregnancy, childbirth and the puerperium, and neonatal care	Obstetrics and gynaecology
Diabetes mellitus	Diabetes
Neoplasms of haematopoietic or lymphoid tissue	Haematology clinic, oncology clinic, chemotherapy clinic
Diseases of blood and immune system	Haematology clinic, paediatric haematology clinic, immunology clinic
Non-malignant neoplasms	General surgery clinic, endocrinology clinic, dermatology clinic, surgical oncology clinic, obstetrics and gynaecology clinic, oncology clinic

Disease group	Clinics
Metabolic disorders	Rheumatology clinic, osteoporosis clinic, metabolic diseases clinic, trauma and orthopaedic surgery clinic, general surgery clinic, endocrine osteoporosis clinic
Fractures over the age of 50 years	Trauma and orthopaedic surgery clinic, general surgery clinic
Diseases of the eye and adnexa	Ophthalmology
Diseases of the skin	Dermatology clinic, general surgery clinic
Non-neoplastic diseases of male genital organs	Urology
Diseases of female genitourinary tract	Obstetrics and gynaecology
Diseases of kidneys and urinary tract	Cardiology clinic, urology clinic, nephrology clinic
Diseases of liver, biliary tract and pancreas (excluding malignant and non-malignant neoplasms)	General surgery clinic, gastroenterology clinic, hepatology clinic
Diseases of the upper digestive tract (excluding malignant and non-malignant neoplasms)	Gastroenterology clinic, endoscopy laboratory, general surgery clinic, paediatric gastroenterology clinic
Diseases of the lower digestive tract (excluding malignant and non-malignant neoplasms)	General surgery clinic, gastroenterology clinic, anus and rectum clinic, endoscopy laboratory, paediatric general surgery clinic
Diseases of the nose, nasal sinuses, ear, pharynx and larynx	Otorhinolaryngology clinic, allergology clinic
Infectious diseases: viral hepatitis	Infectious diseases clinic, hepatology clinic
Infectious diseases: HIV	Preventive and therapeutic treatment (HIV/AIDS)
Infectious diseases (excluding HIV infection and hepatitis)	Dermatology clinic, otorhinolaryngology clinic, general surgery clinic, infectious diseases clinic, tuberculosis and pulmonary clinic
Diseases of the oral cavity and dentistry	Dental
Symptoms	Logopedics clinic, otorhinolaryngology clinic, neurology clinic, general surgery clinic, paediatric cardiology clinic, tuberculosis and pulmonary clinic, paediatric neurology clinic, computed tomography laboratory, cardiology clinic, pulmonary clinic, urology clinic, endoscopy laboratory, pain management clinic
Traumas	Trauma and orthopaedic surgery clinic, general surgery clinic
Poisoning and certain other consequences of external causes	Trauma and orthopaedic surgery clinic, general surgery clinic, neurology clinic

Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office

Table 4.2 presents a comparison of the number of consultations reported through ZD–3 reports and the number of consultations reported to the NFZ. It should be emphasised that figures in the table corresponds to the minimum estimated percentage of consultations provided outside the NFZ. The ZD–3 report is obligatory for entities that provide outpatient care services: both public and non-public healthcare centres as well as medical practices financed from public funds. Where the number of consultations reported through ZD–3 reports was lower than the number of consultations reported to the NFZ, it was assumed that the difference was 0.

Table 4.2:Comparison of numbers of NFZ and ZD–3 consultations

ZD–3 clinic name	NFZ clinic name	% of consultations outside NFZ for the voivodeship	% of consultations outside NFZ for Poland
Internal diseases clinic	Metabolic diseases	97.9	96.2
Allergology	Allergology, paediatric allergology	31.7	14.1
Diabetes	Diabetes, paediatric diabetes	16.0	5.8
Endocrinology	Endocrinology, paediatric endocrinology, endocrinology and gynaecology	38.4	22.5
Cardiology	Cardiology, paediatric cardiology Arterial hypertension, vascular	27.7	15.7
Nephrology	Nephrology, paediatric nephrology	21.0	13.1
Dermatology	Dermatology, paediatric dermatology, venerology	35.0	14.5
Neurology	Neurology, paediatric neurology	24.7	14.5
Oncology	Oncology, paediatric oncology, paediatric haematology and oncology	20.0	14.1
Tuberculosis and pulmonary diseases	Tuberculosis and pulmonary, paediatric tuberculosis and pulmonary, pulmonary, paediatric pulmonary, cystic fibrosis treatment	14.6	6.1
Rheumatology	Rheumatology, paediatric rheumatology	21.0	9.2
Infectious diseases	Infectious diseases, paediatric infectious diseases, preventive and therapeutic treatment (HIV/AIDS)	12.5	15.4
Obstetrics and gynaecology	Obstetrics and gynaecology, gynaecology, gynaecology for adolescent patients, pregnancy disorders, breast care, gynaecological oncology	37.3	21.2
		15.1	7.5
Surgical (other than trauma and orthopaedic surgery and neurosurgery)	General surgery, paediatric general surgery, anus and rectum, thoracic surgery, vascular surgery, surgical oncology, paediatric surgical oncology, plastic surgery, paediatric plastic surgery, cardiac surgery, pacemaker and ICD monitoring, maxillofacial surgery		

ZD–3 clinic name	NFZ clinic name	% of consultations outside NFZ for the voivodeship	% of consultations outside NFZ for Poland
Trauma and orthopaedic surgery	Trauma and orthopaedic surgery, paediatric trauma and orthopaedic surgery	35.8	17.6
Neurosurgery	Neurosurgery, paediatric neurosurgery	49.1	21.7
Ophthalmology	Ophthalmology, paediatric ophthalmology glaucoma treatment, strabismus treatment, paediatric strabismus treatment	39.1	23.3
Otolaryngology	Otorhinolaryngology, paediatric otorhinolaryngology, audiology, paediatric audiology, phoniatrics, paediatric phoniatrics, logopedics, paediatric logopedics	27.3	11.6
Urology	Urology, paediatric urology	20.6	14.1
Dental	Dental	48.7	37.1
Periodontology	Periodontology	88.7	84.1
Orthodontic	Orthodontic	63.4	37.3
Dental prosthetics	Dental prosthetics	85.7	78.7
Dental surgery	Dental surgery	62.2	51.7

Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office

Based on the information presented in Table 4.1, we have identified clinics directly and indirectly dedicated to particular disease groups. The analysis distinguished clinics dedicated directly to the analysed diagnosis groups. A detailed analysis for each clinic type is presented in the Maps of Healthcare Needs. Table 4.3 presents a summary of information for clinics dedicated directly to the disease groups in question in the Mazowieckie Voivodeship.

Table 4.3:Clinics in Mazowieckie Voivodeship

Clinic	Number of clinics in the voivodeship	Number of consultations in the voivodeship (in thousands)	Number of consultantions per clinic in voivodeship (in thousands)	% of W11 preventive health consultations for the voivodeship	% of W11 preventive health consultations for Poland	%of consultaations for patients who appeared at least 3 times for the voiveodeship	% of consultations for patients who appeared at least 3 times for Poland
Dental	731	1,898.75	2.6	-	-	71.9	69.1
Obstetrics and gynaecology	288	1431.32	5.0	45.0	42.4	72.0	70.5
Ophthalmology	198	1,067.88	5.4	25.8	27.3	52.4	49.1
Otorhinolaryngology	193	638.57	3.3	49.5	50.6	44.8	47.5
Neurology	184	622.16	3.4	69.4	69.6	52.5	56.0
Cardiology	158	659.66	4.2	16.7	10.6	57.5	60.1
Dermatology	151	693.54	4.6	52.0	60.0	50.6	53.1
General surgery	133	812.00	6.1	59.1	65.1	61.6	66.7
Mental health	122	628.17	5.1	-	-	89.4	88.8
Urology	120	415.98	3.5	51.3	45.4	60.9	57.0
Trauma and orthopaedic surgery	111	899.83	8.1	51.3	56.5	58.3	62.6
Diabetes	103	270.37	2.6	50.1	53.7	62.1	73.5
Endocrinology	92	336.55	3.7	34.7	33.4	41.5	45.0
Rheumatology	87	210.30	2.4	50.4	57.0	67.2	70.3
Allergology	83	271.94	3.3	58.4	60.2	74.9	76.8
Paediatric dental	72	144.96	2.0	-	-	73.2	70.2
Orthodontic	72	167.08	2.3	-	-	85.3	82.2
Computed tomography laboratory	69	142.31	2.1	-	100.0	8.6	6.8
Dental surgery	68	128.79	1.9	-	-	51.8	45.5
Dental prosthetics	64	43.78	0.7	-	-	49.9	41.0
Oncology	59	341.53	5.8	56.2	50.4	65.3	62.8
Logopedics	57	133.47	2.3	-	-	94.5	97.1
Gastroenterology	56	122.56	2.2	63.0	63.6	48.1	48.2
Alcohol addiction and co-addiction treatment	56	262.81	4.7	-	-	95.6	94.9
Tuberculosis and pulmonary diseases	46	168.60	3.7	42.0	45.0	56.4	60.9
Addiction treatment	38	249.07	6.6	-	-	97.4	95.7
Pulmonary diseases	36	109.04	3.0	39.5	46.2	46.8	60.3
Paediatric allergology	35	92.47	2.6	61.5	62.3	64.2	75.3
Paediatric Neurology	35	75.76	2.2	58.6	57.6	45.5	48.4
Gynaecology	33	85.30	2.6	53.9	49.8	63.4	65.1
Nephrology	30	55.07	1.8	27.0	26.1	55.7	59.2
Paediatric general surgery	26	154.81	6.0	53.0	60.2	46.7	55.0

Clinic	Number of clinics in the voivodeship	Number of consultations in the voivodeship (in thousands)	Number of consultantions per clinic in voivodeship (in thousands)	% of W11 preventive health consultations for the voivodeship	% of W11 preventive health consultations for Poland	%of consultaations for patients who appeared at least 3 times for the voiveodeship	% of consultations for patients who appeared at least 3 times for Poland
Pain management	25	74.43	3.0	85.0	83.9	90.4	92.5
Paediatric ophthalmology	25	96.34	3.9	34.0	36.3	38.0	36.2
Vascular surgery	24	87.76	3.7	62.2	53.8	40.4	37.2
Paediatric otorhinolaryngology	24	69.42	2.9	38.4	42.9	50.9	49.8
Paediatric mental health	24	77.88	3.2	-	-	89.6	85.7
Surgical oncology	23	82.64	3.6	65.3	60.1	63.0	61.7
Paediatric cardiology	22	48.63	2.2	8.3	4.0	26.8	26.7
Audiology	21	87.62	4.2	30.4	21.7	36.7	37.1
Anus and rectum	20	28.28	1.4	53.4	62.1	45.6	52.6
Osteoporosis	20	82.79	4.1	26.6	32.2	32.1	32.1
Psychology	19	14.90	0.8	-	-	88.0	87.5
Paediatric orthodontic	19	47.91	2.5	-	-	82.9	81.1
Neurosurgery	15	32.27	2.2	83.9	72.0	21.4	29.0
Paediatric trauma and orthopaedic surgery	13	62.03	4.8	36.0	45.6	30.2	39.7
Psychoactive drug addiction treatment	13	46.68	3.6	-	-	96.8	95.1
Metabolic diseases	12	34.68	2.9	26.3	43.6	51.6	58.0
Paediatric neurology	12	27.92	2.3	36.7	48.0	50.1	55.3
Paediatric endocrinology	10	22.65	2.3	46.3	41.7	40.7	47.7
Strabismus treatment	10	30.15	3.0	61.4	44.1	72.4	76.0
Haematology	9	70.85	7.9	39.1	32.0	67.9	70.2
Paediatric tuberculosis and pulmonary diseases	9	18.52	2.1	56.8	59.0	68.8	77.4
Infectious diseases	9	58.65	6.5	44.6	44.6	43.5	46.1
Gynaecology for adolescent patients	9	9.77	1.1	32.8	34.8	45.8	51.7
Vascular clinic	8	10.60	1.3	40.7	38.8	21.1	33.3
Breast care	8	8.63	1.1	36.5	38.6	22.0	35.6
Genetics	7	9.40	1.3	88.8	67.8	6.7	17.9

Clinic	Number of clinics in the voivodeship	Number of consultations in the voivodeship (in thousands)	Number of consultantions per clinic in voivodeship (in thousands)	% of W11 preventive health consultations for the voivodeship	% of W11 preventive health consultations for Poland	%of consultaations for patients who appeared at least 3 times for the voiveodeship	% of consultations for patients who appeared at least 3 times for Poland
Autism treatment	7	1.11	0.2	-	-	98.5	97.4
Paediatric diabetes	6	10.10	1.7	82.1	73.9	84.0	84.9
Phoniatrics	6	14.45	2.4	17.4	21.8	34.6	39.0
Paediatric logopedics	6	18.14	3.0	-	-	92.9	94.3
Periodontology	6	17.36	2.9	-	-	59.1	56.2
Endocrinology and gynaecology	5	20.55	4.1	57.2	54.6	49.2	52.8
Endocrinology Osteoporosis	5	11.34	2.3	23.4	27.6	27.4	27.2
Paediatric gastroenterology	5	12.35	2.5	77.4	60.9	23.6	41.5
Paediatric dermatology	5	16.80	3.4	48.8	60.0	46.0	44.4
Pregnancy care	5	15.27	3.1	27.0	27.8	65.6	68.6
Paediatric phoniatrics	5	5.13	1.0	20.8	10.9	82.3	52.6
Maxillofacial surgery	5	34.67	6.9	77.1	71.6	58.9	60.3
Transplant	5	28.21	5.6	31.3	31.7	85.0	88.3
Paediatric neurosis treatment	5	32.06	6.4	-	-	99.0	99.0
Hepatology	4	9.86	2.5	37.7	37.0	25.6	46.0
Paediatric pulmonary diseases	4	3.62	0.9	80.0	60.3	78.7	73.5
Plastic surgery	4	19.11	4.8	56.2	58.0	65.6	56.9
Infertility treatment	3	6.53	2.2	32.8	29.2	81.9	73.7
Thoracic surgery	3	12.12	4.0	57.4	56.6	41.8	47.4
Paediatric urology	3	10.86	3.6	34.2	42.1	25.2	41.3
Neurosis treatment	3	10.67	3.6	-	-	85.4	84.3
Paediatric psychology	3	3.85	1.3	-	-	73.6	86.2
Andrology	2	6.91	3.5	60.6	62.5	79.0	74.7
Disorders of thyroid gland	2	5.15	2.6	39.7	32.9	57.1	35.2
Paediatric haematology	2	5.13	2.6	55.0	41.1	37.5	47.5
Arterial hypertension	2	6.50	3.3	31.9	30.5	59.1	55.2
Paediatric genetics	2	0.82	0.4	59.3	72.9	11.3	11.2
Paediatric oncology	2	3.51	1.8	55.6	44.9	53.2	62.2
Paediatric rheumatology	2	4.30	2.2	56.3	52.5	48.8	54.1
Paediatric infectious diseases	2	4.20	2.1	50.5	49.2	56.2	48.4

Clinic	Number of clinics in the voivodeship	Number of consultations in the voivodeship (in thousands)	Number of consultantions per clinic in voivodeship (in thousands)	% of W11 preventive health consultations for the voivodeship	% of W11 preventive health consultations for Poland	%of consultaations for patients who appeared at least 3 times for the voiveodeship	% of consultations for patients who appeared at least 3 times for Poland
Gynaecological oncology	2	1.36	0.7	52.2	49.7	54.1	52.9
Glaucoma treatment	2	11.78	5.9	20.4	19.7	54.6	63.2
Paediatric strabismus treatment	2	0.98	0.5	37.5	35.6	82.1	77.5
Paediatric alcohol addiction and co-addiction treatment	2	0.84	0.4	-	-	94.6	89.1
Sexology and sexual dysfunctions	2	8.49	4.2	-	-	92.6	89.1
Venerology	1	14.81	14.8	77.0	76.3	60.7	54.8
Paediatric oncology and haematology	1	6.91	6.9	62.3	43.8	53.7	60.3
Cystic fibrosis treatment	1	1.22	1.2	39.6	43.9	74.6	71.7
Preventive and therapeutic treatment (HIV/AIDS)	1	30.95	31.0	67.8	52.9	95.8	93.2
Paediatric surgical oncology	1	4.39	4.4	59.7	57.6	33.6	42.8
Paediatric neurosurgery	1	2.25	2.3	37.3	69.3	19.8	24.2
Paediatric audiology	1	0.32	0.3	2.8	11.5	1.9	32.1
Psychogeriatric	1	6.70	6.7	-	-	64.0	74.7
Mental health for children, adolescents and their families	1	4.31	4.3	-	-	83.9	83.7
Paediatric anti-smoking	1	1.19	1.2	-	-	89.4	88.7
Dental	1	3.62	3.6	-	-	47.6	63.7

Compiled by DAiS based on data provided by the NFZ

In addition to the information provided above, the experts cooperating with the Ministry of Health have identified the following information as relevant:

- 11.2% of all consultations provided in neurology clinics in Mazowieckie Voivodeship are related to headache diagnosis.
- Consultations regarding demyelinating diseases in neurology clinics accounted for 1.3%.

- There is a high percentage of AOS consultations provided to patients with degenerative spine diseases. They account for about 10.8% of all the consultations provided by neurology clinics (often several times a year). Degenerative diseases of the spine are the most common reason for patient visits to neurosurgery clinics and account for 51.1% of all consultations.
- There is also a high percentage of consultations provided to patients with mononeuropathies, nerve compression syndromes and radiculopathies, which constitute approximately 22.6% of all consultations in neurology clinics, provided often several times in a year.
- From the analysis of the share of patients with different diagnoses in neurology clinics, it can be concluded that some clinics specialise in selected diseases such as epilepsy (more than 1 in 3 consultations were provided for patients with epilepsy in 3 neurology outpatient clinics), which indicates the need to create specialist clinics enabling comprehensive diagnostic visits.

- In AOS, in the case of patients with musculoskeletal conditions, 90% of services were provided in five types of outpatient clinics: trauma and orthopaedic surgery clinic, rheumatic clinic, neurology clinic, general surgery clinic, pain management clinic and magnetic resonance imaging laboratory. Consultations from the first three types of clinics constituted almost 75% of all consultations provided to patients with musculoskeletal conditions. Due to their large importance in treating their patients, the osteoporosis clinic, endocrine osteoporosis clinic and neurosurgery clinic were also analysed.

- In the case of the rheumatology outpatient clinic, differences in the proportion of patients with inflammatory and non-inflammatory diagnoses are noteworthy. In Mazowieckie Voivodeship, the share of consultations provided to patients with inflammatory diagnoses reached 53.2% (in Poland 45.5%). There are also significant differences among service providers (87 in the voivodeship): the share of consultations provided to patients with inflammatory diagnoses ranged from 0% to 91.8%.

- There are few hypertension clinics in Poland (14 in total with no such clinics in the Łódzkie, Opolskie, Pomorskie, Podkarpackie and Świętokrzyskie Voivodeships), which results in long waiting times in these facilities (the median waiting time from referral to consultation in specialist outpatient care in Poland is 269 days and in Mazowieckie Voivodeship - 116 days).
- Access to vascular clinics varies (with none such clinics existing in the Warmińsko-Mazurskie and Podkarpackie Voivodeships in 2014, with 38 such clinics in the Śląskie Voivodeship, and with 8 in the Mazowieckie Voivodeship). Similar observations were made for vascular surgery clinics, whose number varied from voivodeship to voivodeship (from 1 each in the Lubuskie and Podlaskie Voivodeships to 24 in the Mazowieckie Voivodeship). The median waiting time from referral to consultation in specialist outpatient care in the field of vascular diseases in Poland amounted to 195 days and in the voivodeship - 77 days. In the case of a vascular surgery clinic, the median waiting time (time from referral to receiving the service) for Poland was 205 days, and for the voivodeship - 86 days. W17 consultations (specialist healthcare services type 7) in vascular disease clinics in Poland accounted for 32% of preventive health consultations provided to patients diagnosed with a condition from the disease group in question, and 33% in vascular disease clinics in the voivodeship. In contrast, in vascular surgery clinics, among consultations provided to patients with diagnosis from the analysed group, W17 consultations constituted 27% of preventive health consultations nationwide and 17% of preventive health consultations regionwide.
- In the case of clinics dedicated to mental disorders, the analysis lists, among others, share of medical consultations, psychological consultations, psychotherapy and environmental consultations / visits. As part of medical consultation, such categories as diagnostic medical consultation, medical check-up and therapeutic medical consultation was identified. The analysis revealed that in Mazovian mental health clinics healthcare services were dominated by

medical consultation (70.9%), including therapeutic medical consultation (59.7%). Diagnostic consultation was also distinguished in the case of psychological consultation. In the case of psychotherapy, individual, group and family psychotherapy as well as psychosocial support sessions were identified. Detailed information is presented in the map of healthcare needs in the field of mental disorders.

- Outpatient Specialist Care within the disease group “oral cavity diseases and dentistry” was analysed for the unit reporting the procedure performance (8th element of the Ministry of Health Code) and additionally for the contract concluded with the NFZ and the procedures performed. Due to the large number of service providers, the prepared reports are accurate to a county, not to an individual service provider as it was the case for other analysed groups of diseases.
- For the analysis of Outpatient Specialist Care in Dentistry, information on the maxillofacial surgery clinics was added. These clinics were divided into hospital outpatient clinics (6 clinics in Mazowieckie Voivodeship) and non-hospital outpatient clinics (0 clinics in Mazowieckie Voivodeship). This division was made due to the specificity of each type of clinic, which wasdescribed in detail in the document.

Part V

Primary healthcare

The current reporting procedures make it impossible to carry out an in-depth analysis of the functioning of primary healthcare. In particular, it is impossible to determine the number of patients with chronic conditions (as only 1 reason for the visit is reported) or their treatment pathways (no information on the tests performed is available).

Primary healthcare facilities provide not only treatment-related services. Services provided by the primary healthcare facilities analysed in the document:

- Doctor

5.01.00.0000077 5.01.00.0000078	services provided to patients without diabetes and/or cardiovascular diseases diagnosed
5.01.00.0000075 5.01.00.0000076	services provided to patients diagnosed with diabetes and/or cardiovascular diseases
5.01.00.0000104	health review
5.01.00.0000046 5.01.00.0000047 5.01.00.0000079	services provided to non-primary care patients
5.01.00.0000102 5.01.00.0000103	postnatal consultation

- Nurse

5.01.00.0000054	tuberculosis prevention consultation
5.01.00.0000107	postnatal consultation
5.01.00.0000052 5.01.00.0000053 5.01.00.0000080	services provided to non-primary care patients

- Midwife

5.01.00.0000089	postnatal visits
5.01.00.0000111 5.01.00.0000110	prenatal education visits
5.01.00.0000091	postoperative care visits
5.01.00.0000055 5.01.00.0000056 5.01.00.0000081	services provided to non-primary care patients

- Night and holiday healthcare services

5.01.00.0000108	outpatient services
5.01.00.0000109	outbound services
5.21.00.0000020	services for patients from the EU

Therefore, patients do not report to outpatient healthcare facilities only to treat health problems, but also to take out preventive measures (vaccinations, health reviews, etc.), for health evaluation or for other administrative purposes.

The largest number of outpatient healthcare services were provided by doctors (they constitute 94.8% of all services). Night and holiday healthcare services ranked the second (3.5%), midwives' services accounted for 1.5% of all services and nurses' services - for 0.21%. Due to the lack of individual reporting of primary care nurse services within the full range of provided services (in 2014, 71,126 thousand

services were reported in aggregate form and 326 thousand were reported individually), it is not possible to draw the appropriate conclusions from the analysed data.

The largest number of facilities reporting physician services per 100,000 population is located in the following voivodeships: Podlaskie, Lubelskie, Warmińsko-Mazurskie and Lubuskie (over 20 / 100,000 population), and the lowest in the following voivodeships: Pomorskie, Mazowieckie and Małopolskie (below 15 / 100,000 population). In Mazowieckie Voivodeship, there were 13.8 primary care facilities reporting healthcare services per 100,000 people.

The analysed data shows that throughout the analysed year the patients included in active lists visited most frequently the facilities reporting primary care services in Łódzkie Voivodeship (4.40) and Podlaskie Voivodeship (4.30), and least frequently - facilities in Mazowieckie Voivodeship (3.59) and Małopolskie Voivodeship (3.66).

There are large disproportions in the number of provided primary care physician services in individual counties of the voivodeship. The highest number of services were provided in Siedlce City County (55.0 thousand / 10 thousand people and 4.2 per patient from the active list), and the lowest number in Radom County (27.5 thousand / 10 thousand people and 3.5 per patient from the active list). During the year, the highest number of appointments made by patients from the active list took place in Łosice County (5.0), and the lowest number - in the Capital City of Warsaw County (3.0).

Based on the data, it can be stated that the largest number of consultations in Mazowieckie Voivodeship were provided to people aged 65+ (5,878 thousand) and 45-64 (4,968 thousand).

There are significant differences in the use of night and holiday healthcare services by residents of individual counties. The highest number of services were reported in Ostrołęka City County (3.7 thousand / 10,000 people), and the lowest in Radom County (498 / 10 thousand people). Nowy Dwór County and Siedlce County did not report any of such services. This may indicate that the access to night and holiday healthcare services is different in different counties, or that different facilities are more or less effective in providing healthcare services (including access to specialised outpatient care, not only primary care).

In the next step, it would be reasonable to create a tool for primary care facilities that would show how many patients and for what reasons referred to a higher level facility (AOS, hospital) in order to strengthen the coordination of treatment in the case of these patients.

Part VI

Emergency Medical Care Utilisation

Active patient lists were analysed for utilisation of services provided at hospital emergency departments, ERs as well as night and holiday healthcare services. This rate is referred to as the emergency medical care utilisation rate (EMCUR).

In order to calculate the rate, the services provided upon the admission to an emergency department, ER or after-hours medical centre which resulted in the need to provide the patient with a service at a higher level (hospitalisation) service within 2 days from the date of the visit were excluded. Such a restricted number of services was used to calculate rates per 100 patients registered with primary care providers (as of June 2014) at voivodeship, county and country levels.

The highest rate values were observed in Pomorskie (35.5), Zachodniopomorskie (33.4), Śląskie (31.9) and Opolskie (31.2) voivodeships. The voivodeships with the lowest rate values were Lubuskie (23.5), Dolnośląśkie (24.2), Warmińsko–Mazurskie (24.7), Wielkopolskie (26.0). The emergency medical care utilisation rate for the entire country was 29.5 per 100 patients registered on active lists.

The EMCUR rate differs significantly among the primary care facilities and particular counties; for example, out of 42 counties in Mazowieckie Voivodeship, 20 i.e. 48% reported higher EMCUR rate than the national one (29.5). Extreme values for counties were 13.8 (Sochaczew County) and 40.9 (Otwock County). Across the country, the median for all counties was 27.8, which means that in 21 Mazovian counties the emergency medical care utilisation rate was higher than the median value and in 21 it was lower than the median value.

The differences in the emergency medical care utilisation rate values are largely influenced by access to emergency departments, ERs and night and holiday healthcare facilities. A significant number of such facilities in a region will have a positive effect on the rate (as can be seen e.g. in the case of large cities).

In addition, the analysis shows that, ceteris paribus, a larger number of registered primary care facilities is positively correlated with a higher EMCUR rate (in primary care facilities with a large number of registered patients, a patient more often uses emergency medical care).

Part VII

Other Forms of Treatment

7.1 Therapeutic Rehabilitation

General Inpatient Rehabilitation

Access to general inpatient rehabilitation for adults varies considerably across the country. The highest number of hospitalisations per 100,000 adults was recorded in Świętokrzyskie Voivodeship (787.3), and the lowest - in Warmińsko-Mazurskie Voivodeship (270.5). In Mazowieckie Voivodeship, 360.9 hospitalisations per 100,000 residents were identified.

The analysis of paediatric inpatient rehabilitation also revealed that the access to general rehabilitation for patients at this age varies significantly across the country. The highest number of hospitalisations per 100,000 children was recorded in Świętokrzyskie Voivodeship (1,095.4), and the lowest - in Opolskie Voivodeship (1.2). In Mazowieckie Voivodeship, 217.4 hospitalisations per 100,000 residents were identified.

16 service providers in Mazowieckie Voivodeship carried out less than 250 hospitalisations relative to general rehabilitation throughout the year (about 20 hospitalisations per month), which prompts us to reflect on the comprehensiveness of services provided in these facilities.

The high percentage of generally rehabilitated in-patients in the age of 65+ and 80+ (in Mazowieckie Voivodeship 47.3% and 12.2% respectively) is noteworthy. The above may indicate the healthcare needs relative to rehabilitation among patients of this age.

Among service providers, there are significant differences in the percentage of patients rehabilitated within the scope of general rehabilitation who had previously undergone hospital treatment (regional maximum: 60.0%, regional minimum: 1.2%). The reasons for this may be complex and require further analysis.

Cardiac Inpatient Rehabilitation

Access to cardiac inpatient rehabilitation for adults varies considerably across the country. The highest number of hospitalisations per 100,000 adults were recorded in Opolskie Voivodeship (273,2), and the in lowest - in the analysed Mazowieckie Voivodeship (27.7).

The analysis of paediatric inpatient rehabilitation also revealed that only in Śląskie and Dolnośląskie Voivodeships there were medical care facilities providing services relative to paediatric cardiac rehabilitation.

4 service providers in Mazowieckie Voivodeship carried out less than 250 hospitalisations relative to cardiac rehabilitation throughout the year (about 20 hospitalisations per month), which prompts us to reflect on the comprehensiveness of services provided in these facilities.

The high percentage of cardiologically rehabilitated in-patients in the age of 65+ and 80+ (in Mazowieckie Voivodeship 51.9% and 9.2% respectively) is noteworthy. The above may indicate the healthcare needs relative to rehabilitation among patients of this age.

Among service providers, there are significant differences in the percentage of patients rehabilitated within the scope of cardiac rehabilitation who had previously undergone hospital treatment (regional maximum: 14.3%, regional minimum: 0%). The reasons for this may be complex and require further analysis.

Neurological Inpatient Rehabilitation

Access to neurological inpatient rehabilitation for adults varies considerably across the country. The highest number of hospitalisations per 100,000 adults were recorded in Opolskie Voivodeship (157,5), and the in lowest - in Łódzkie Voivodeship (66.0). In Mazowieckie Voivodeship, 120.8 hospitalisations per 100,000 residents were identified.

The analysis of paediatric inpatient rehabilitation also revealed that the access to neurological rehabilitation for patients at this age varies significantly across the country. The highest number of hospitalisations per 100,000 children was recorded in Warmińsko-Mazurskie Voivodeship (223.4), and the lowest - in Świętokrzyskie Voivodeship (0.5). In Mazowieckie Voivodeship, 93.0 hospitalisations per 100,000 residents were identified. It should be emphasised that in Lubuskie and Łódzkie Voivodeships, there was not a single provider who would provide services within the scope of paediatric neurological rehabilitation.

It should be noted that 43.9% of paediatric hospitalisations within the scope of neurological rehabilitation in Mazowieckie Voivodeship were provided for the residents of other voivodeships.

11 service providers in Mazowieckie Voivodeship carried out less than 120 hospitalisations relative to neurological rehabilitation throughout the year (about 10 hospitalisations per month), which prompts us to reflect on the comprehensiveness of services provided in these facilities.

The high percentage of neurologically rehabilitated in-patients in the age of 65+ and 80+ (in Mazowieckie Voivodeship 48.5% and 15.7% respectively) is noteworthy. The above may indicate the healthcare needs relative to rehabilitation among patients of this age.

Among service providers, there are significant differences in the percentage of patients rehabilitated within the scope of neurological rehabilitation who had previously undergone hospital treatment (regional maximum: 45.6%, regional minimum: 0%). The reasons for this may be complex and require further analysis.

Pulmonary Inpatient Rehabilitation

Access to pulmonary inpatient rehabilitation for adults varies considerably across the country. The highest number of hospitalisations per 100,000 adults were recorded in Opolskie Voivodeship (145.6), and the in lowest - in Lubelskie Voivodeship (1.9). In Mazowieckie Voivodeship, 8.9 hospitalisations per 100,000 residents were identified. It should be emphasised that in Łódzkie, Podlaskie, Świętokrzyskie and Zachodniopomorskie Voivodeships, there was not a single provider who would provide services within the scope of adult pulmonary rehabilitation.

The analysis of paediatric inpatient rehabilitation also revealed that the access to pulmonary rehabilitation for patients at this age varies significantly across the country. The highest number of hospitalisations per 100,000 children was recorded in Lubuskie Voivodeship (378.1), and the lowest - in Małopolskie Voivodeship (0.2). It should be emphasised that in Kujawsko-Pomorskie, Lubelskie, Łódzkie, Mazowieckie, Opolskie, Podkarpackie, Podlaskie, Pomorskie, Świętokrzyskie and Zachodniopomorskie Voivodeships, there was not a single provider who would provide services within the scope of paediatric pulmonary rehabilitation.

2 service providers in Mazowieckie Voivodeship carried out less than 250 hospitalisations relative to pulmonary rehabilitation throughout the year (about 20 hospitalisations per month), which prompts us to reflect on the comprehensiveness of services provided in these facilities.

The high percentage of pulmonarily rehabilitated in-patients in the age of 65+ and 80+ (in Mazowieckie Voivodeship 61.2% and 9.7% respectively) is noteworthy. The above may indicate the healthcare needs relative to rehabilitation among patients of this age.

Rehabilitation in Day Care Facilities / Wards

The analysis of the distribution of service providers rendering rehabilitation services in day care ward settings revealed that within the voivodeship there were 8 counties where there was not a single general rehabilitation centre and 28 counties where there was no rehabilitation centre for developmental disorders. As to other scopes of rehabilitation in day care ward settings, due to the narrower specialisation, it is not necessary for them to exist in every single county.

The data analysed in the Maps of Healthcare Needs reveal disproportions in access to rehabilitation services in particular voivodeships and counties. In order to determine the level of meeting the society's needs in this respect in more detail, it is recommended in the next step to include data regarding waiting lists and to compare the obtained rates with rates from other countries.

7.2 Health Resort Treatment

In 2014, in Mazowieckie Voivodeship, health resort treatment was provided by one service provider, in one health resort.

Services provided in the voivodeship

In Poland, in 2014, 0.85 thousand services were reported for the health resort treatment scope. The highest number of health resort healthcare services in the voivodeship were provided to patients for the analysed profile (0.82 thousand), while the lowest for the "cardiac diseases and hypertension (cardiology)" profile (Table 7.1).

The highest number of patients benefiting from health resort healthcare services originated from Mazowieckie Voivodeship (0.72 thousand, i.e. 84.99% of all services), while the lowest - from Lubelskie Voivodeship.

Table 7.1: Structure of health resort healthcare services by profile

Profile:	Number of patients (in thousands)	Including children (in thousands)	% of patients
diseases of the nervous system (neurology)	0.82	-	96.93
diseases of the upper respiratory tract (laryngology)	0.02	-	1.89
cardiac diseases and hypertension (cardiology)	0.01	-	1.18
Poland	0.85	-	

Source: Compiled by DAiS based on data provided by the NFZ

The largest number of health resort healthcare services in the voivodeship were provided for the in-sanatorium service category (0.57 thousand patients), while the lowest number - for the inpatient service category (0.28 thousand patients).

Table 7.2: Health resort healthcare services reported in the voivodeship by service category

Service category	Number of person-days (in thousands)	Number of patients (in thousands)	Including children (in thousands)	% of patients
In-sanatorium	6,317.4	0.57	-	67.49
Inpatient	189.6	0.28	-	32.51
Poland	6,506.9	0.85	-	

Source: Compiled by DAiS based on data provided by the NFZ

Services for patients from the voivodeship

The highest number of health resort healthcare services for the patients originating from Mazowieckie Voivodeship were provided to patients for the analysed profile (34.38 thousand), while the lowest for the "eye and eye adnexa profile (ophthalmologic diseases)" profile (Table 7.1).

Table 7.3: Structure of health resort healthcare services reported for patients originating from the voivodeship by profile

Profile:	Number of patients (in thousands)	Including children (in thousands)	% of patients
rheumatologic diseases (rheumatology)	34.38	0.13	64.87
cardiac diseases and hypertension (cardiology)	7.59	0.02	14.32
diseases of the nervous system (neurology)	3.89	0.01	7.33
diseases of the lower respiratory tract (pulmonology)	2.68	1.17	5.06
diseases of the upper respiratory tract (laryngology)	1.33	0.68	2.50
diabetes (diabetology)	0.90	0.00	1.71
trauma and orthopaedic diseases (orthopaedics)	0.62	0.03	1.17
diseases of the digestive system (gastroenterology, hepatology)	0.47	0.03	0.88
Obesity	0.28	0.18	0.53
endocrine diseases	0.18	0.01	0.34
diseases of the kidneys and urinary tract (nephrology and urology)	0.17	0.00	0.32
diseases of the skin (dermatology)	0.17	0.02	0.32
female diseases (gynaecology)	0.15	-	0.28
peripheral vascular diseases	0.13	0.00	0.25
Osteoporosis	0.05	-	0.09
diseases of the blood and of the haematopoietic system (haematology)	0.01	-	0.03
diseases of the eye and eye adnexa (ophthalmologic diseases)	0.00	-	0.00
Poland	53.00	2.28	

Source: Compiled by DAiS based on data provided by the NF

The largest number of health resort healthcare services was provided for the in-sanatorium service category (43.14 thousand patients), while the lowest number - for the outpatient service category (1.57 thousand patients).

Table 7.4: Health resort healthcare services reported for patients originating from the voivodeship by service category

Service category	Number of person-days (in thousands)	Number of patients (in thousands)	Including children (in thousands)	% of patients
in-sanatorium	6,669.1	43.14	1.12	81.41
in-hospital	1,374.8	8.28	1.01	15.63
outpatient	232.1	1.57	0.15	2.96
Poland	8,275.9	53.00	2.28	

Source: Compiled by DAiS based on data provided by the NFZ

7.3 Palliative and Hospice Care

Analysing the distribution of the reported palliative and hospice stays in domestic settings per 100,000 population according to the patient's place of residence, it is easy to notice that it was uneven in all voivodeships. The highest rate was identified in the following voivodeships: Kujawsko-Pomorskie (232.0), Lubuskie (202.8), Warmińsko-Mazurskie (184.7), and the lowest in Lubelskie Voivodeship (90.2), Podkarpackie Voivodeship (89.3) and Małopolskie Voivodeship (86.6). The diverse profile of service providers, which is easy to note by observing the percentage of patients from outside of the voivodeship, is also worth paying attention to.

The distribution of the number of in-patients benefiting from palliative and hospice stays is also varied. The highest number of patients per 100,000 population was identified in Małopolskie Voivodeship (107.8), Świętokrzyskie Voivodeship (107.4), Podkarpackie Voivodeship (104.1), and the lowest in Łódzkie Voivodeship (68.8), Mazowieckie Voivodeship (61.9) and Zachodniopomorskie Voivodeship (46.4). The diverse profile of service providers, which is easy to note by observing the percentage of patients from outside of the voivodeship, is also worth paying attention to.

7.4 Long-term Care

Inpatient long-term care

The distribution of the number of adult patients benefiting from inpatient long-term care per 100,000 adult population was uneven among the voivodeships. The highest rate was identified in Podkarpackie Voivodeship (198.4), Opolskie Voivodeship (178.3), Małopolskie Voivodeship (155.0), and the lowest in Zachodniopomorskie Voivodeship (108.8), Lubelskie Voivodeship (101.8) and Wielkopolskie Voivodeship (75.3).

Similarly, the distribution of the number of children benefiting from inpatient long-term care per 100,000 children was uneven among the voivodeships. The highest rate was identified in the

following voivodeships: Dolnośląskie (33.6), Śląskie (14.8), Opolskie (14.2), and the lowest in Podkarpackie Voivodeship (2.5), Wielkopolskie Voivodeship (2.2) and Małopolskie Voivodeship (0.9).

The diverse profile of service providers, which is easy to note by observing the percentage of patients from outside of the voivodeship, is also worth paying attention to.

Domestic long-term care

The distribution of the number of adult patients benefiting from domestic long-term care per 100,000 adult population was uneven among the voivodeships. The highest rate was identified in Opolskie Voivodeship (457.0), Śląskie Voivodeship (413.2) Podkarpackie Voivodeship (325.9), and the lowest in Kujawsko-Pomorskie Voivodeship (132.3), Podlaskie Voivodeship (123.9) and Pomorskie Voivodeship (57.2).

The distribution of the number of children benefiting from domestic long-term care per 100,000 children was uneven among the voivodeships. The highest rate was identified in the following voivodeships: Warminsko-Mazurskie (17.7), Wielkopolskie (16.0), Podkarpackie (14.0), and the lowest in Zachodniopomorskie Voivodeship (5.0), Lubuskie Voivodeship (3.8) and Lubelskie Voivodeship (3.6).

The diverse profile of service providers, which is easy to note by observing the percentage of patients from outside of the voivodeship, is also worth paying attention to.

Part VIII

Forecasts

8.1 Forecast of recorded incidence

This chapter presents a summary of projected recorded incidence of chronic diseases in Mazowieckie Voivodeship for the years 2020-2029. Information on other subgroups of diseases, classified as transient (acute), is presented in the relevant maps of healthcare needs. According to the explanation presented in chapter ***Estimating epidemiological indicators***, it should be remembered that the forecasting process is subject to uncertainty. For this reason, detailed forecast results presented in individual maps include four scenarios ('minimum', 'maximum', 'personalised' and 'averaged').

This chapter presents a summary for a personalised scenario, which assumes that for Mazowieckie Voivodeship we use rates of recorded incidence / hospital morbidity observed historically therein in a given subgroup of diseases. The choice of this scenario results from the fact that the analysis assuming persistent differences among voivodeships in terms of recorded incidence / hospital morbidity rates at a level consistent with historical data is the natural point of reference in forecasting. Since this assumption does not necessarily have to be met, the 'minimum', 'maximum' and 'averaged' scenarios presented in detailed maps allow for analysing the consequences of adopting different variants of projected recorded incidence.

8.1.1 Diseases of the musculoskeletal system

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.1 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'diseases of the spine' and the lowest is projected for disorders classified as 'arthropathies associated with infections'.

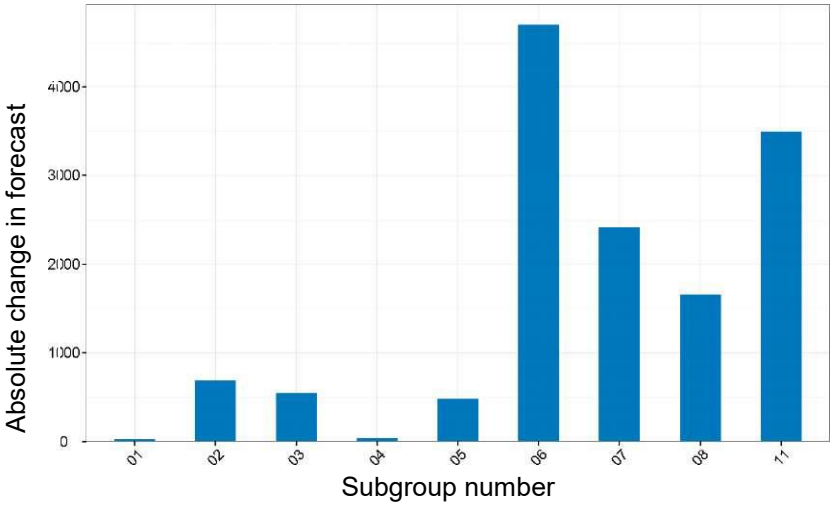
Table 8.1:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Diseases of the spine	85.47	88.96
Joint diseases	84.87	89.56
Diseases of fasciae, tendons and soft tissues (non-inflammatory)	59.67	62.09
Disorders of bone mineralisation and structure	17.44	19.09
Inflammatory polyarticular arthropathies	13.34	14.03
Diseases of fasciae, tendons and soft tissues (inflammatory)	8.73	9.21
Systemic connective tissue disorders	8.37	8.91
Muscular diseases	1.06	1.10
Arthropathies associated with infections	0.51	0.53

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the musculoskeletal system) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.1 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'joint diseases '. It means that the increase of 4.69 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'arthropathies associated with infections'.

Figure 8.1:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

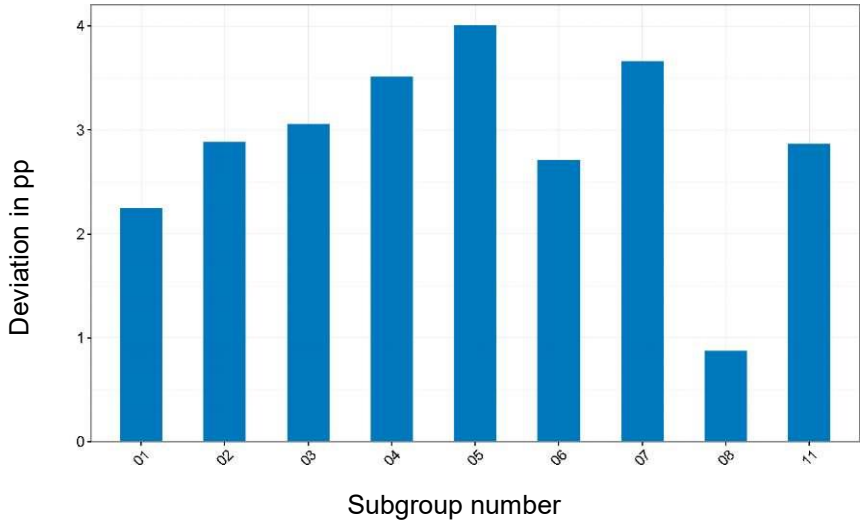
Table 8.2:Subgroups' names used in the figures

Number of subgroups	Subgroup name
01	Arthropathies associated with infections
02	Inflammatory polyarticular arthropathies
03	Systemic connective tissue disorders
04	Muscular diseases
05	Diseases of fasciae, tendons and soft tissues (inflammatory)
06	Joint diseases
07	Diseases of fasciae, tendons and soft tissues (non-inflammatory)
08	Disorders of bone mineralisation and structure
11	Diseases of the spine

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.2 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'diseases of fasciae, tendons and soft tissues (inflammatory)', and it amounts to 4.01 pp.(Projected percentage change for Mazowieckie Voivodeship is 5.49% in relation to the 1.48% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for disorders of bone mineralisation and structure, and it amounts to 0.88 pp.

Figure 8.2: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.2 Diseases of the nervous system (diseases of the nervous system in the elderly)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.3 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup ‘Alzheimer's disease and other dementias’ and the lowest is projected for disorders classified as ‘Parkinson's disease and other movement disorders’.

Table 8.3:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Alzheimer's disease and other dementias	8.32	10.25
Parkinson's disease and other movement disorders	5.93	6.81

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the nervous system (diseases of the nervous system in the elderly)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.3 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘Alzheimer's disease and other dementias’. It means that the increase of 1.94 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘Parkinson's disease and other movement disorders’.

Figure 8.3:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

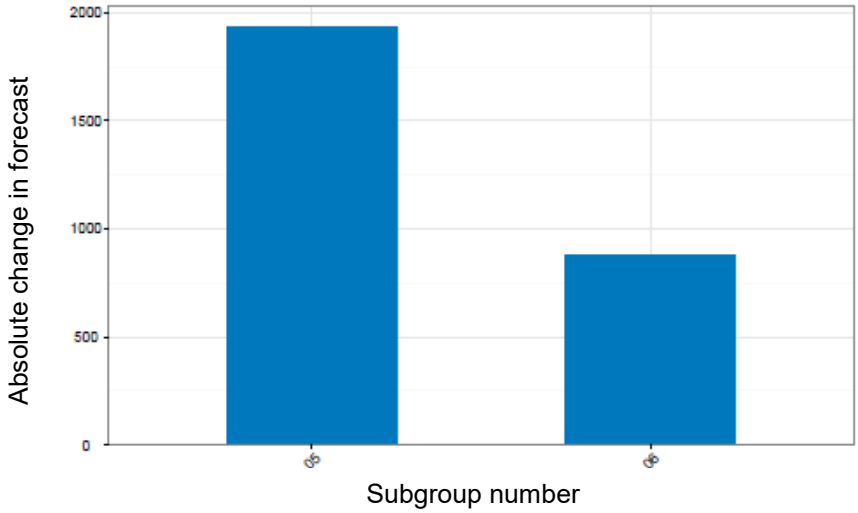


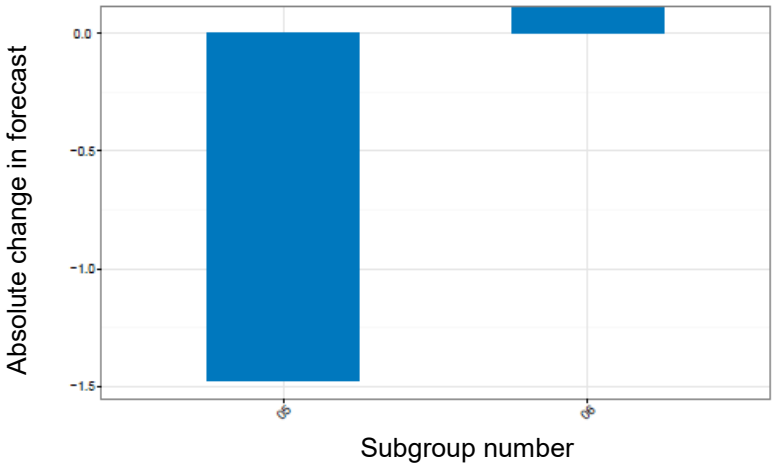
Table 8.4:Subgroups' names used in the figures

Number subgroups	Subgroup name
05	Alzheimer's disease and other dementias
06	Parkinson's disease and other movement disorders

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.4 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'Alzheimer's disease and other dementias', and it amounts to -1.48 pp.(Projected percentage change for Mazowieckie Voivodeship is 23.27% in relation to the 24.75% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for Parkinson's disease and other movement disorders, and it amounts to 0.11 pp.

Figure 8.4: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.3 Diseases of the nervous system (other diseases)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.5 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup ‘degenerative diseases of the spine’ and the lowest is projected for disorders classified as ‘demyelinating diseases’.

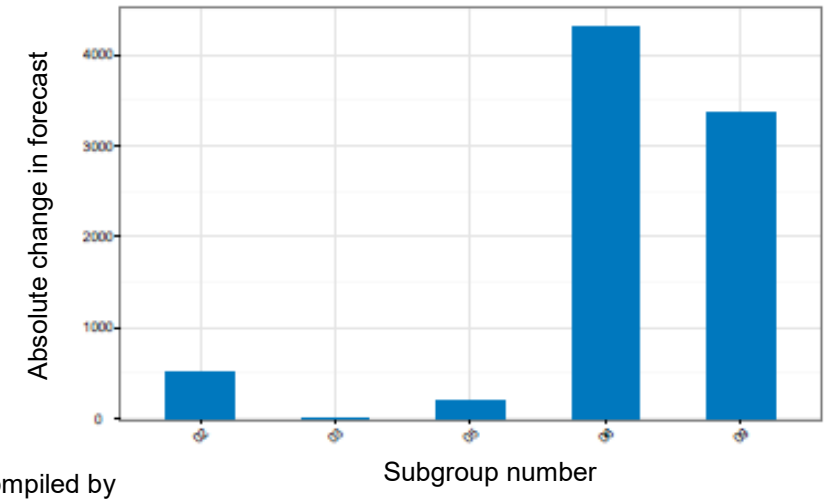
Table 8.5:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Degenerative diseases of the spine	63.56	67.87
Mononeuropathies, nerve compression syndromes and radiculopathies	54.20	57.56
Epilepsy	6.42	6.62
Neuromuscular diseases	5.22	5.73
Demyelinating diseases	0.83	0.81

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the nervous system (other diseases)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.5 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘degenerative diseases of the spine’. It means that the increase of 4.30 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘demyelinating diseases’.

Figure 8.5:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by stical Office.

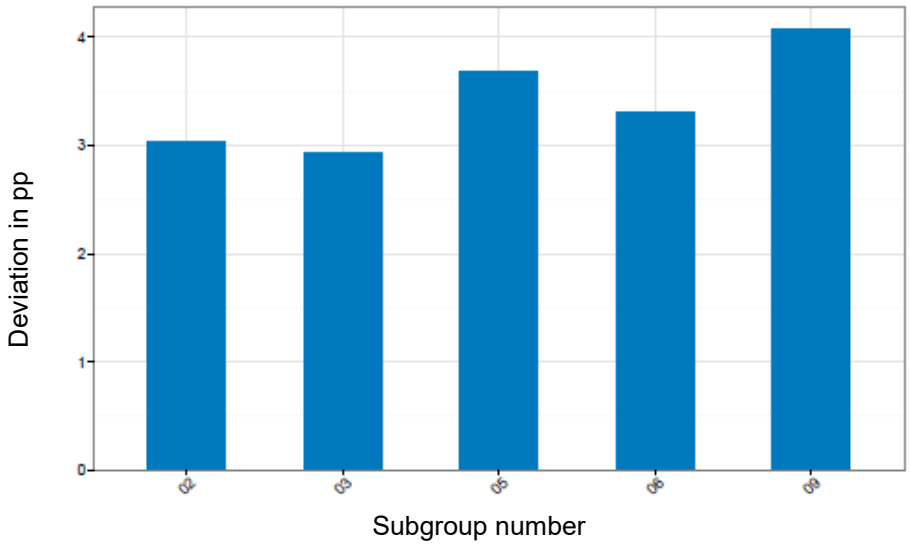
Table 8.6: Subgroups names used in the figures

Number of subgroups	Subgroup name
02	Neuromuscular diseases
03	Demyelinating diseases
05	Epilepsy
06	Degenerative diseases of the spine
09	Mononeuropathies, nerve compression syndromes and radiculopathies

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.6 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'mononeuropathies, nerve compression syndromes and radiculopathies', and it amounts to 4.07pp.(Projected percentage change for Mazowieckie Voivodeship is 6.21% in relation to the 2.14% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for demyelinating diseases, and it amounts to 2.94 pp.

Figure 8.6: **Deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.4 Diseases of the aorta and peripheral vessels, including hypertension

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.7 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'hypertension', and the lowest is projected for disorders classified as 'atherosclerosis of renal artery'.

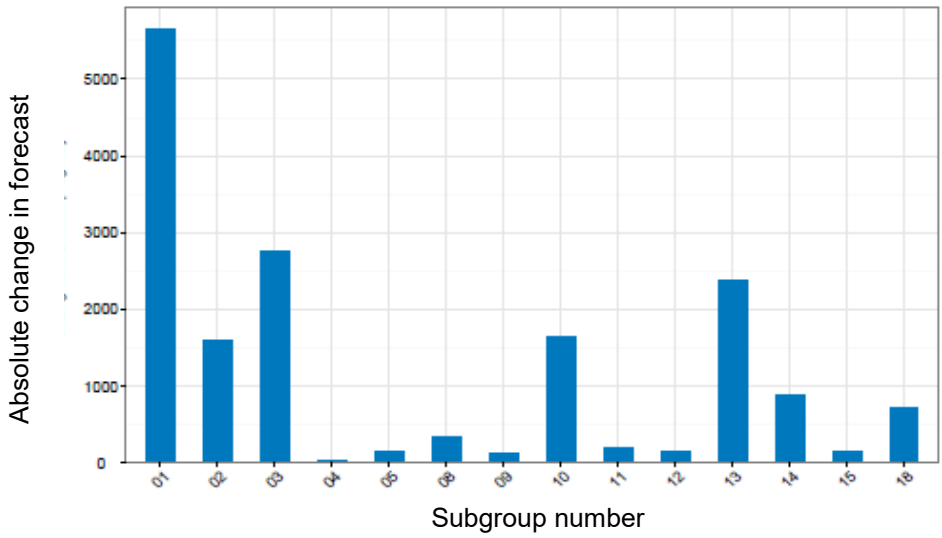
Table 8.7:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	2020 (in thousands)	2029 (in thousands)
Hypertension	52.38	58.03
Varicose veins of lower extremities	28.79	31.17
Atherosclerosis	16.46	19.22
Pulmonary thrombosis and/or embolism	14.20	15.86
Resistant hypertension	12.85	14.44
Ulcers	5.53	6.42
Occlusion and stenosis of precerebral arteries	4.48	5.20
Vasculitis	3.65	3.86
Aneurysm of abdominal aorta and iliac artery	1.61	1.94
Lymphoedema	1.29	1.44
Aneurysm of other arteries	1.06	1.19
Aortic aneurysm and dissection (excluding abdominal aortic aneurysm)	1.01	1.17
Arterial embolism and thrombosis	0.99	1.15
Atherosclerosis of renal artery	0.23	0.27

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. hypertension (in total)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.7 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'hypertension'. It means that the increase of 5.65 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'atherosclerosis of renal artery'.

Figure 8.7: **Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: compiled by DAiS based on data provided by the NFZ and GUS.

Table 8.8: Subgroup names used in the figures

Subgroup number	Subgroup name
01	Hypertension
02	Resistant hypertension
03	Atherosclerosis
04	Atherosclerosis of renal artery
05	Aortic aneurysm and dissection (excluding abdominal aortic aneurysm)
08	Aneurysm of abdominal aorta and iliac artery
09	Aneurysm of other arteries
10	Pulmonary thrombosis and/or embolism
11	Vasculitis
12	Arterial embolism and thrombosis
13	Varicose veins of lower extremities

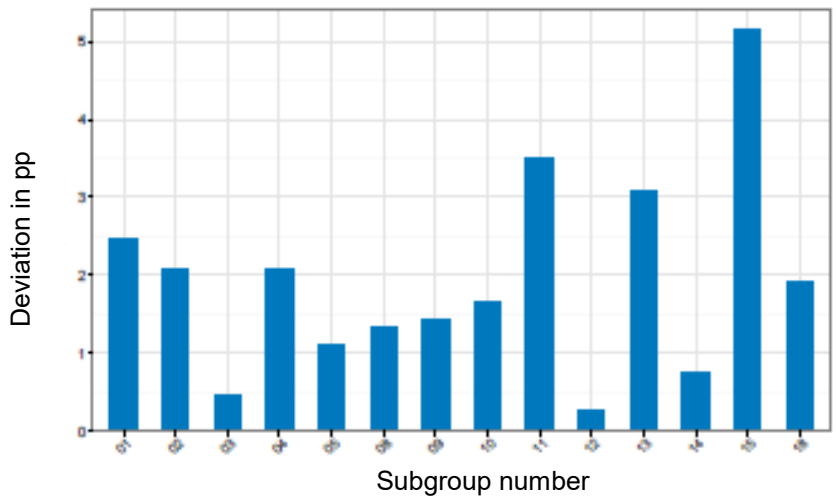
Table 8.8: Subgroup names used in the figures

Subgroup number	Subgroup name
14	Ulcers
15	Lymphoedema
18	Occlusion and stenosis of precerebral arteries

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.8 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'lymphoedema', and it amounts to 5.14pp.(Projected percentage change for Mazowieckie Voivodeship is 11.8% in relation to the 6.66% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for arterial embolism and thrombosis, and it amounts to 0.26 pp.

Figure 8.8: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.5 Diseases of the respiratory system (chronic)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.9 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'asthma', and the lowest is projected for disorders classified as 'respiratory failure'.

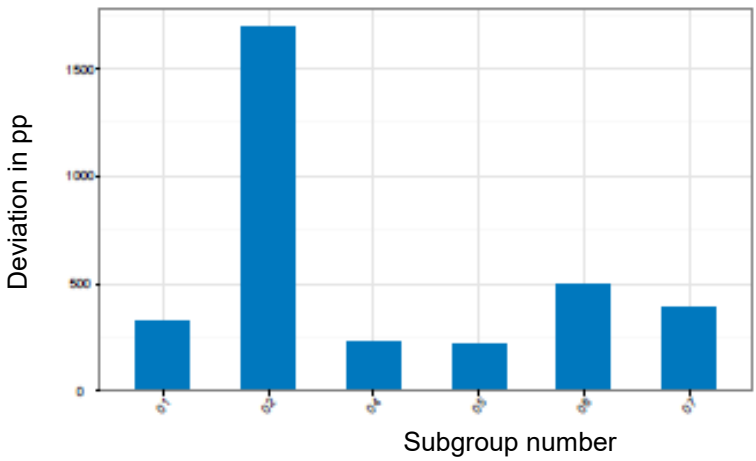
Table 8.9:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Asthma	23.96	24.29
Chronic obstructive pulmonary disease	12.66	14.36
Chronic inflammatory lung diseases	8.01	8.51
Sleep-disordered breathing	3.77	3.99
Respiratory failure	2.19	2.58
Interstitial lung disease	2.26	2.49

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the respiratory system (chronic)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.9 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘chronic obstructive pulmonary disease’. It means that the increase of 1.70 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘sleep-disordered breathing’.

Figure 8.9:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

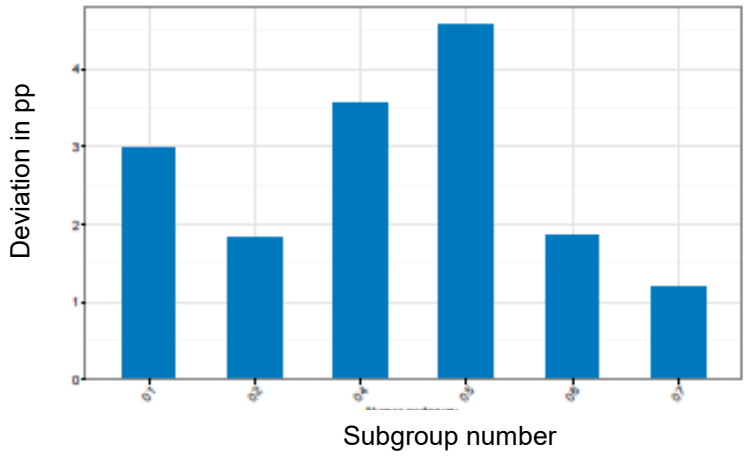
Table 8.10:Subgroup names used in the figures

Subgroup number	Subgroup name
01	Asthma
02	Chronic obstructive pulmonary disease
04	Interstitial lung disease
05	Sleep-disordered breathing
06	Chronic inflammatory lung diseases
07	Respiratory failure

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.10 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'sleep-disordered breathing', and it amounts to 4.58 pp.(Projected percentage change for Mazowieckie Voivodeship is 5.93% in relation to the 1.35% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for respiratory failure, and it amounts to 1.18pp.

Figure 8.10: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.6 Endocrine diseases

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.11 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'disorders of thyroid gland', and the lowest is projected for disorders classified as 'disorders of adrenal glands'.

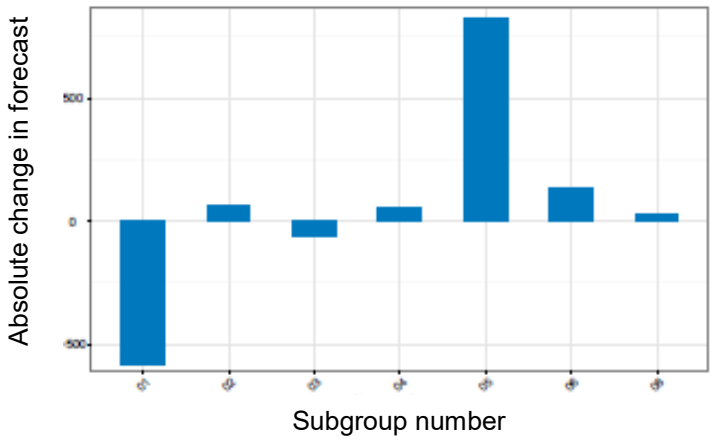
Table 8.11:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
disorders of thyroid gland	25.73	26.55
disorders of reproductive glands	7.64	7.06
Obesity	5.54	5.56
disorders of parathyroid gland	2.30	2.35
diseases of pancreas	2.04	2.17
disorders of pituitary gland	1.90	1.84
disorders of adrenal glands	1.53	1.59

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. endocrine diseases) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.11 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'disorders of thyroid gland'. It means that the increase of 0.83 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'disorders of reproductive glands'.

Figure 8.11:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

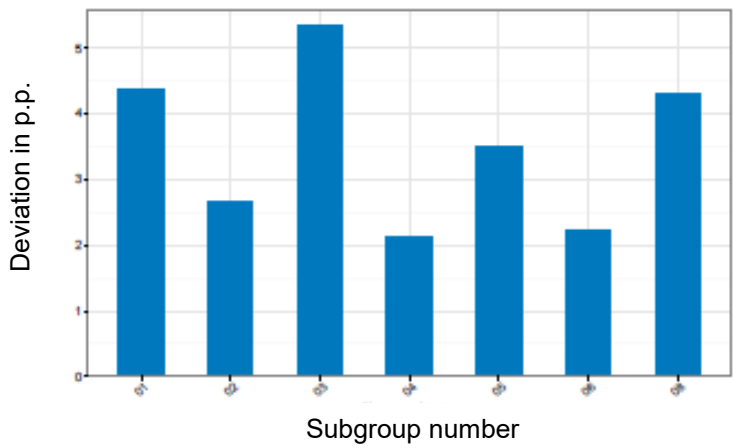
Table 8.12:Subgroups' names used in the figures

Number subgroups	Subgroup name
01	disorders of reproductive glands
02	disorders of adrenal glands
03	disorders of pituitary gland
04	disorders of parathyroid gland
05	disorders of thyroid gland
06	diseases of pancreas
08	obesity

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.12 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'disorders of pituitary gland', and it amounts to 5.32pp.(Projected percentage change for Mazowieckie Voivodeship is -3.01% in relation to the -8.34% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for disorders of parathyroid gland, and it amounts to 2.11pp.

Figure 8.12: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.7 Mental disorders

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.13 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'eating disorders', and the lowest is projected for disorders classified as 'behavioural syndromes associated with physiological disturbances and physical factors'.

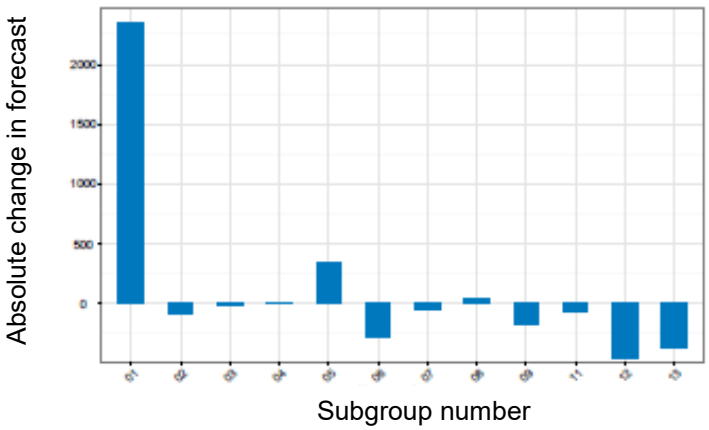
Table 8.13:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	2020 (in thousands)	2029 (in thousands)
Eating disorders	28.88	28.60
Mental disorder due to brain damage and dysfunction and to physical disease	13.01	15.36
Addictions	14.21	14.13
Stress-related and somatoform anxiety disorders	12.97	13.31
Mixed disorders of conduct and emotions	7.62	7.15
Emotional disorders	5.94	5.57
Mental retardation	2.39	2.22
Other mental disorders in children and adolescents	2.02	2.06
Schizophrenia	2.01	2.00
Hyperkinetic and behavioural disorders	1.72	1.65
Affective disorders	1.38	1.39
Behavioural syndromes associated with physiological disturbances and physical factors	0.64	0.59

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. mental disorders) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.13 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'mental disorder due to brain damage and dysfunction and to physical disease'. It means that the increase of 2.36 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'mixed disorders of conduct and emotions'.

Figure 8.13:Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

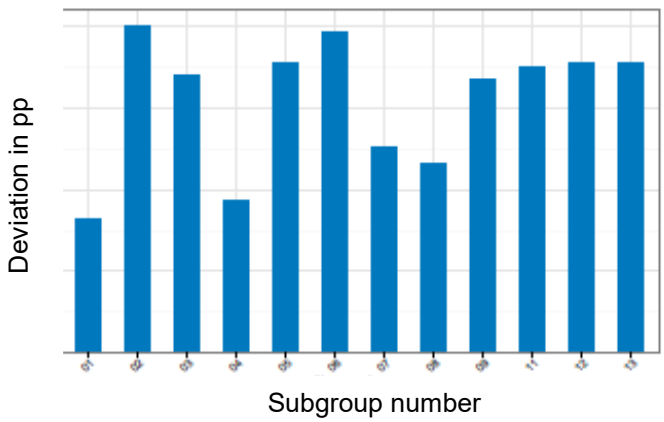
Table 8.14: Subgroup names used in the figures

Number of subgroup	Subgroup name
01	Mental disorder due to brain damage and dysfunction and to physical disease
02	Addictions
03	Schizophrenia
04	Affective disorders
05	Stress-related and somatoform anxiety disorders
06	Eating disorders
07	Behavioural syndromes associated with physiological disturbances and physical factors
08	Other mental disorders in children and adolescents
09	Mental retardation
11	Hyperkinetic and behavioural disorders
12	Mixed disorders of conduct and emotions
13	Emotional disorders

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.14 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'addictions', and it amounts to 3.99pp.(Projected percentage change for Mazowieckie Voivodeship is -0.59% in relation to the -4.58% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest recorded incidence is projected for the subgroup 'mental disorder due to brain damage and dysfunction and to physical disease', and it amounts to 1.65pp.

Figure 8.14: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.8 Diabetes mellitus

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.15 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029.

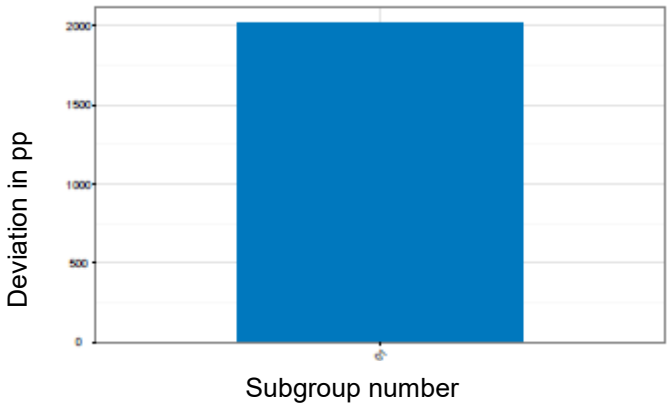
Table 8.15:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Diabetes mellitus	19.78	21.80

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diabetes mellitus) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.15 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029.

Figure 8.15: **Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office. vertically:Absolute change in forecast; horizontally: subgroup number]

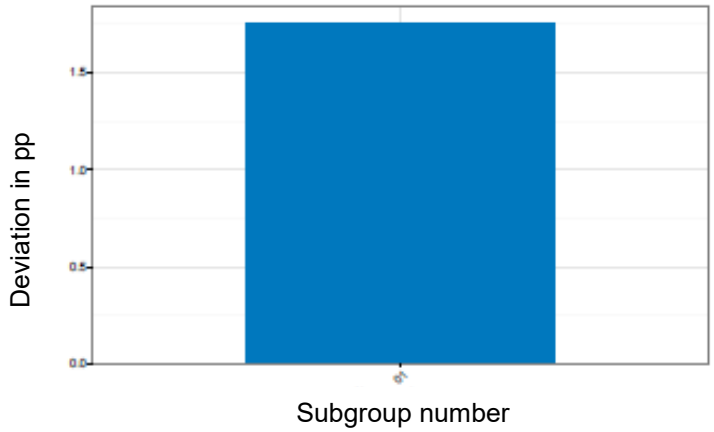
Table 8.16:Subgroupsnames used in the figures

Number of subgroups	Subgroup name
01	Diabetes mellitus

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.16 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The lowest deviation is projected for diabetes and it is 1.75 pp.

Figure 8.16: **Deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.9 Neoplasms of haematopoietic or lymphoid tissue

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.17 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'chronic neoplasms of haematopoietic tissue' and the lowest is projected for disorders classified as 'histiocytic and dendritic cell neoplasms'.

Table 8.17: Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Chronic neoplasms of haematopoietic tissue	2.20	2.50
Mature B-cell neoplasms	1.58	1.82
Acute neoplasms of haematopoietic tissue	0.33	0.37
Hodgkin lymphoma	0.19	0.19
Mature T- and NK-cell neoplasms	0.10	0.11
Precursor B- and T-cell neoplasms	0.04	0.04
Histiocytic and dendritic cell neoplasms	0.03	0.04

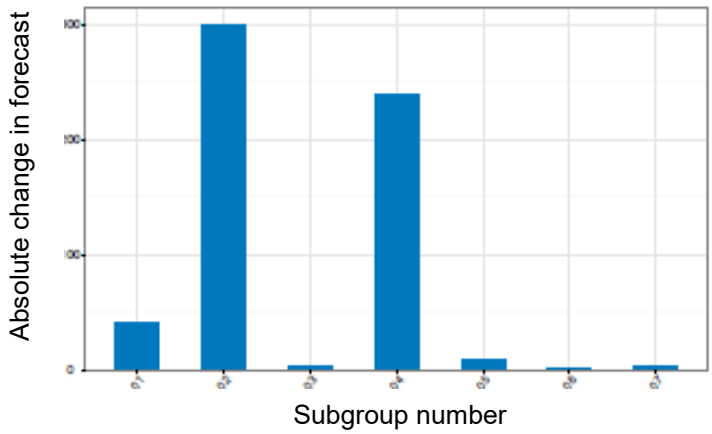
Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. neoplasms of haematopoietic or lymphoid tissue) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.17 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'chronic neoplasms of haematopoietic tissue'.

It means that the increase of 0.30 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this

increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘Hodgkin lymphoma’.

Figure 8.17: **Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

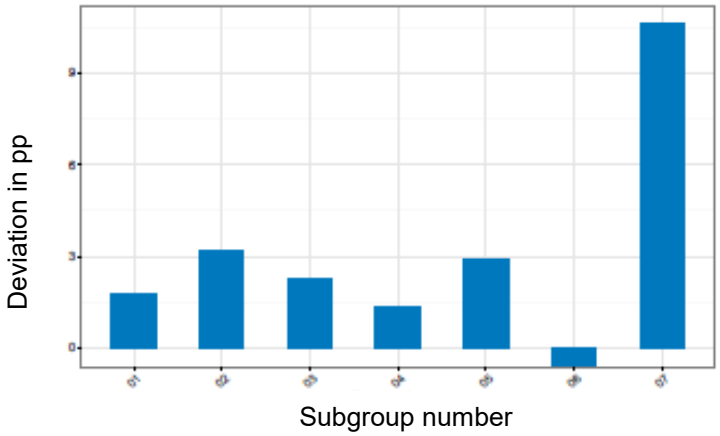
Table 8.18:Subgroups’ names used in the figures

Subgroup number	Subgroup name
01	Acute neoplasms of haematopoietic tissue
02	Chronic neoplasms of haematopoietic tissue
03	Precursor B- and T-cell neoplasms
04	Mature B-cell neoplasms
05	Mature T- and NK-cell neoplasms
06	Hodgkin lymphoma
07	Histiocytic and dendritic cell neoplasms

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.18 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘histiocytic and dendritic cell neoplasms’ and it is 10.66 pp.(Projected percentage change for Mazowieckie Voivodeship is 9.64% in relation to the -1.02% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for Hodgkin lymphoma and it is -0.61 pp.

Figure 8.18: **Deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.10 Diseases of the blood, the haematopoietic system and the immune system

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.19 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'other diseases of blood' and the lowest is projected for disorders classified as 'porphyria'.

Table 8.19:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

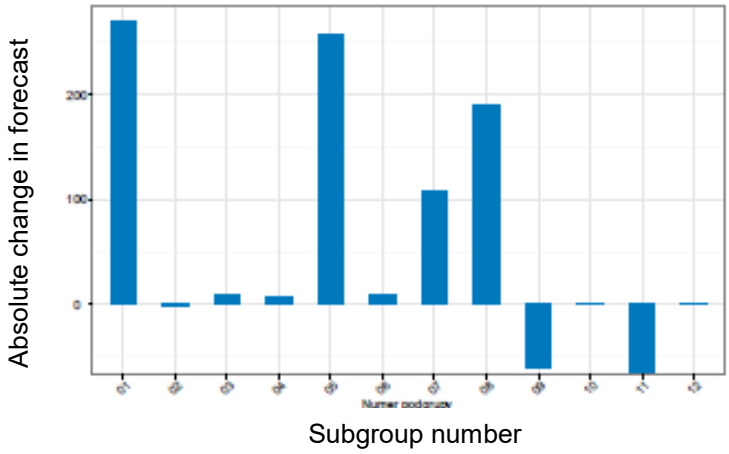
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Other diseases of blood	3.31	3.50
Coagulation defects and other haemorrhagic conditions (acquired)	3.27	3.38
Deficiency anaemias	3.01	3.28
Other anaemias	1.88	2.14
Disorders of immune system (primary)	1.23	1.17
Disorders of immune system (unspecified)	1.07	1.01
Disorders of immune system (secondary)	0.19	0.19
Coagulation defects and other haemorrhagic conditions (hereditary)	0.15	0.16
Haemolytic anaemias (hereditary)	0.14	0.14
Haemolytic anaemias (acquired)	0.11	0.12
Aplastic anaemias	0.07	0.08
Porphyria	0.01	0.01

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the blood, the haematopoietic system and the immune system) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.19 presents changes in the absolute

values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘deficiency anaemias’. It means that the increase of 0.27 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘diseases of immune system (unspecified)’.

Figure 8.19: **Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

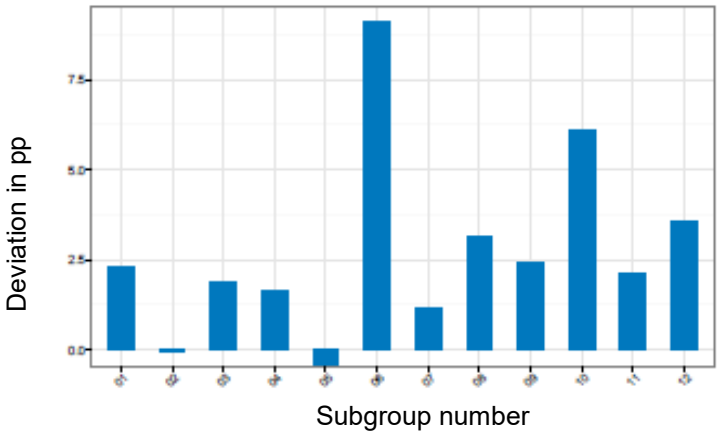
Table 8.20:Subgroups’ names used in the figures

Number of subgroups	Subgroup name
01	Deficiency anaemias
02	Haemolytic anaemias (hereditary)
03	Haemolytic anaemias (acquired)
04	Aplastic anaemias
05	Other anaemias
06	Coagulation defects and other haemorrhagic conditions (hereditary)
07	Coagulation defects and other haemorrhagic conditions (acquired)
08	Other diseases of blood
09	Disorders of immune system (primary)
10	Disorders of immune system (secondary)
11	Disorders of immune system (unspecified)
12	Porphyria

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.20 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘coagulation defects and other haemorrhagic conditions (acquired)’ and it is 9.1 pp.(Projected percentage change for Mazowieckie Voivodeship is 6.36% in relation to the -2.74% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for haemolytic anaemias (hereditary) and it is -0.05 pp.

Figure 8.20: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.11 Metabolic diseases

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.21 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'osteoporosis and other metabolic disorders of bone' and the lowest is projected for disorders classified as 'other nutritional deficiencies'.

Table 8.21:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

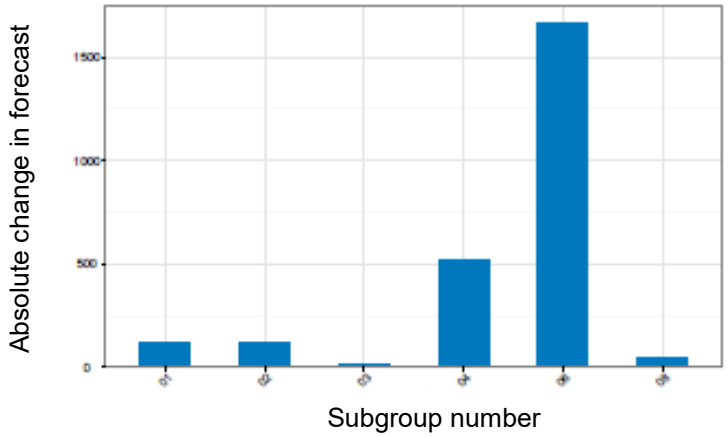
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Osteoporosis and other metabolic disorders of bone	18.28	19.95
Metabolic disorders	11.33	11.84
Obesity	5.51	5.53
Vitamin D deficiency	1.54	1.59
Malnutrition	1.23	1.35
Other nutritional deficiencies	1.09	1.21

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. metabolic diseases) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.21 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. Thehighest recorded incidence between 2020 and 2029 is projected for the subgroup 'osteoporosis and other metabolic disorders of bone'. It means that the increase of 1.67 thousand projected for this subgroup will require appropriate medical resources in

the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘obesity’.

Figure 8.21: **Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

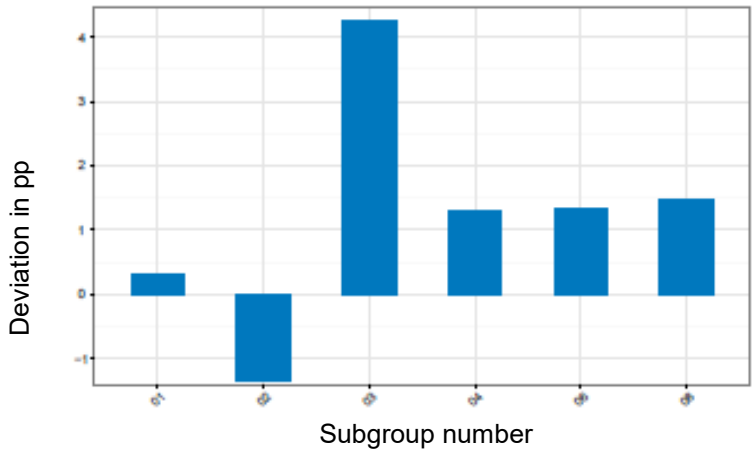
Table 8.22:Subgroups’ names used in the figures

Number of subgroups	Subgroup name
01	Malnutrition
02	Other nutritional deficiencies
03	Obesity
04	Metabolic disorders
06	Osteoporosis and other metabolic disorders of bone
08	Vitamin D deficiency

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.22 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘obesity’ and it is 4.25 pp.(Projected percentage change for Mazowieckie Voivodeship is 0.25% in relation to the -4% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for malnutrition and it is 0.31 pp.

Figure 8.22: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.12 Diseases of the eye and adnexa

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.23 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'strabismus and amblyopia' and the lowest is projected for disorders classified as 'AMD'.

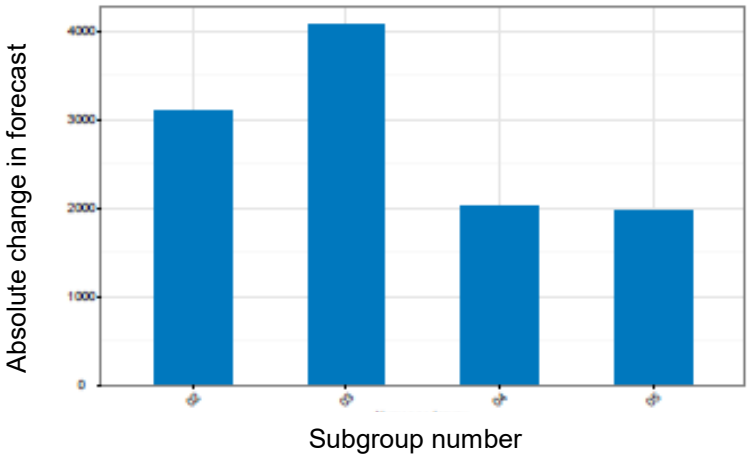
Table 8.23:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
strabismus and amblyopia	119.50	123.57
disorders of retina and vitreous body excluding AMD	35.85	38.95
glaucoma	20.89	22.90
AMD	12.20	14.18

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the eye and adnexa) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.23 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'strabismus and amblyopia'. It means that the increase of 4.07 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'AMD'.

Figure 8.23:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

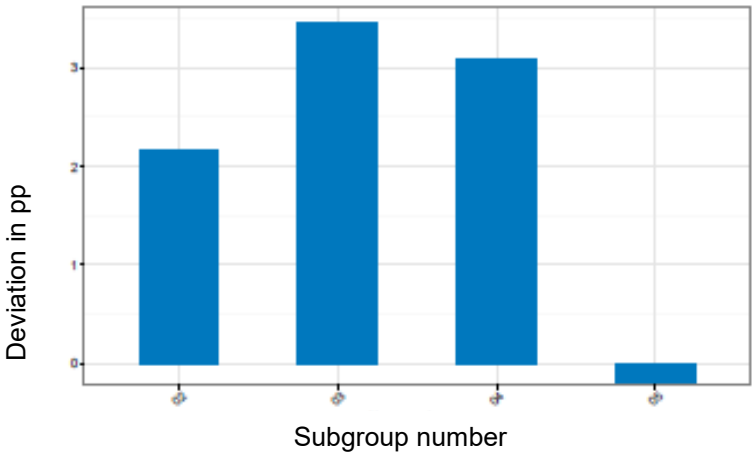
Table 8.24:Subgroups' names used in the figures

Number of subgroups	Subgroup name
02	disorders of retina and vitreous body excluding AMD
03	strabismus and amblyopia
04	glaucoma
05	AMD

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.24 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'strabismus and amblyopia' and it is 3.46 pp.(Projected percentage change for Mazowieckie Voivodeship is 3.41% in relation to the -0.05% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for AMD and it is -0.21 pp.

Figure 8.24: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**]



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.13 Diseases of the skin

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.25 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'selected infections' and the lowest is projected for disorders classified as 'cutaneous T-cell lymphoma'.

Table 8.25:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

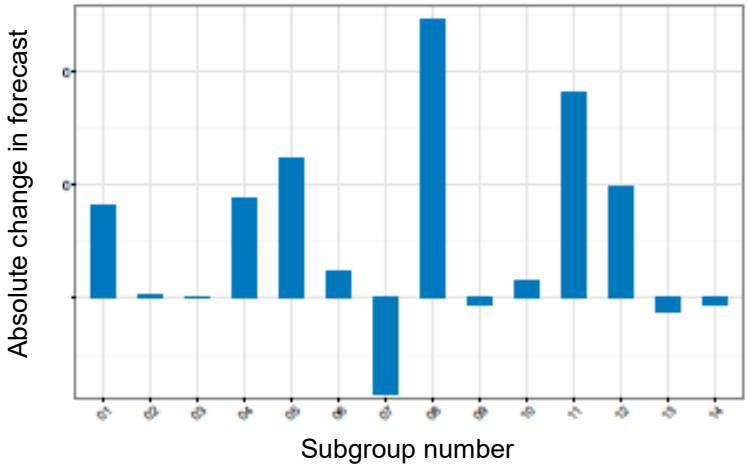
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Selected infections	76.18	77.06
Other disorders of skin, hair and nails	69.07	71.53
Dermatitis and eczema	69.29	70.12
Selected benign neoplasms	43.03	44.84
Inflammatory diseases of the skin	43.03	42.19
Burns, frostbite, decubitus ulcers, ulcers	13.20	14.20
Urticaria and angioedema	10.59	10.48
Psoriasis	7.84	8.00
Non-melanoma skin cancers, precancerous conditions, carcinomas in situ	6.56	7.79
Connective tissue disorders, including selected systemic connective tissue disorders	5.81	6.06
Congenital malformations of skin	1.03	0.97
Infections with a predominantly sexual mode of transmission	0.91	0.86
Autoimmune bullous disorders	0.61	0.64
Cutaneous T-cell lymphoma	0.07	0.08

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the skin) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.25 presents changes in the absolute values of the forecast of

recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘other disorders of the skin, hair and nails’. It means that the increase of 2.46 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘inflammatory diseases of the skin’.

Figure 8.25:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.26:Subgroups’ names used in the figures

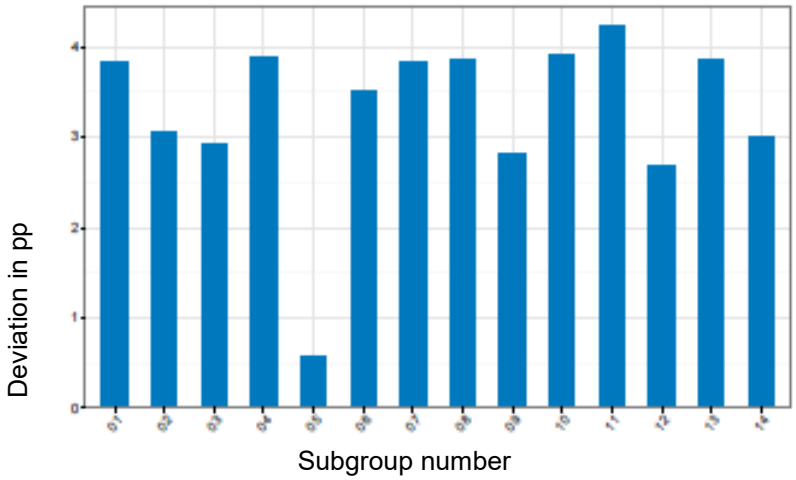
Number of subgroups	Subgroup name
01	Dermatitis and eczema
02	Autoimmune bullous disorders
03	Cutaneous T-cell lymphoma
04	Selected infections
05	Non-melanoma skin cancers, precancerous conditions, carcinomas in situ
06	Connective tissue disorders, including selected systemic connective tissue disorders
07	Inflammatory diseases of the skin
08	Other disorders of skin, hair and nails
09	Infections with a predominantly sexual mode of transmission
10	Psoriasis
11	Selected benign neoplasms
12	Burns, frostbite, decubitus ulcers, ulcers
13	Urticaria and angioedema
14	Congenital malformations of skin

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.26 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘selected benign neoplasms’ and it is 4.24 pp.(Projected percentage change for Mazowieckie Voivodeship is 4.2% in relation to the -0.04% change projected for the entire country.)It means that it

can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is predicted for non-melanoma skin cancers, precancerous conditions, carcinomas in situ and it is 0.58 pp.

Figure 8.26: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.14 Diseases of the male reproductive organs

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.27 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'benign hyperplasia of prostate' and the lowest is projected for disorders classified as 'male infertility'.

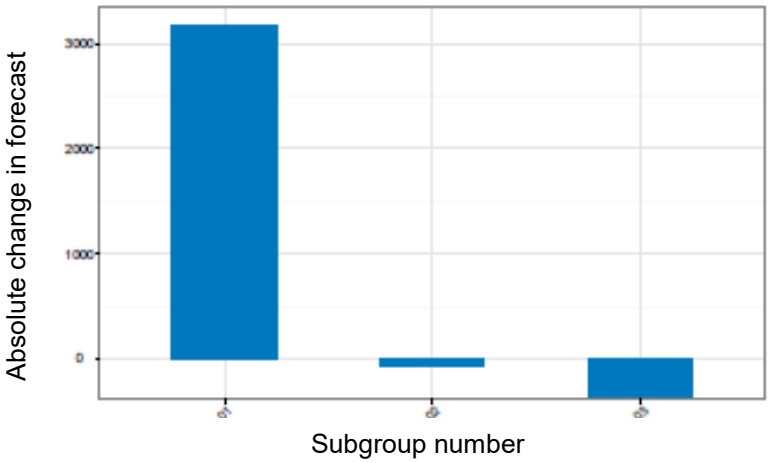
Table 8.27:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Benign hyperplasia of prostate	24.73	27.91
Redundant prepuce, phimosis and paraphimosis	7.55	7.18
Male infertility	0.68	0.60

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the male reproductive organs) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.27 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'benign hyperplasia of prostate'. It means that the increase of 3.18 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'redundant prepuce, phimosis and paraphimosis'.

Figure 8.27:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

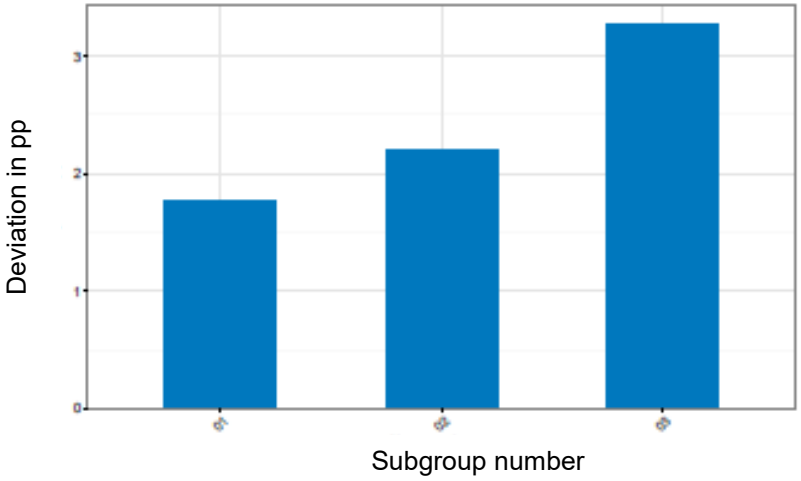
Table 8.28:Subgroups' names used in the figures

Number of subgroups	Subgroup name
01	Benign hyperplasia of prostate
02	Male infertility
03	Redundant prepuce, phimosis and paraphimosis

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.28 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'redundant prepuce, phimosis and paraphimosis' and it is 3.27 pp.(Projected percentage change for Mazowieckie Voivodeship is -4.92% in relation to the -8.19% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for benign hyperplasia of prostate and it is 1.78 pp.

Figure 8.28: **Deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points**



8.1.15 Diseases of the genitourinary system (in females)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.29 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'disorders of menstruation' and the lowest is projected for disorders classified as 'fistulas'.

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.29:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

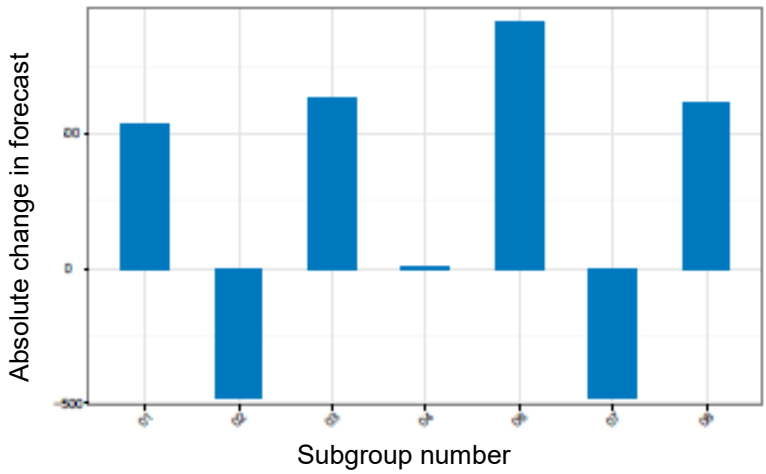
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
disorders of menstruation	60.79	61.71
non-neoplastic disorders of mammary gland	28.16	28.70
non-inflammatory, non-neoplastic diseases of sex organs	26.21	26.84
abnormal hyperplasia or location of genital mucosa	26.20	25.71
diseases of statics of sexual organs	6.99	7.61
disorders of fertility	3.97	3.48
Fistulae	0.17	0.18

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the genitourinary system (in females)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the

subgroups of diseases. Accordingly, Figure 8.29 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘disorders of menstruation’. It means that the increase of 0.92 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘abnormal hyperplasia or location of genital mucosa’.

Figure 8.29:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.30:Subgroups’ names used in the figures

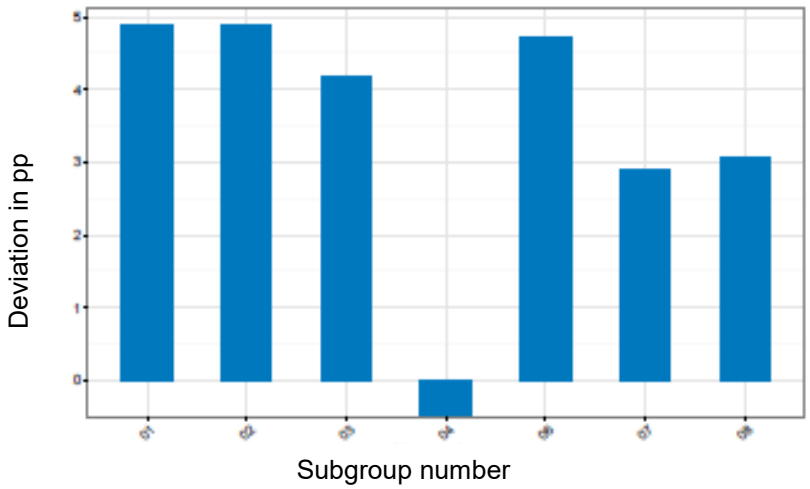
Number of subgroups	Subgroup name
01	non-neoplastic disorders of mammary gland
02	abnormal hyperplasia or location of genital mucosa
03	non-inflammatory, non-neoplastic diseases of sex organs
04	fistulae
06	disorders of menstruation
07	disorders of fertility
08	diseases of statics of sexual organs

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.30 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘abnormal hyperplasia or location of genital mucosa’ and it is 4.87 pp.(Projected percentage change for Mazowieckie Voivodeship is -1.85% in relation to the -6.73% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required

than the average activities for the entire country. The lowest deviation is projected for fistulas and it is -0.48 pp.

Figure 8.30: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.16 Diseases of the urinary tract

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.31 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'hypertension' and the lowest is projected for disorders classified as 'disorders of mineral metabolism'.

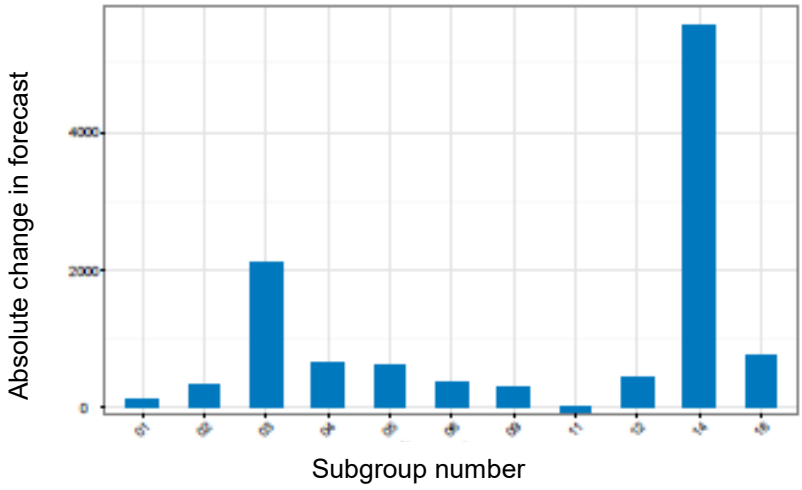
Table 8.31:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Hypertension	51.45	57.00
Urolithiasis	16.30	16.95
Renal failure	11.41	13.50
Defects of the urinary system	11.18	11.49
Urinary incontinence	9.97	10.72
Other disorders of kidney and ureter	5.90	6.53
Other diseases of lower urinary tract	4.72	5.10
Renal tubulointerstitial diseases	3.85	4.17
Other disorders of fluid, electrolyte and acid-base balance	3.12	3.55
Glomerular diseases	2.37	2.50
Disorders of mineral metabolism	1.38	1.29

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the urinary tract) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.31 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'hypertension'. It means that the increase of 5.55 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'disorders of mineral metabolism'.

Figure 8.31:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.32:Subgroups' names used in the figures

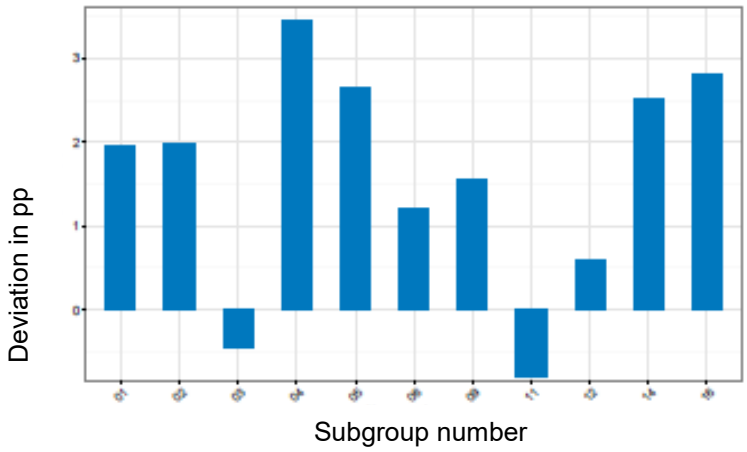
Number of subgroups	Subgroup name
01	Glomerular diseases
02	Renal tubulointerstitial diseases
03	Renal failure
04	Urolithiasis
05	Other disorders of kidney and ureter
06	Other diseases of lower urinary tract
09	Defects of the urinary system
11	Disorders of mineral metabolism
12	Other disorders of fluid, electrolyte and acid-base balance
14	Hypertension
16	Urinary incontinence

Source: Compiled by DAiS

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.32 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between

2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'urolithiasis' and it is 3.45 pp.(Projected percentage change for Mazowieckie Voivodeship is 3.97% in relation to the 0.53% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for renal failure and it is -0.46 pp.

Figure 8.32: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.17 Diseases of the digestive system (liver and pancreas)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.33 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'disorders of biliary tract (with or without calculus)' and the lowest is projected for disorders classified as 'complications of liver diseases'.

Table 8.33:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

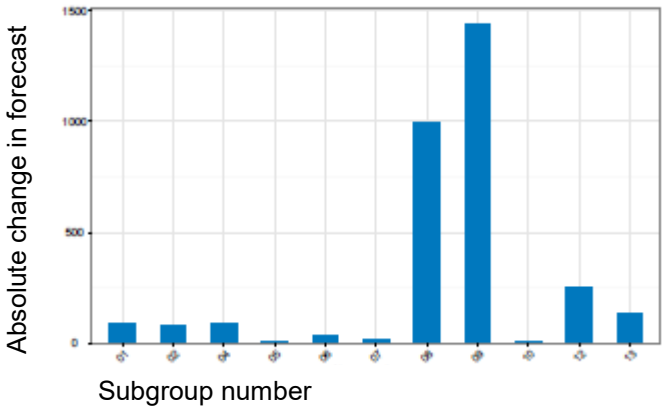
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Disorders of biliary tract (with or without calculus)	17.37	18.81
Disorders of gallbladder (with or without cholelithiasis)	14.24	15.24
Other liver diseases	3.86	3.99
Alcoholic liver disease	3.71	3.80
Chronic pancreatitis (including complications)	2.70	2.94
Fatty liver diseases	1.32	1.40
Cirrhosis of liver (excluding alcoholic liver disease)	1.04	1.13
Toxic liver disease (excluding alcoholic liver disease)	0.48	0.49
Hepatic failure	0.39	0.42
Congenital malformations of liver, pancreas and biliary tract	0.16	0.17

Complications of liver diseases	0.09	0.09

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the digestive system (liver and pancreas)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.33 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'disorders of biliary tract (with or without calculus)'. It means that the increase of 1.44 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'complications of liver diseases'.

Figure 8.33:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

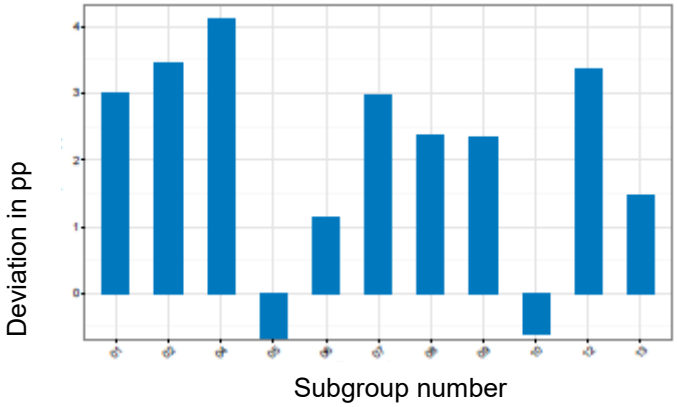
Table 8.34:Subgroups' names used in the figures

Number of subgroups	Subgroup name
01	Cirrhosis of liver (excluding alcoholic liver disease)
02	Fatty liver diseases
04	Alcoholic liver disease
05	Complications of liver diseases
06	Hepatic failure
07	Toxic liver disease (excluding alcoholic liver disease)
08	Disorders of gallbladder (with or without cholelithiasis)
09	Disorders of biliary tract (with or without calculus)
10	Congenital malformations of liver, pancreas and biliary tract
12	Chronic pancreatitis (including complications)
13	Other liver diseases

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.34 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'alcoholic liver disease' and it is 4.11 pp.(Projected percentage change for Mazowieckie Voivodeship is 2.29% in relation to the -1.82% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for congenital malformations of liver, pancreas and biliary tract and it is -0.6 pp.

Figure 8.34: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.18 Diseases of the upper digestive tract (except liver and pancreas)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.35 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'functional disorders of the upper digestive tract' and the lowest is projected for disorders classified as 'other diseases of oesophagus (not included in the other subgroups)'.

Table 8.35:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

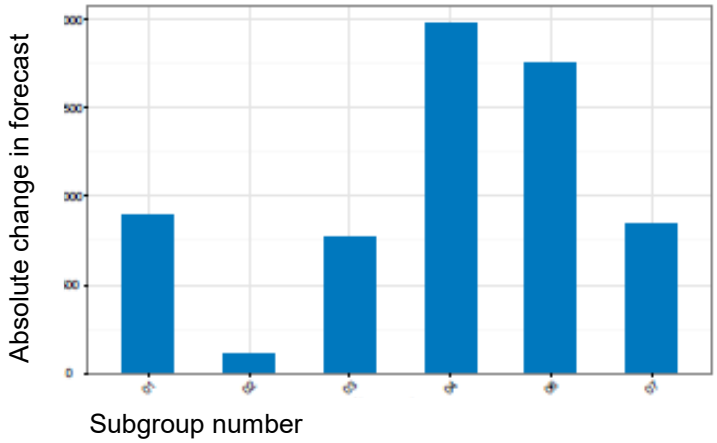
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Other functional disorders of the upper digestive tract	83.16	84.91
Other diseases of stomach and duodenum (not included in the other subgroups)	38.51	40.49
Gastro-oesophageal reflux disease	19.54	20.43
Intestinal malabsorption	12.13	12.97
Peptic ulcer disease	8.61	9.38

Other diseases of oesophagus (not included in the other subgroups)	1.50	1.60

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the upper digestive tract (except liver and pancreas)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.35 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'other diseases of stomach and duodenum (not included in the other subgroups)'. It means that the increase of 1.98 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'other diseases of oesophagus (not included in the other subgroups)'.

Figure 8.35:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.36:Subgroups' names used in the figures

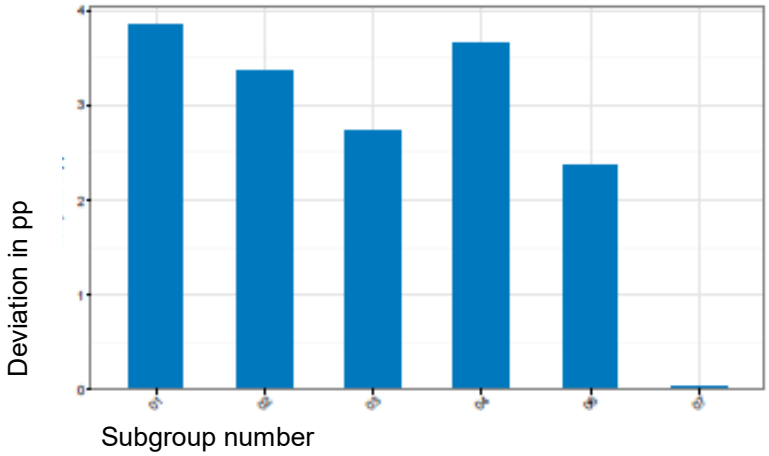
Number of subgroups	Subgroup name
01	Gastro-oesophageal reflux disease
02	Other diseases of oesophagus (not included in the other subgroups)
03	Peptic ulcer disease
04	Other diseases of stomach and duodenum (not included in the other subgroups)
06	Other functional disorders of the upper digestive tract
07	Intestinal malabsorption

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.36 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage.

The highest deviation percentage change of recorded incidence is projected for the subgroup defined as ‘gastro-oesophageal reflux disease’ and it is 3.86 pp.(Projected percentage change for Mazowieckie Voivodeship is 4.59% in relation to the 0.73% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for intestinal malabsorption and it is 0.03 pp.

Figure 8.36: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.19 Diseases of the lower gastrointestinal tract

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.37 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup ‘functional intestinal disorders’ and the lowest is projected for disorders classified as ‘Crohn's disease’.

Table 8.37:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

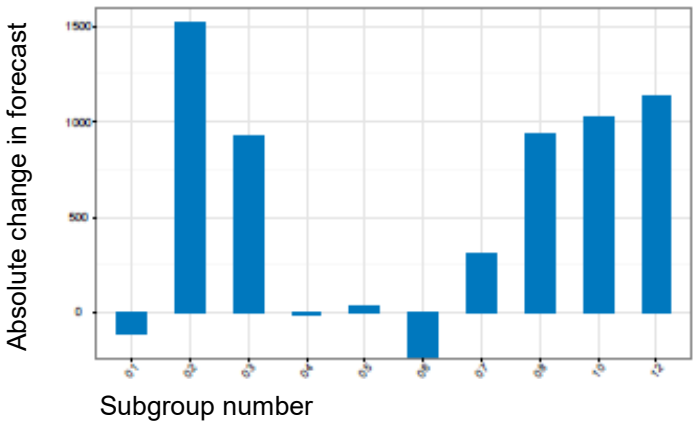
Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Functional intestinal disorders	62.34	63.28
Enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis)	25.94	25.71
Non-neoplastic diseases of anus and rectum	21.56	22.48
Other diseases requiring surgical operation on the lower digestive tract	20.97	22.50
Other diseases of intestines	19.57	20.71
Lower gastrointestinal haemorrhage, including vascular disorders	9.50	9.81
Diverticular disease of intestine	7.64	8.66
Diseases requiring urgent surgical operation on the lower digestive tract	7.12	7.00
Ulcerative colitis (UC)	1.51	1.54

Crohn's disease	0.73	0.72

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the lower digestive tract) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.37 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'other diseases requiring surgical operation on the lower digestive tract'. It means that the increase of 1.52 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'Enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis)'.

Figure 8.37:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

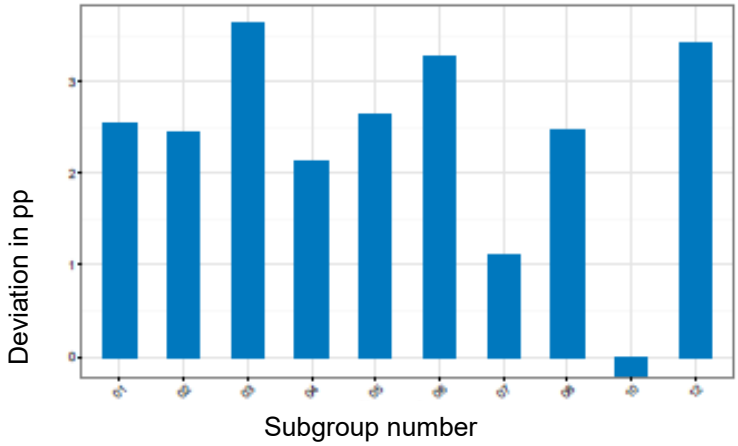
Table 8.38:Subgroups' names used in the figures

Number of subgroups	Subgroup name
01	Diseases requiring urgent surgical operation on the lower digestive tract
02	Other diseases requiring surgical operation on the lower digestive tract
03	Non-neoplastic diseases of anus and rectum
04	Crohn's disease
05	Ulcerative colitis (UC)
06	Enteritis and colitis, including infectious and parasitic (excluding Crohn's disease and ulcerative colitis)
07	Lower gastrointestinal haemorrhage, including vascular disorders
08	Functional intestinal disorders
10	Diverticular disease of intestine
12	Other diseases of intestines

Source:Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.38 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'non-neoplastic diseases of anus and rectum' and it is 3.64 pp.(Projected percentage change for Mazowieckie Voivodeship is 4.3% in relation to the 0.66% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for diverticular disease of intestine and it is -0.22 pp.

vFigure 8.38:**Deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.20 Diseases of the nose, paranasal sinuses, ear, pharynx and larynx

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.39 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'diseases of nose and paranasal sinuses' and the lowest is projected for disorders classified as 'sleep apnoea'.

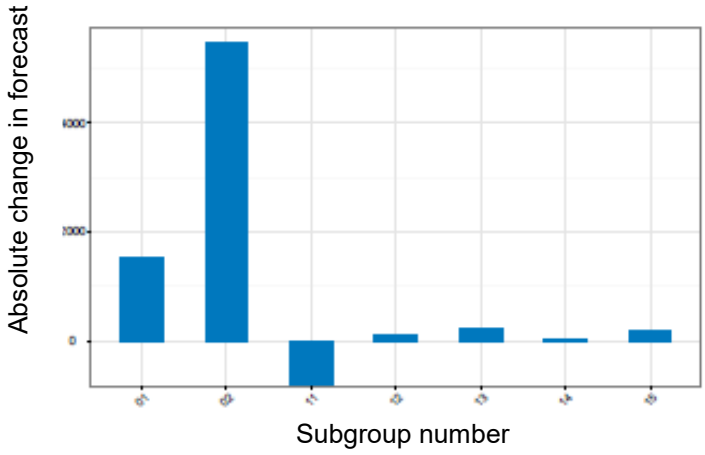
Table 8.39:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Diseases of nose and paranasal sinuses	81.87	81.95
Diseases of the ear and mastoid process	73.78	75.31
Diseases of oral cavity and pharynx	61.35	60.55
Diseases of the organs of hearing and balance	54.01	59.50
Diseases of larynx and trachea	25.79	26.02
Disorders of voice, speech and language	5.21	5.24
Sleep apnoea	3.10	3.26

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. diseases of the nose, paranasal sinuses, ear, pharynx and larynx) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.39 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'diseases of the organs of hearing and balance'. It means that the increase of 5.49 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'diseases of oral cavity and pharynx'.

Figure 8.39:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.40:Subgroups' names used in the figures

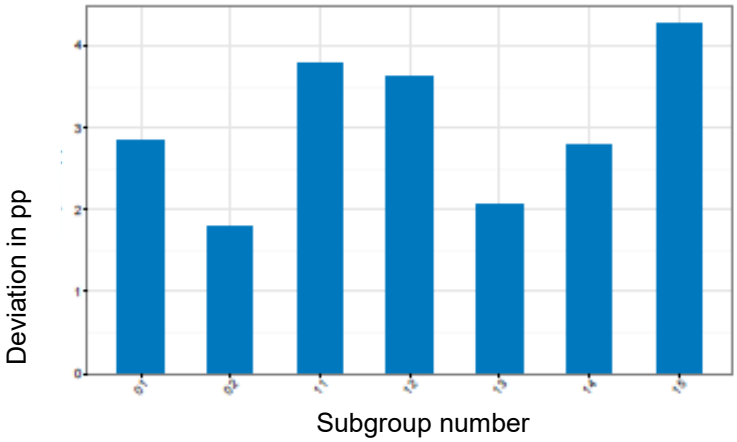
Number of subgroups	Subgroup name
01	Diseases of the ear and mastoid process
02	Diseases of the organs of hearing and balance
11	Diseases of oral cavity and pharynx
12	Diseases of nose and paranasal sinuses
13	Diseases of larynx and trachea
14	Disorders of voice, speech and language
15	Sleep apnoea

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.40 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined

as ‘sleep apnoea’ and it is 4.28 pp.(Projected percentage change for Mazowieckie Voivodeship is 5.23% in relation to the 0.96% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for diseases of the organs of hearing and balance and it is 1.81 pp.

Figure 8.40: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.21 Infectious diseases: viral hepatitis

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.41 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup ‘other and unspecified forms of chronic viral hepatitis’ and the lowest is projected for disorders classified as ‘chronic viral hepatitis C’.

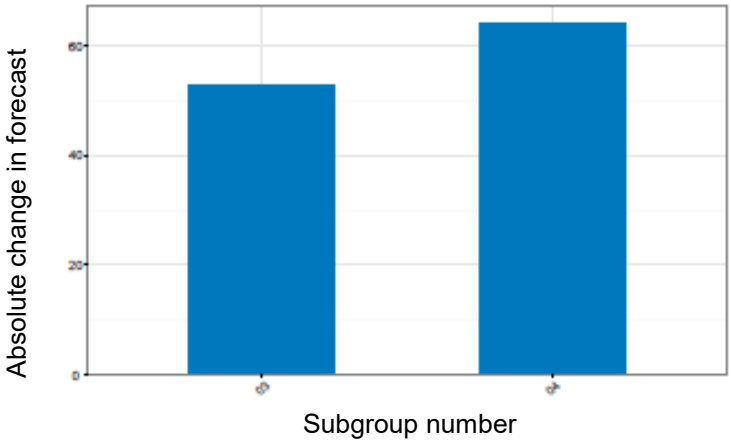
Table 8.41:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Other and unspecified forms of chronic viral hepatitis	2.13	2.19
Chronic viral hepatitis C	1.38	1.44

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. infectious diseases: viral hepatitis) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.41 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup ‘other and unspecified forms of chronic viral hepatitis’. It means that the increase of 0.06 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup ‘chronic viral hepatitis C’.

Figure 8.41:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

Table 8.42:Subgroups' names used in the figures

Number of subgroups	Subgroup name
03	Chronic viral hepatitis C
04	Other and unspecified forms of chronic viral hepatitis

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.42 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'chronic viral hepatitis C' and it is 5.6 pp.(Projected percentage change for Mazowieckie Voivodeship is 3.84% in relation to the -1.77% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for other and unspecified forms of chronic viral hepatitis and it is 5.17 pp.

Figure 8.42: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**

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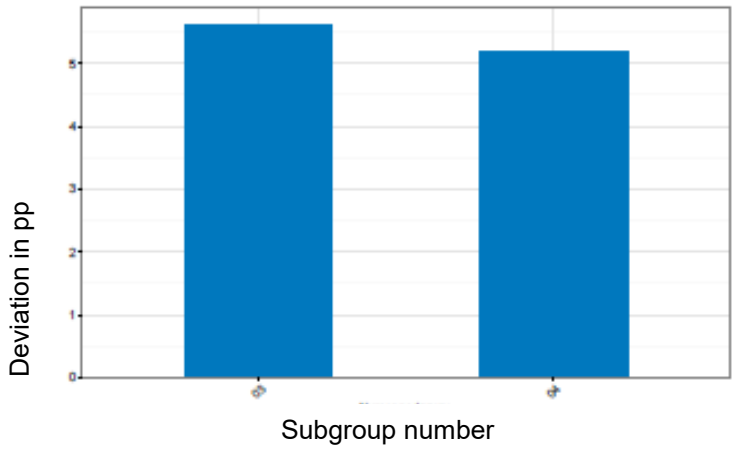


Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.22. Infectious diseases: AIDS/HIV

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.43 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'infectious diseases: AIDS/HIV' and the lowest is projected for disorders classified as 'infectious diseases: AIDS/HIV'.

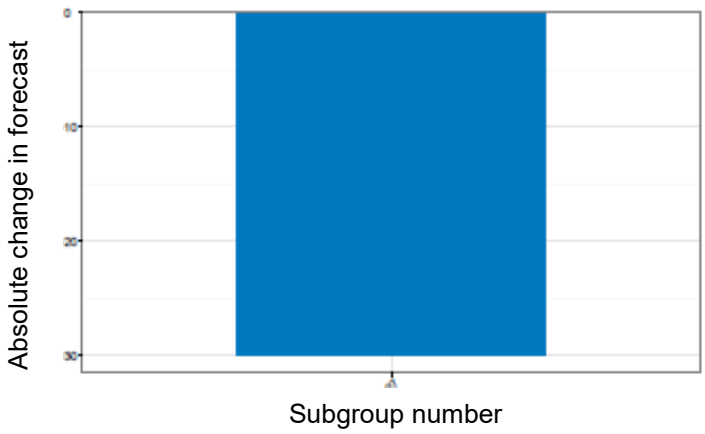
Table 8.43:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
infectious diseases: AIDS/HIV	0.45	0.42

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. infectious diseases: AIDS/HIV) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.43 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'infectious diseases: AIDS/HIV'. It means that the increase of -0.03 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'infectious diseases: AIDS/HIV'.

Figure 8.43:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

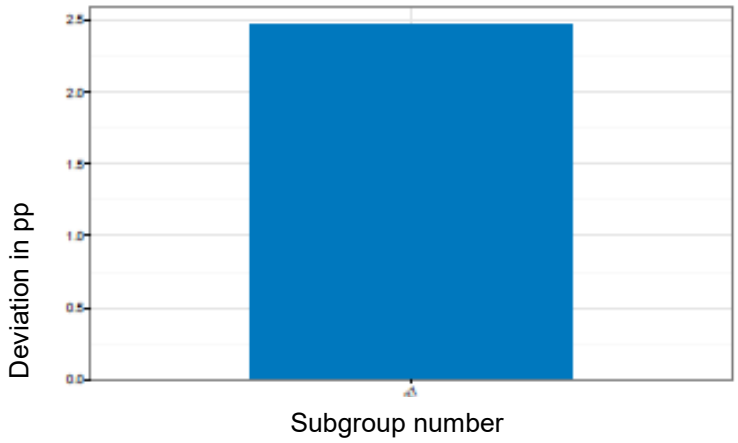
Table 8.44:Subgroups' names used in the figures

Number of subgroups	Subgroup name
27	infectious diseases: AIDS/HIV

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.44 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'infectious diseases: AIDS/HIV' and it is 2.47 pp.(Projected percentage change for Mazowieckie Voivodeship is -6.7% in relation to the -9.16% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for infectious diseases: AIDS/HIV and it is 2.47 pp.

Figure 8.44: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.23 Infectious diseases (other)

To show in which subgroups of diseases, the highest recorded incidence is to be expected, Table 8.45 presents a forecast for Mazowieckie Voivodeship for 2020 and 2029. In 2020, the highest recorded incidence is projected for the subgroup 'tuberculosis' and the lowest is projected for disorders classified as 'tuberculosis'.

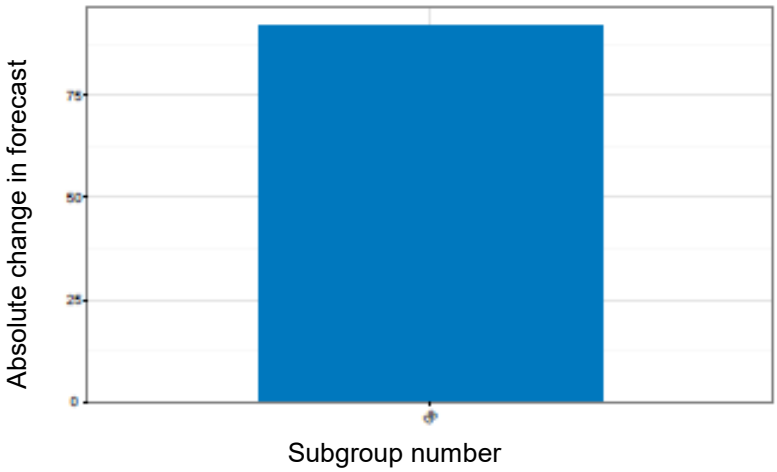
Table 8.45:Forecast of recorded incidence for Mazowieckie Voivodeship for 2020 and 2029.

Subgroup name	Forecast 2020 [in thousands]	Forecast 2029 [in thousands]
Tuberculosis	1.28	1.37

Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

It is projected that in 2020-2029, the recorded incidence of diseases belonging to the analysed diagnoses (i.e. infectious diseases (other)) will generally be higher. It is important for managing the healthcare system to understand how the recorded incidence will change in the subgroups of diseases. Accordingly, Figure 8.45 presents changes in the absolute values of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 and 2029. The highest recorded incidence between 2020 and 2029 is projected for the subgroup 'tuberculosis'. It means that the increase of 0.09 thousand projected for this subgroup will require appropriate medical resources in the healthcare system or preventive programmes which will make it possible to reduce this increase. On the other hand, the lowest recorded incidence is projected for the subgroup 'tuberculosis'.

Figure 8.45:**Absolute changes of the forecast of recorded incidence for Mazowieckie Voivodeship between 2020 an**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

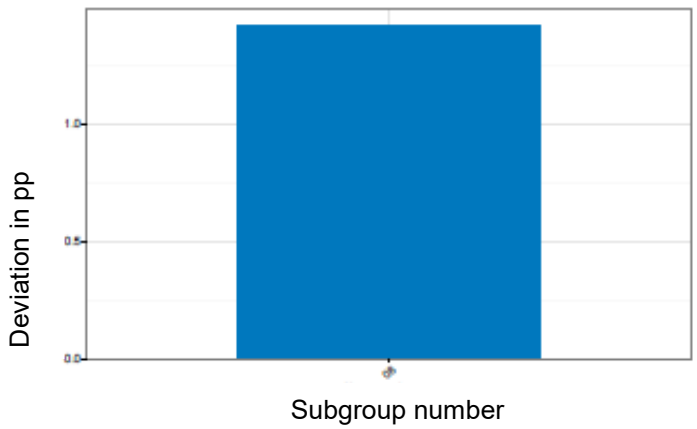
Table 8.46:Subgroups' names used in the figures

Number of subgroups	Subgroup name
08	Tuberculosis

Source: Compiled by DAiS.

Projected dynamics of recorded incidence changes in 2020-2029 for Mazowieckie Voivodeship is different from the average value projected for the entire country. Accordingly, figure 8.46 presents deviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire country. The deviation is given as a percentage. The highest deviation percentage change of recorded incidence is projected for the subgroup defined as 'tuberculosis' and it is 1.42 pp.(Projected percentage change for Mazowieckie Voivodeship is 7.22% in relation to the 5.8% change projected for the entire country.)It means that it can be expected that for this subgroup, more intensive activities will be required than the average activities for the entire country. The lowest deviation is projected for tuberculosis and it is 1.42 pp.

Figure 8.46: D**eviation of percentage change of projected recorded incidence for Mazowieckie Voivodeship between 2020 and 2029 in relation to the change for the entire in country in percentage points.**



Source: Compiled by DAiS based on data provided by the NFZ and the Central Statistical Office.

8.1.24 Congenital disorders

For congenital disorders, the forecast of registered incidence was based on data from the Polish Registry of Congenital Malformations adjusted by the data from the National Health Fund and the projected number of births from the Central Statistical Office. The forecast uses so called averaged variant. It assumes that there are differences between voivodeships which will be equal after long period of time, and the causes of the observed differences in the historical data were only transitional (there will be a convergence in the country because the differences are not resulting from systematic differences in the real risk between the voivodeships). Therefore, it is assumed that the recorded incidence rates for all voivodeships are equal to the value for Poland. It allows to avoid problems with the availability of detailed data on patient's place of residence. Utilisation of the aforementioned reasoning enables the forecast volatility estimates for the observed demographic trend. The second variant it to show how the trend will look like if data from the EUROCAT were used.

According to the above methodology, it is projected that in the case of demographic variant for Polish data in 2020-2029, a decrease of 15% in registered incidence will be observed (decrease from 11.4 thousand in 2020 to 9.7 thousand in 2029). The highest decrease in recorded incidence is projected for Opolskie Voivodeship (18.0%), and the lowest for Pomorskie Voivodeship (11.9%). As for the demographic variant for EUROCAT data, much lower values are projected (7 thousand in 2020 and 6 thousand in 2029) and a decrease in this value in 2020-2029 (a 15% decrease). As in the case of the demographic variant for Poland, the largest decrease in registered incidence is projected for Opolskie Voivodeship (17.7%), and the lowest for Pomorskie Voivodeship (11.7%).

8.2 Forecasts for selected disease groups

8.2.1 Forecast of needs for general paediatrics

A forecasting model was developed for general paediatrics hospitalisations in hospitals with a general paediatrics ward (in accordance with the 8th part of the Ministry of Health code), which is based on the demographic forecast by the Central Statistical Office for counties and on the assumption of constant hospitalisation rates within age groups. The obtained results indicate that in the years 2014-2020 in the

voivodeship we will observe the decrease in the number of general paediatric hospitalisations of approx. 1,700, and the number of hospitals reporting at least 700 such hospitalisations will decrease from 37 to 34.

8.2.2 Projected need for maternity settings

In 2014 in Mazowieckie Voivodeship, 49 entities reported deliveries to the National Health Fund.Forty of those facilities (i.e. 82%) reported at least 400 deliveries.At the national level, there were 395 reporting entities and the limit of 400 deliveries was achieved by 310 of them (78%).

In accordance with the results of the model, in 2020, among service providers currently functioning in Mazowieckie Voivodeship, 41 show the potential for carrying out at least 400 deliveries, or are necessary from the point of view of the quick access to primary care midwife services (with the exception from the applied rule of 400 deliveries constituted by maternity sites which were the only ones providing services within the radius of 40km). In all other cases, the need for retaining a maternity-related ward should be reconsidered.

The functioning of neonatal wards and subunits (including those which are sections of a larger maternity/gynaecology and obstetrics ward structure) is strictly related to the functioning of maternity wards.Therefore, forecast results will have a direct impact on recommendations for those wards: in hospital where the number of childbirths does not reach the threshold value, the need for both a maternity/gynaecology and obstetrics ward (within the scope of labour and delivery) and a neonatal ward/subunit should be reconsidered.

8.2.3 Forecast of number of places in palliative and hospice care

The map of healthcare needs presents prognostic model calculating necessary number of palliative and hospice care facilities. The authors used methodology presented by the World Health Organization (WHO) in the publication ‘Global Atlas of Palliative Care at the End of Life’. As part of the analysis, the incidence rates for solid tumours presented in the maps of healthcare needs in December 2016 according to six age groups and sex were used and the product of the incidence rate and the population forecast for Poland prepared by the Central Statistical Office for 2009-2050 by voivodeships and TERYT codes was calculated, the survival presenting the number of patients who, according to the National Health Fund data, live for, respectively, 1, 2, 3, 4, 5, 6 years from the diagnosis was calculated, the number of deaths in each age group was calculated.The original model proposed that hospice and palliative care should include 84% of all patients with diagnoses from C and D catalogue (according to ICD-10 classification) one year before death, due to the results of research on chronic pain in this group of patients.After discussions with national palliative medicine experts, in order to take into account the specific local conditions determining the necessity of palliative and hospice care, it was decided to increase the value of this parameter to 90%. The final model indicates the necessary number of palliative and hospice care places in general.In order to calculate the number of necessary places in inpatient hospices, the guidelines of the European Association for Palliative Care regarding the necessity of providing at least 100 beds in inpatient hospices per one million population were used.The number of places in home hospices is the difference between the estimated total number of palliative and hospice places and the number of places in inpatient hospices by voivodeship.

For Mazowieckie voivodeship, the forecast of the number of palliative and hospice places needed in hospices in 2020 is 14693 (in total), including 539 inpatient places and 14154 home places.