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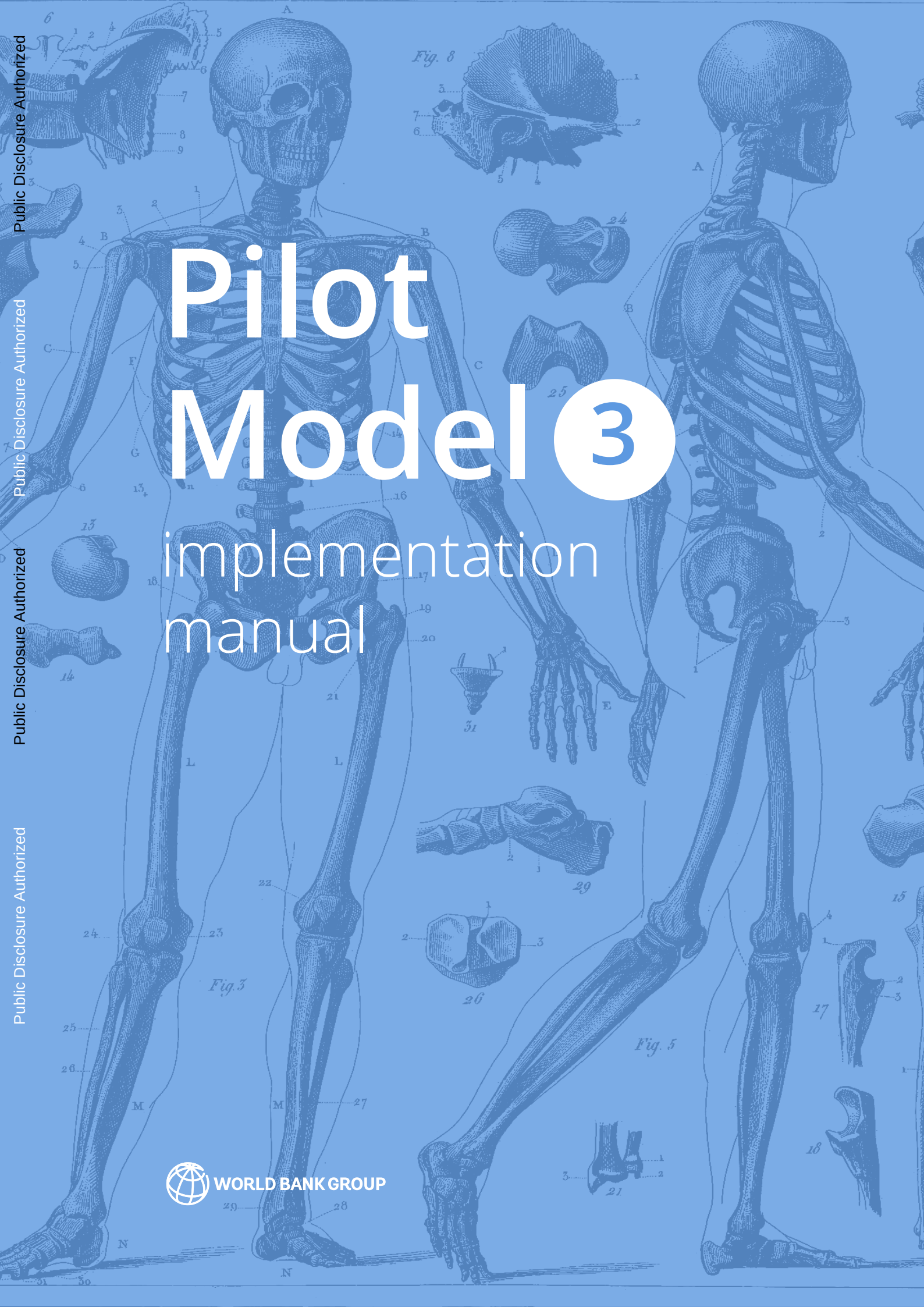

Pilot Model 3

implementation manual

WORLD BANK GROUP

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List of Abbreviations

COPD – Chronic obstructive pulmonary disease
DGN – Diagnostic
DM – Disease Management
DMP – Data Management Platform
DPS – Social Assistance Homes (*Domy Pomocy Społecznej*)
EMC – Health Events and Medical Records
FFS – Fee-for-Service
GDP – Gross Domestic Product
GP – General Practitioner
GUS – Central Statistical Office (*Główny Urząd Statystyczny*)
HCC – Home Care Center
HIS – Health Information System
IC – Integrated Care
IT – Information Technology
M&E – Monitoring and Evaluation
MoH – Ministry of Health
MRPiPS (former MPiPS) – Ministry of Family, Labor and Social Policy
NCD – Non-Communicable Diseases
NFZ – National Health Fun (*Narodowy Fundusz Zdrowia*)
NHS – National Health System
NOCH – Night and Holiday Healthcare (*Nocna i Świąteczna Opieka Chorych*)
OECD – Organization for Economic Cooperation and Development
OSC – Outpatient Specialist Care (*Ambulatoryjna Opieka Specjalistyczna [AOS]*)
OSOZ – Nationwide Health Care System (*Ogólnopolski System Ochrony Zdrowia*)
PHC – Primary Healthcare
PIU – Project Implementation Unit
PLN – Polish Zloty

POM – Pilot Operational Manual

SOR – Hospital Emergency Care (*Szpitalny Oddział Ratunkowy*)

WHO – World Health Organization

ZOL – Care and treatment facilities (*zakład opiekuńczo-leczniczy*)

ZPO – Nursing and care facility (*zakład pielęgnacyjno-opiekuńczy*)

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Introduction

The objective of the model is to address the lack of integration between healthcare and social care services, which can particularly affect older people.

Using information gained from Model 1 and 2, as well as analyses of health and social service delivery for the elderly, the proposed Model 3 combines the most important elements of both sectors under one umbrella: the **Home Care Center (HCC).**

The model replies to the needs indicated by the client during discussions and technical analyses but also is reflecting the RAS agreement between The National Health Fund and The World bank.

Objectives of introducing integrated care at the community level:

- improvements in access to healthcare, nursing, rehabilitation and long-term care services for older people following hospitalization- **filling the gap in the inclusive way.**
- decrease in the risk of re-hospitalization of older patients due to improved medical, nursing, rehabilitation and care activities – **improving the quality.**
- decrease in costs of medical treatment, efficiency improvements, and – **improving efficiency**

Integration cannot be achieved solely by one provider, it must employ a cross-boundary approach covering various sectors, professions, and locations. Model 3 is not prescriptive, it provides overarching principles to guide local health and social service planning. It envisages the local needs of the elderly and provides innovative solutions to the issues of the elderly population. The local system of care delivery for older people does not stand alone, it is determined by the broader context of policy and governance arrangements for aged health and social care already in Poland together with funding and systems in place. There are multitudinous stakeholders that feature throughout the care journey of an elderly person, and it is not possible to identify all. Local communities need to identify and include all relevant stakeholders for their care-delivery context. **The objective is to propose a service delivery model that facilitates care being delivered as close to home as possible in the limited amount of time (six to twelve months).** This does not undermine the importance of hospital care, contrary it connects hospital care to other forms of care and acknowledges alternative care provision options where appropriate: be it at a long-term facility, day-care hope facility, or at home. There are many other factors that influence an elderly person's healthcare experience, including

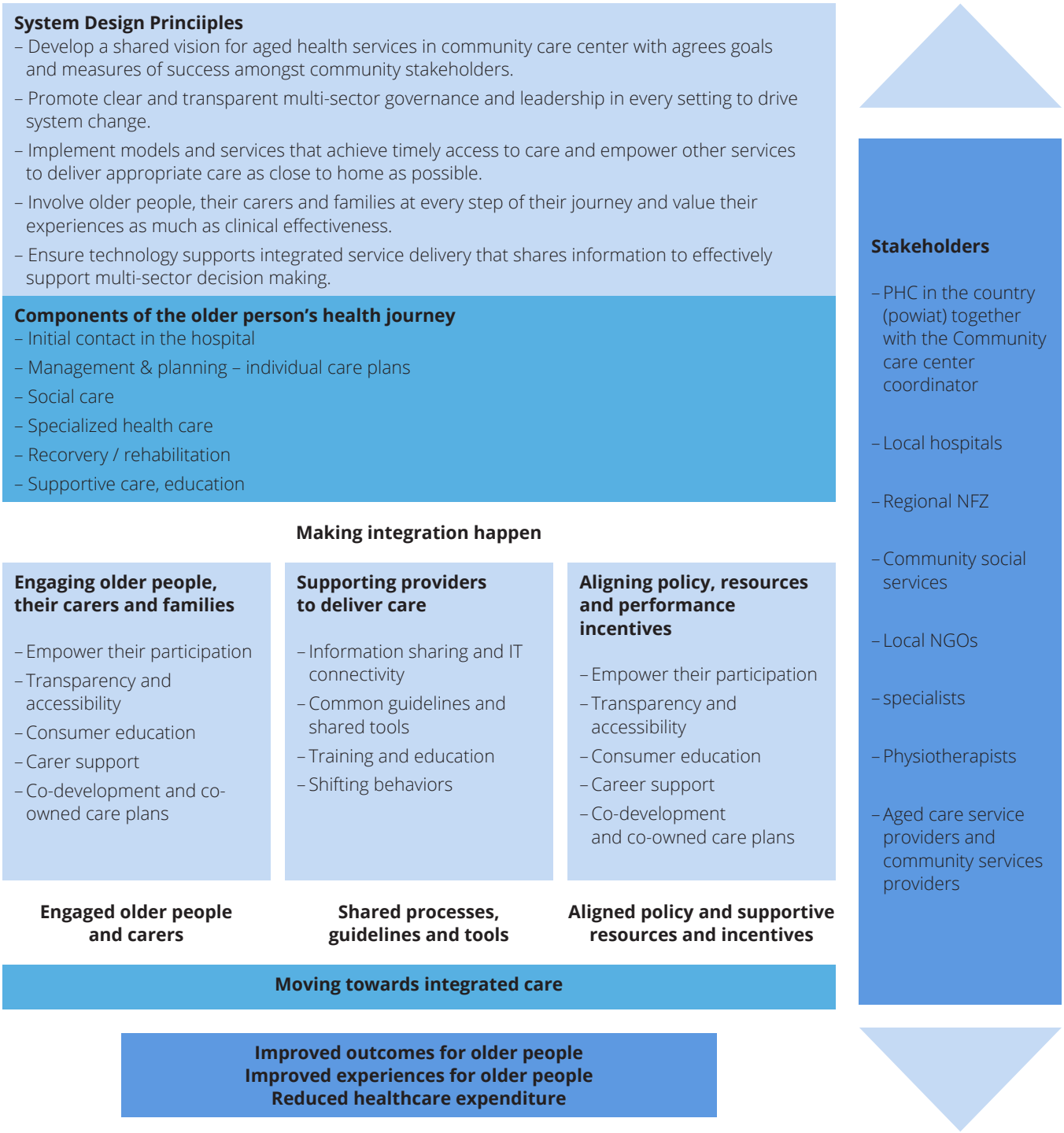
housing, support services and transport - these are not covered in this model however should be analyzed and adapted during the implementation phase.

The report is organized into two parts. The first part which describes the structures of the health and social sectors and service delivery models for the population of 65+. This section also outlines elements of the financial data related to the costs of care for the elderly in both sectors. The second part of the report presents the potential scope and organization of Model 3.

This final proposed model is, both, the most innovative and the most challenging. It introduces integrated care that is organized around patient's needs in health and well-being, across different levels of care and systems, for patients hospitalized within one year from the start of the pilot.

This model requires a new organization setting, highly organized service delivery, new structures and clinical tools, skills, information flows as well as additional financing for unavailable services. The model covers patients over 65, post hospitalization during the last year, and with clearly defined health conditions. These criteria already narrowly limit the beneficiary scope of the model. As a result, the estimated rates of beneficiaries are approximately 1.4 thousand patients per poviat. Correspondingly, this model does not achieve significant economies of scale. The potential, however, for the pilot health and social services being provided under one roof and coordinated at the local level is very promising.

Diagram 1: The framework for integrated care for older people with complex health needs



Source: Based on MacColl Institute for Healthcare Innovation in Strategic Framework for Integrated Care for older persons with complex health needs, 2013 (1)

Expected results

Patient health needs are addressed more comprehensively in the therapeutic process by:

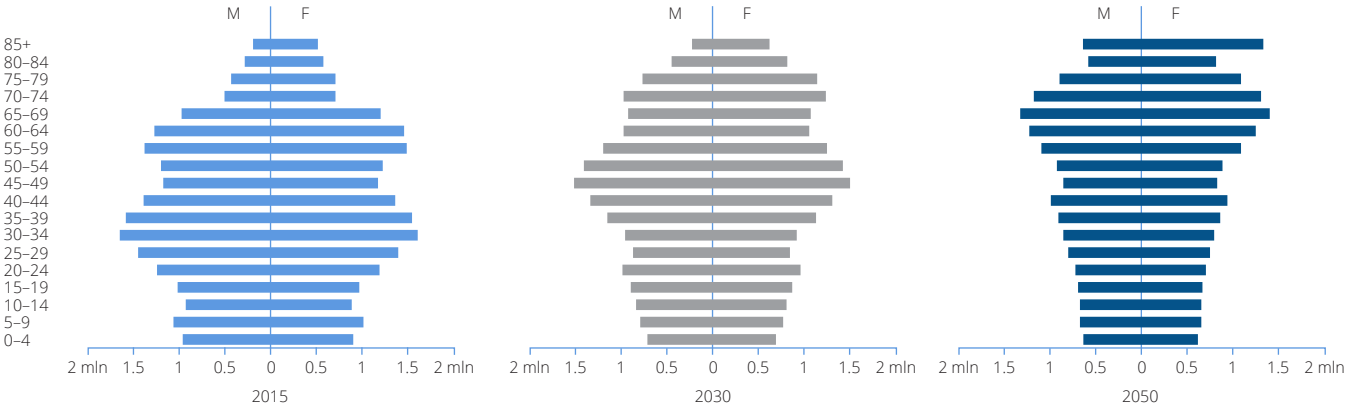
- fewer life-and-health threatening complications of lifestyle diseases by increasing effectiveness and capacity for detection of primary and secondary prevention;
- fewer acute care hospital interventions;
- improved access to and improved quality of care by:
  - additional support provided to the patient at home,
  - social care provided where needed,
  - rehabilitation available accelerating health process,
  - community care and activation provided, and
  - reducing financial burden on the patients, thanks to the fact that unnecessary spending on medications is limited (e.g., reduced polypragmasy and frequent changes in the therapeutic process); and
- improved treatment efficiency and patient comfort.
- The Model 3 also:
  - creates close collaboration across professions and sectors,
  - ensures that patients receive relevant care,
  - ensures health care of high quality,
  - creates new systems of care delivery that support integrated health care,
  - creates new ways of collaboration between the hospital, primary care and social care, and
  - supports creation new job functions for health care professionals.

Backgroud

Demographic situation in Poland

Poland has a relatively young population compared to other European countries. Only 11% of the population are aged 65 to 79 and 3.9% of the population are above 80 years of age: below the average of the EU-28 (13.4% and 5.1% of the population respectively) in 2014 (2). Despite the present favorable demography, like other European countries, Poland is beginning to experience a rapid ageing of the population due to increases in life-expectancy and a persistently low fertility rate over the past two decades. The increase in life expectancy (LE) is primarily attributed to an increase in the survival of men below the age of 65 and women above 65. Although these changes have been significant, Poland remains below the EU-28 average life expectancy of 83.3 for females and 77.8 for males. (3). The gender life expectancy gap is large with woman expected to live on average 8.2 years longer than their male counterparts, leading to the feminization of older cohorts. The life expectancy at 65 is 19.9 years for women, and about 39% of life in older age is expected to be spend in good health and without disability (Healthy Life Years: HLY); for men, the life expectancy at 65 is 15.5 years and about 45% is estimated to be spent in good health and without disability. Due to the increase in life expectancy and low fertility rate, the number of people aged 65+ is expected to increase by 5.4 million, constituting slightly more than one third of the total population in 2050 (32,5%) (4). At the same time, the proportion of the oldest population (80+) is estimated to more than double, and account for 10% of the total population in 2050 (4), (Figure 1).

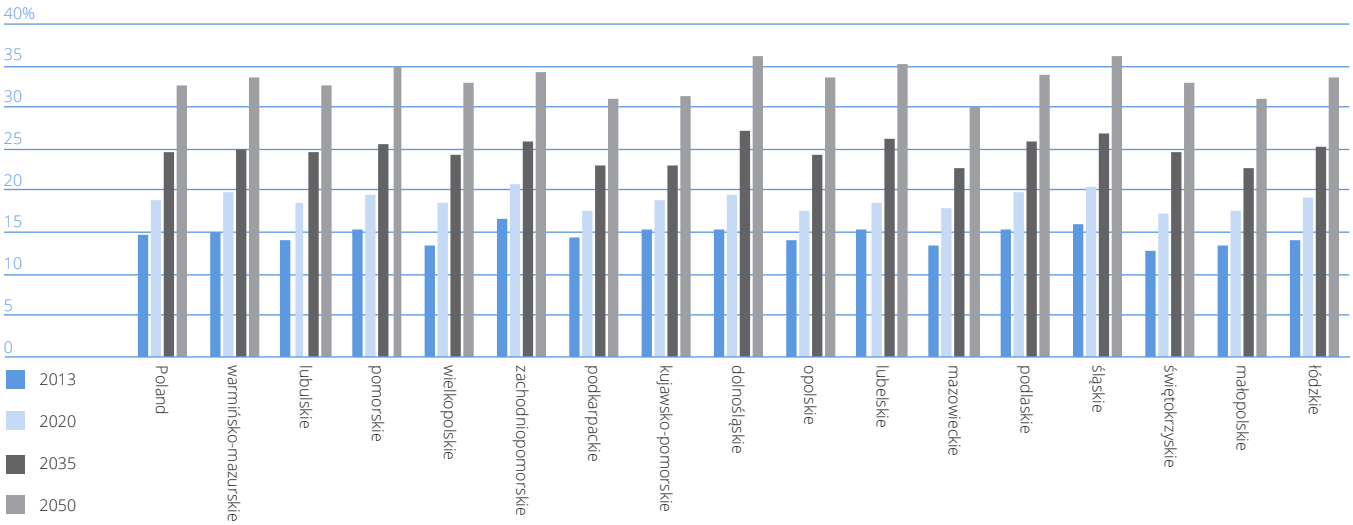
Figure 1: Population of Poland by sex and age in 2014 and projected in 2030 and 2050 (GUS data)



Source: NIPH-NIH, 2016 (3)

The proportion of older population and the predicted ageing dynamics vary between Polish voivodships, and between urban and rural areas. At present, the lowest share of people aged 65 and above is warmińsko-mazurskie and the highest share of 65+ is recorded in łódzkie. The ageing process is predicted to be less pronounced in mazowieckie, małopolskie and pomorskie voivodship due to these cities economic development and metropolitan nature, which reports a higher fertility rate due to labor migration of young people. In 2050, the lowest share of elderly people is predicted in pomorskie voivodship and the highest in opolskie and świętokrzyskie. These trends are estimated by factoring in fertility, life expectancy, and, also migration assumptions. All voivodships in rural areas are predicted to observe a rise in the share of the elderly people throughout the projection period. (5)

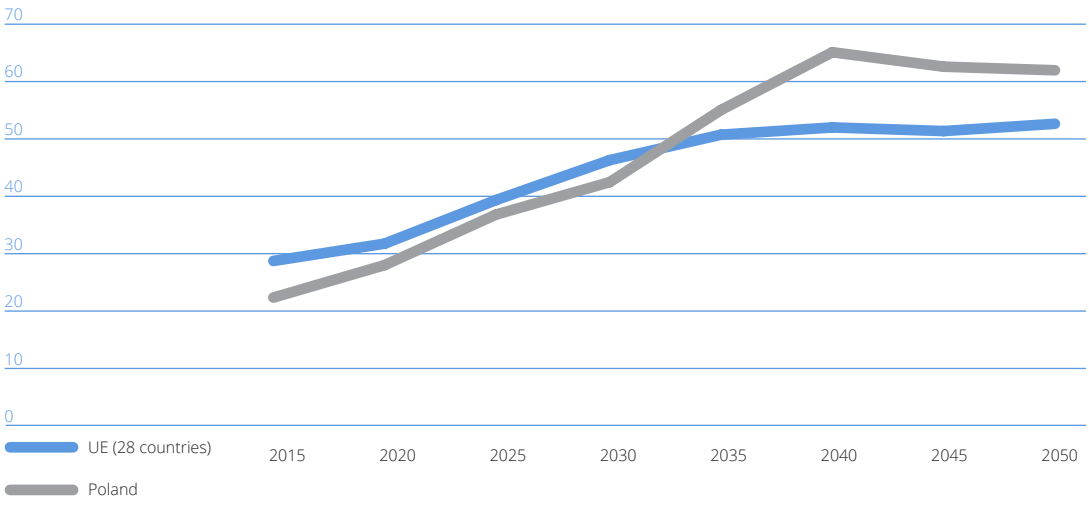
Figure 2: The share of people 65+ in the total population, by voivodships



Source: GUS, 2014 (5)

This aging demographic trend results in an increase in the old age dependency ratio[1], in Poland this ratio in 2015 was reported at 22.1: meaning for every 100 members of the population 22.1 are considered "post-productive", at present, this post-productive cut-off is 65. This indicator remains below the EU-28 average old-age dependency ratio, which in 2015 was recorded at 28.8.
By 2050 Poland is predicted to report a higher value of this indicator compared to the EU average – 54.6 in Poland and 50.3 in the EU (Fig. 3). With a lower proportion of young, productive people to the elderly, informal care structures are set to greatly diminish. These informal child-to-parent care dynamics are crucial in the present Polish society.

Figure 3: Projected old-age dependency ratio, EU-28, 2015–80 (Eurostat)



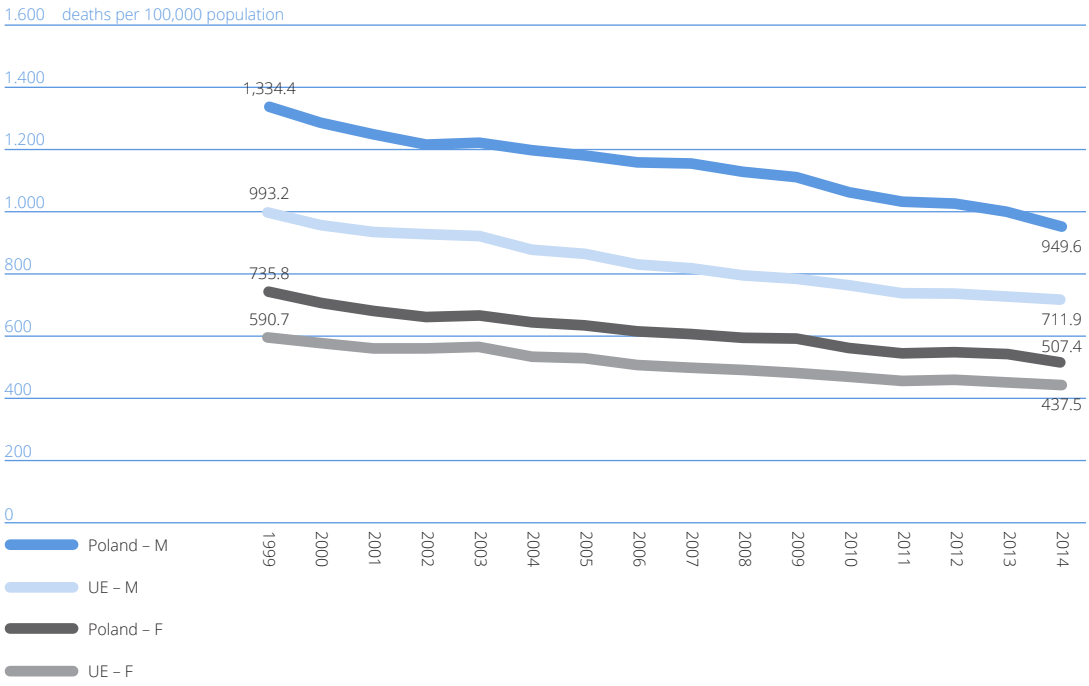
Source: Eurostat database

Health status of the older Polish population

The overall health status of the population is improving as measured through decreases in mortality and corresponding increases in life expectancy. According to NIPH-NIH, if the current decreasing mortality rate continues along the same trajectory, Poland is estimated to observe the EU average mortality rate by 2020.

[1] The ratio between the number of persons aged 65 and over (age when they are generally economically inactive) and the number of persons aged between 15 and 64. The value is expressed per 100 persons of working age (15–64) (Eurostat)

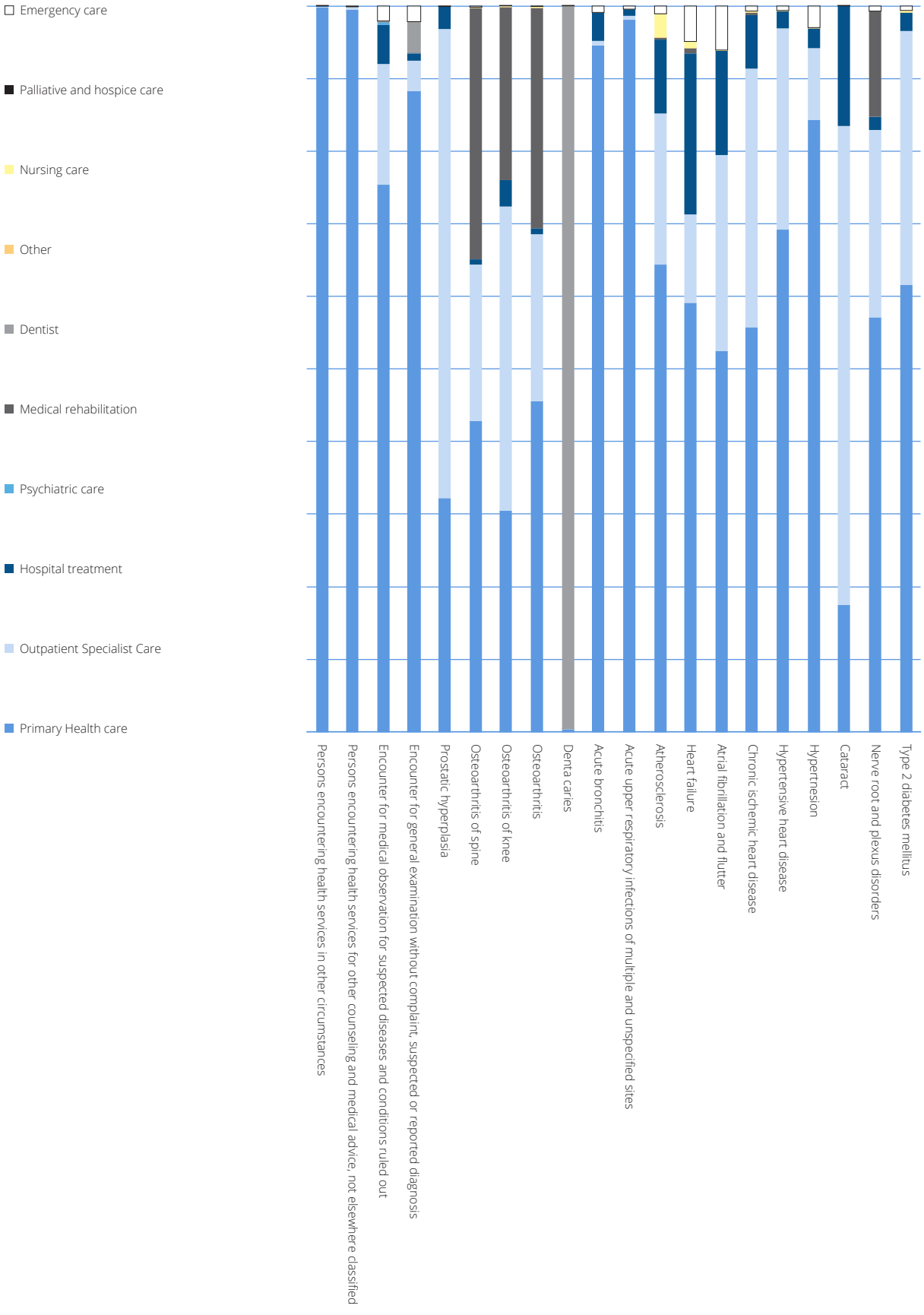
Figure 4: Total death rates in Poland and EU



Source: NIPH-NIH, 2016

Most diagnoses of the 65+ population occur at the PHC level. Although there are some exceptions: dental care happens at the dentist's office, and osteoarthritis of knee, prostatic hyperplasia and cataract are mostly being diagnosed at outpatient specialist care. 20–30% of osteoarthritis is diagnosed at the medical rehabilitation level. It is also common to diagnosis cardiovascular diseases at the hospital level, especially Atrial fibrillation and flutter, heart failure and atherosclerosis.

Figure 5: Most common diagnosis among people 65+ in 2015

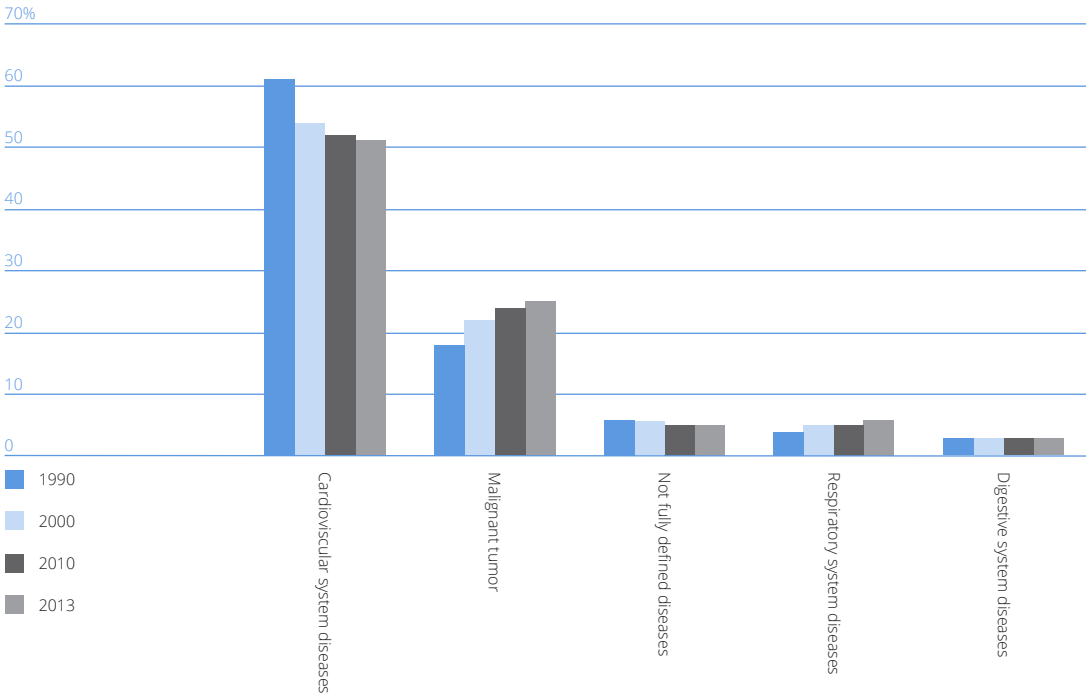


Source: World Bank analysis based on NFZ data

Although the mortality rate of the overall population is on the decline, those aged 60 and above represent the largest proportion of deaths annually, with this proportion set to increase. In 2014, 82% of all deaths that year were of the 60+ population, which is 8 percent points higher than in the 1990. Despite this increase in the proportional death rate, mortality decreased by 14 per-mille points for the above 60 group, and for the whole population it stayed at the same level since 1990. The highest mortality rate is amongst the eldest population groups peaking at 80+ group rather than 75+ (4).

The leading cause of death among people aged 60 and above are cardiovascular diseases, slightly more than 60% of deaths among this population in 2013 were attributable to cardiovascular diseases and 80% of all deaths related to CVD were among people 60+. The second leading cause of death in this age group is cancer, the percentage of deaths attributable to malignant neoplasm has risen by 7 percentage points since 1990 (Figure 6). These are followed by unknown causes, diabetes related and respiratory system diseases related deaths. Among the CVDs, chronic ischemic heart disease and coronary artery diseases were the most common reported cause of death. Within malignant neoplasm mortality causes, the deadliest types for the group aged 65+ were the trachea, bronchus and lung cancer, and colorectal cancer. (4)

Figure 6: Mortality among people 60+ by selected causes

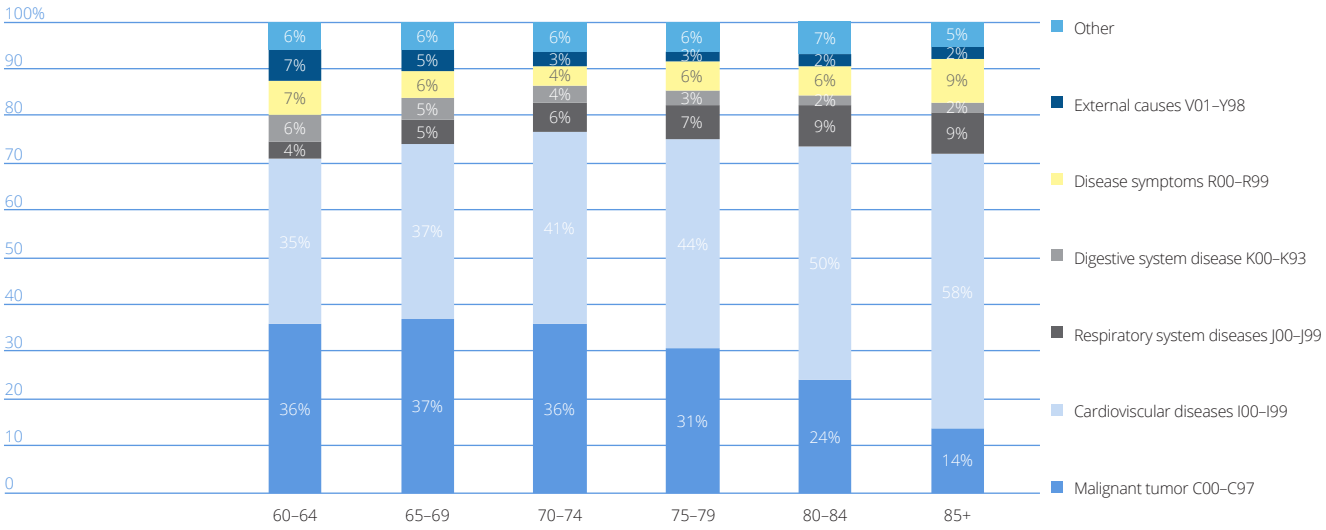


Source: GUS, 2016

Cardiovascular diseases are the more frequent cause of death amongst men in their 60s, for women this occurs after the age of 70. Inversely, cancers are the most frequent cause of death for women in their 60s, while after the age

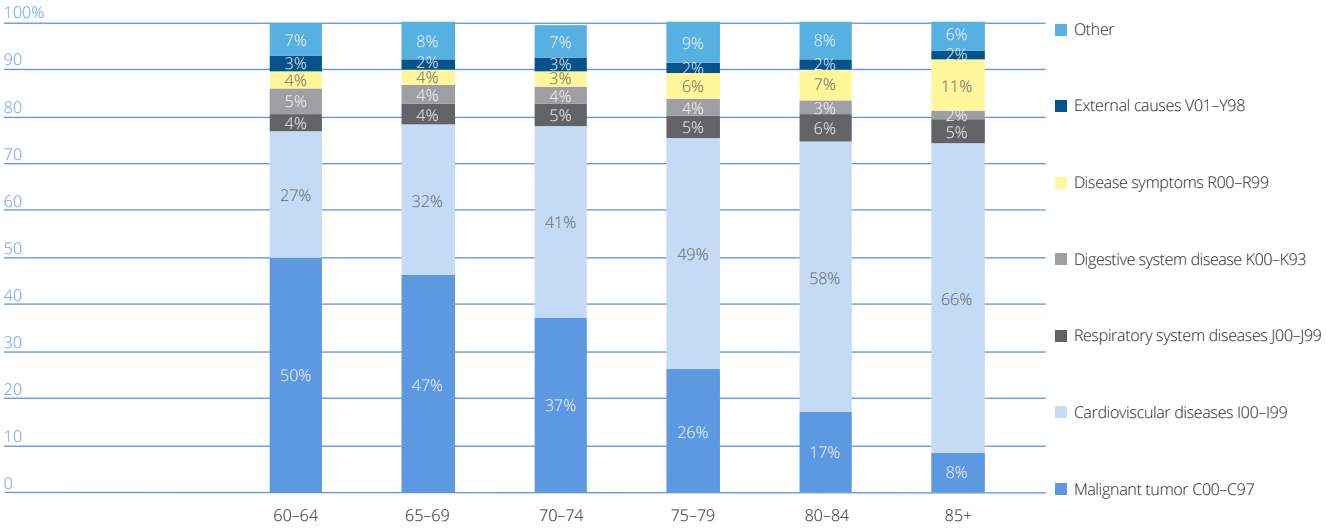
of 70 they are reported to become more frequent cause of deaths among men (Figure 7 & 8).

Figure 7: Proportion of Deaths from main causes in all deaths by 5-year age groups, males, 2014



Source: NIPH-NIH based on GUS data, 2016

Figure 8: Proportion of Deaths from main causes in all deaths by 5-year age groups, males, 2014

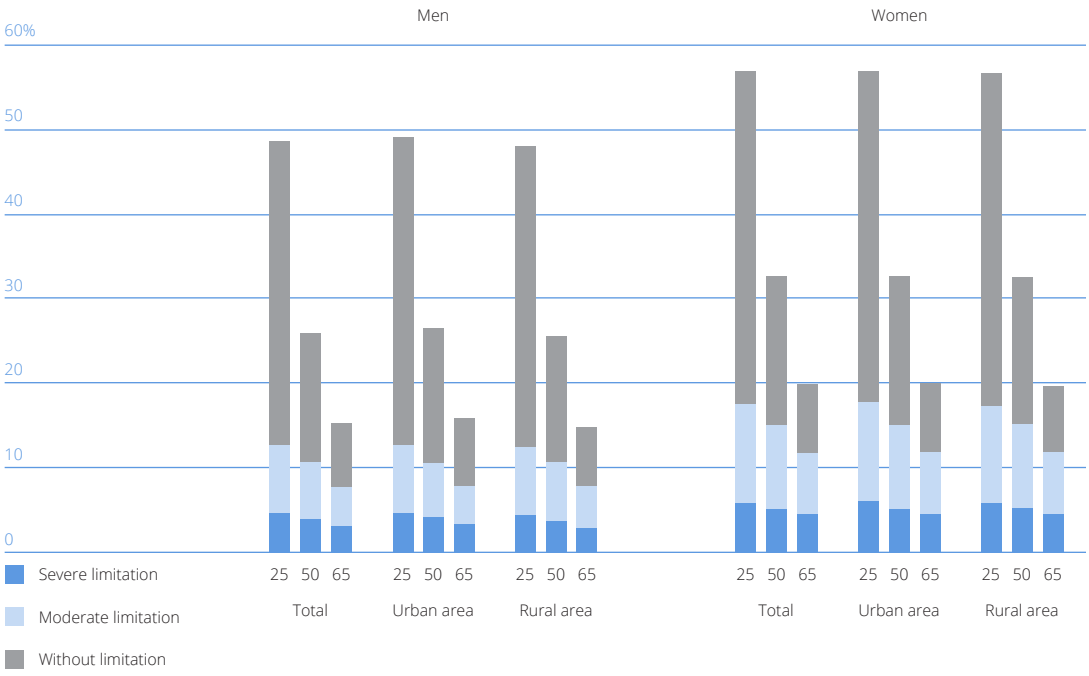


Source: NIPH-NIH based on GUS data, 2016

Average life expectancy in 2014 was 73.8 years for men and 81.6 for women. (3) In 2014, life expectancy at 70 years for men was 12.9 years and 16.3 for women. Despite the significant increase in life expectancy for both sexes since 1991, Poland ranks the lowest among the EU countries.

Although Poles on average live longer and the life-time in older age is extending, less than half of the older age is spent in good health and without disability. In the latest report by NIPH-NIH, the health life expectancy is calculated at 25, 50 and 65 years old. Men on average have 7.5 years of health at 65, and 8 years with limitations: moderate and severe. Women at 65 years can expect 8 healthy life years, however after reaching 73 years, their condition on average worsens and accounts for 7.2 year with moderate limitation and 4.6 years with severe limitation. In both men and women, the average overall life and health expectancy at 65 is higher among people living in an urban area than those living in rural areas in Poland. (3)

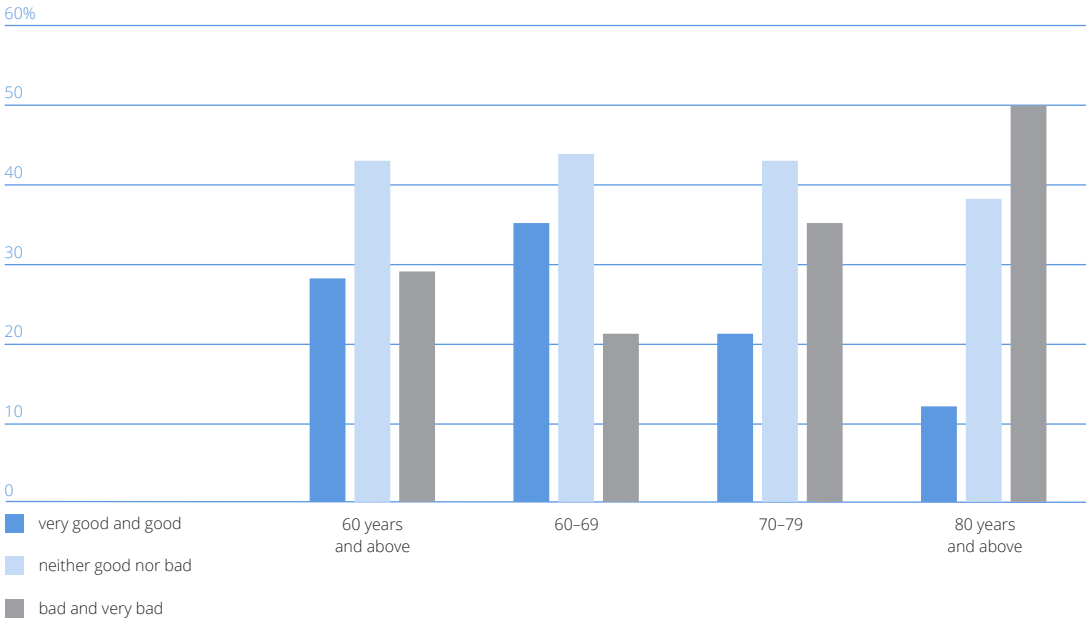
Figure 9: Health expectancy at age 25, 50 and 65 among men and women in Poland in 2013



Source: NIPH-NIH based on EU SILC and GUS data, 2016

Self-assessed health of Polish citizens over 60 years, on average, is described as neither good nor bad. However, there is an observed drop in reported good state of health and rise of bad situation with age. According to the European Health Interview Survey (EHIS) compared to the 2009 data, the health satisfaction in groups between 60-79 years had increased, but decreased in the eldest group. Overall, women rate their health worse than men do: believed to be attributed to the longer time spent living with many illnesses, especially cardiovascular system diseases, diabetes and common rheumatic diseases. (4)

Figure 10: Self-rated health among people 60+ years old in 2014



Source: GUS, 2016

An individual of 65 or above in Poland reports, on average, 3.6 disease/ ailments. Women report on average more diseases than men and the number of reported diseases steeply increases with age. The presence of various, often chronic, diseases simultaneously is referred to in the epidemiologic literature as multi-morbidity. It is reported that over 65% of people aged 65 suffer from multi-morbidity, and this share rises with age (6).

Table 1: Average number of ailments per individual

Age group	Overall	Men	Women
All	**3.6**	**3.2**	**3.9**
60-69 years old	3.1	2.8	3.4
70-70 years old	4.1	3.7	4.4
80 and more	4.5	4.3	4.6

Source: GUS, 2016

According to the data from GUS, high blood pressure is the most commonly reported disease in the population of 60+ for both genders, however, higher amongst women. Table 2 below details the most common diseases reported by the surveyed population in 2014.

Table 2: Most common ailments among population 65+

Men	%	Women	%
High blood pressure	47,2	High blood pressure	56,3
Lower back pain	36,2	Osteoarthritis	47,3
Osteoarthritis	29,0	Lower back pain	45,5
Coronary artery disease, angina pectoris	24,8	Neck pain and chronic pain	33,9
Middle part back pain	24,0	Middle part back pain	32,4
Neck pain and chronic pain	23,7	Coronary artery disease, angina pectoris	28,0
Prostate diseases (prostatic hypertrophy)	22,5	Diabetes	17,6
Diabetes	17,7	Thyroid disease	17,2
Myocardial infarction and its consequences	13,0	Urinary incontinence, problems with bladder control	15,4

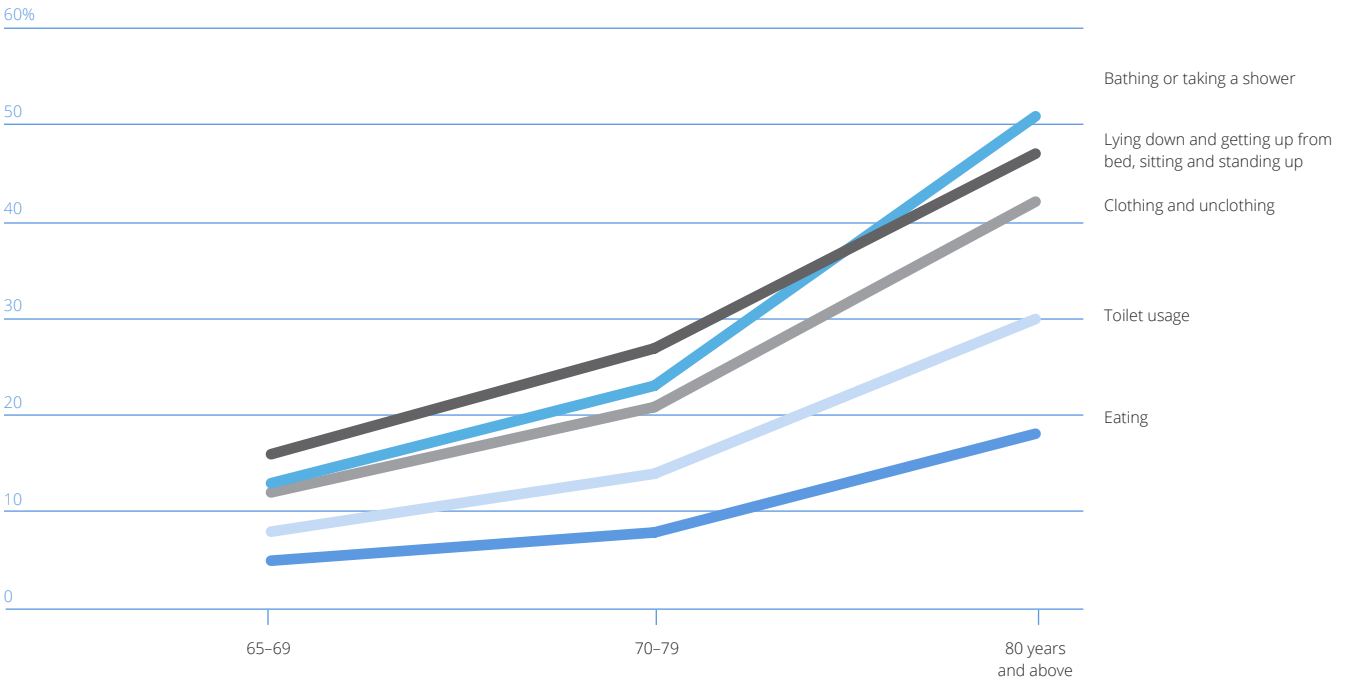
Source: GUS, 2016

According the Survey of Health Age and Retirement in Europe (SHARE) conducted in 2010/2011, 66.5% of surveyed persons reported suffering from a long-term illness (at the time of the interview). The most common disease reported by the 50+ population in Poland was high blood pressure, with 43.5% of people reporting it as a disease they have suffered from, 22.4%

suffered from high blood cholesterol, 13.9% from diabetes or high blood sugar, and 6.1% having COPD. Furthermore, 60.8% of respondents were bothered by pain in their back, knees, hips or other joints, and 20.5% by trouble with their heart. (7)

Whilst the prevalence of illnesses shapes the demand for medical services in the health sector, the loss of functional capabilities - which often results from illnesses in older age, and especially diabetes, Parkinson disease and cognitive impairments, such as dementia - shapes the demand for nursing and care services. Typically, functional impairments are measured by surveys, describing difficulties performing every-day living activities (ADL – activities in daily living). The most difficult actions include getting up, sitting/lying on bed or chair; and bathing and showering. The least difficult activity for all age groups is eating. The prevalence of difficulties strongly increases for the eldest population (80 years and above).

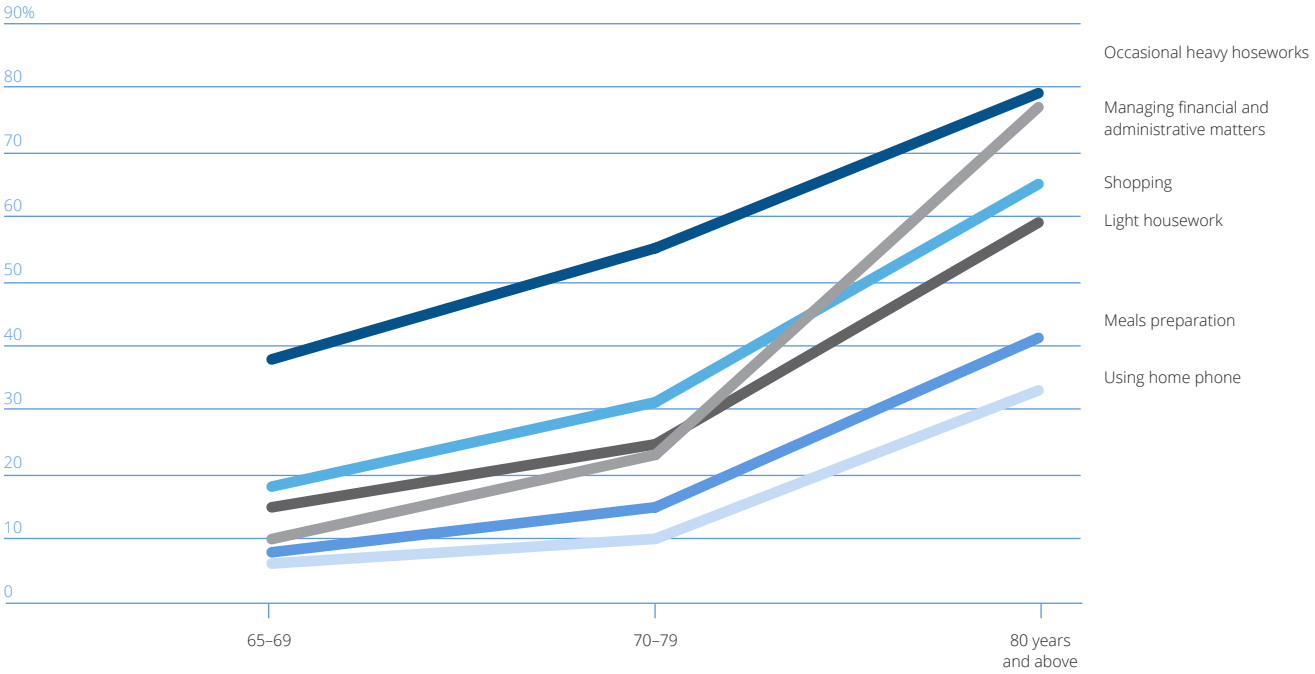
Figure 11: Self-reported difficulties in day-to-day activities



Source: GUS, 2016

While reflecting on the difficulties related to housework maintenance and independent living (IADL- instrumental activities in daily living), the most difficult is the occasional hard work around the house and shopping, the least difficult activities were taking medicine and preparing meals.

Figure 12: Self-reported difficulties in running a household



Source: GUS, 2016

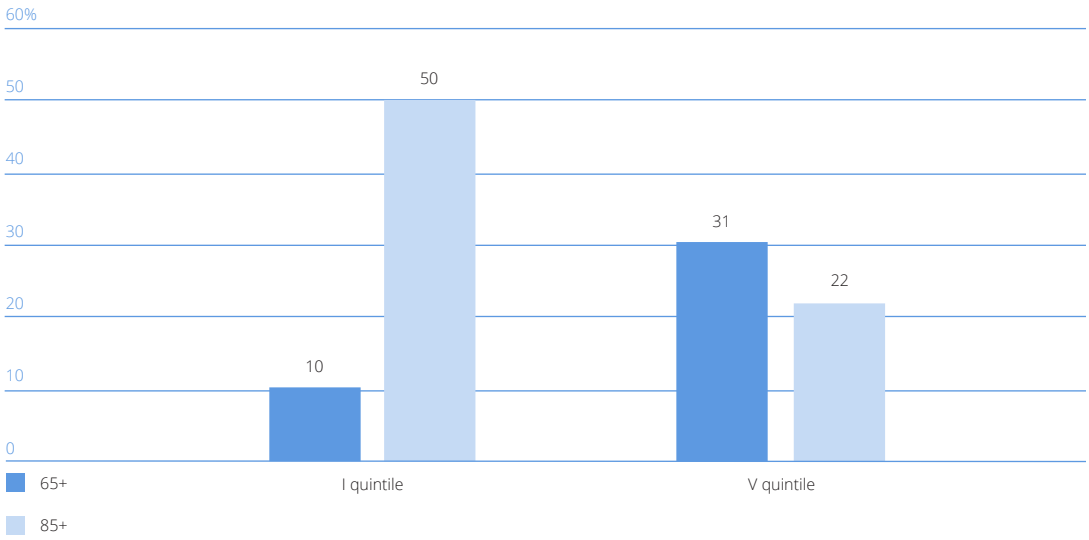
Regarding difficulties with every day activities, the most difficult activities for respondents of the SHARE survey (7) related to lifting and pushing or pulling heavy objects (5kg and more) as well as getting up from a chair. Taking medication and using the toilet were considered the least difficult activities among all the answerers. Overall, 23% of respondents considered their activities severely limited because of their health situation; 34% limited, but not severely; and 42%, not limited in any way.

SHARE project also assessed the life satisfaction and depression among the 50+ Polish population. The results show that 44% of respondents often feel happy, 39% only sometimes, 16% rarely and 2% of respondents never feel happy. The survey also assessed the depression among the participants using the EURO depression scale. According to the results 11% of people have no depression, and 19% report the EURO-D rate equal to 1, with 9% of respondents scoring more than 8 on the depression scale.

More than 73% of the 60+ population are satisfied overall with their lives, and 71% are satisfied with their family situation. However, when factoring in the well-being indicator, only 40% consider themselves to have good well-being. (4)

Poland is a country with high health inequalities, understood as disproportions in mortality and morbidity between socio-economic groups. Inequalities in Poland are more prevalent compared to Western European countries and have been observed to increase over the previous decade (8) (9) (10) . This highlights the need for public health actions targeted to poorer population groups. Social and economic inequalities in health also persist for the older population, the wealthiest quintile report half the level of poor health that the lower quintiles report, and bad health is even lower, at two-thirds as bad as the poorer quintiles.

Figure 13: Self-perceived health in the first (lowest) and the fifth (highest) income quintile in the 65+ population

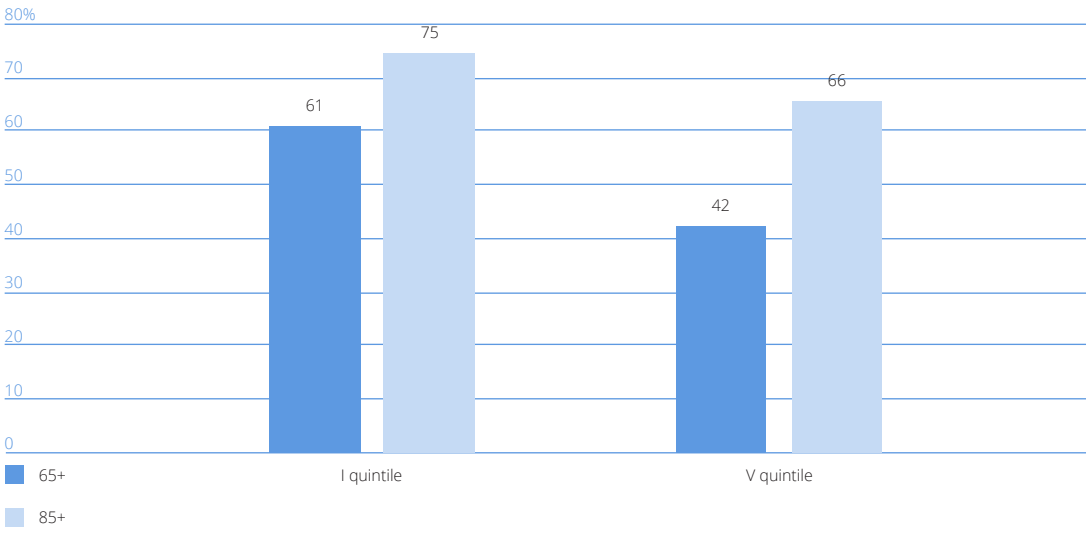


Source: Eurostat 2016 [hlth_silc_10]

This trend continues for functional limitations - usually responsible for creating demand for care and suffered mostly by the older population. The prevalence of health-related functional limitations is a third higher among the poorest population compared to the richest. Among the eldest group (85+) the difference becomes more marginal, but still exists.

Implementation of coordinated health and care services to the older population might result in decreasing health inequalities by addressing with personalized care services and increasing availability of services to the most deprived older population.

Figure 14: Functional limitations due to a health problem for the first (lowest) and the fifth (highest) income quintile in the population 65+ and 85+

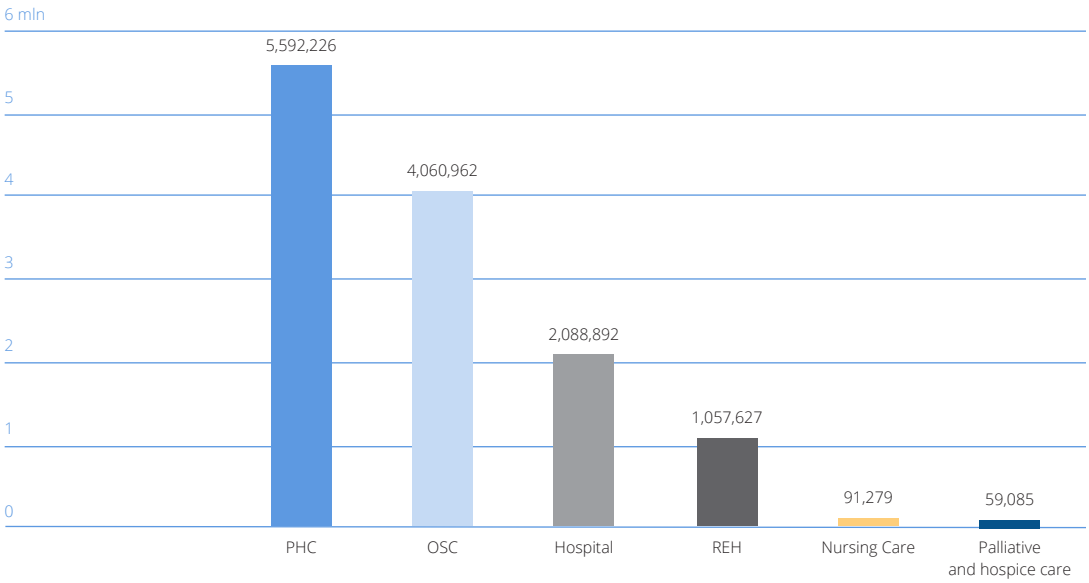


Source: Eurostat 2016 [hlth_silc_12]

Health needs of the population over 65 – service delivery system mapping

There are 5,88million people over 65 who are insured by the National Health Fund (NFZ). The NFZ incurred costs of 17,37million PLN for treatment of this population group. The distribution of patients between the care levels is skewed towards primary health care (5.6million patients) and outpatient specialist care (4million patients): note that the numbers representing patients are nominal and do not represent unique patients. Polish healthcare system regulation, under the publicly funded scheme, has primary health care (PHC) doctors act as gatekeepers to other specialists; therefore, the 4million patients who went to outpatient specialist care (OSC) are represented in the PHC number as well, which implies that around 73% of PHC patients are referred to a specialist. Around 2million patients are treated in hospitals and 1 million avail of medical rehabilitation services. Only 91,000 use long-term care, and 60,000 are patients of palliative and hospice care. Over 46,000 people over 65 lived in a nursing residential care facility in 2014.

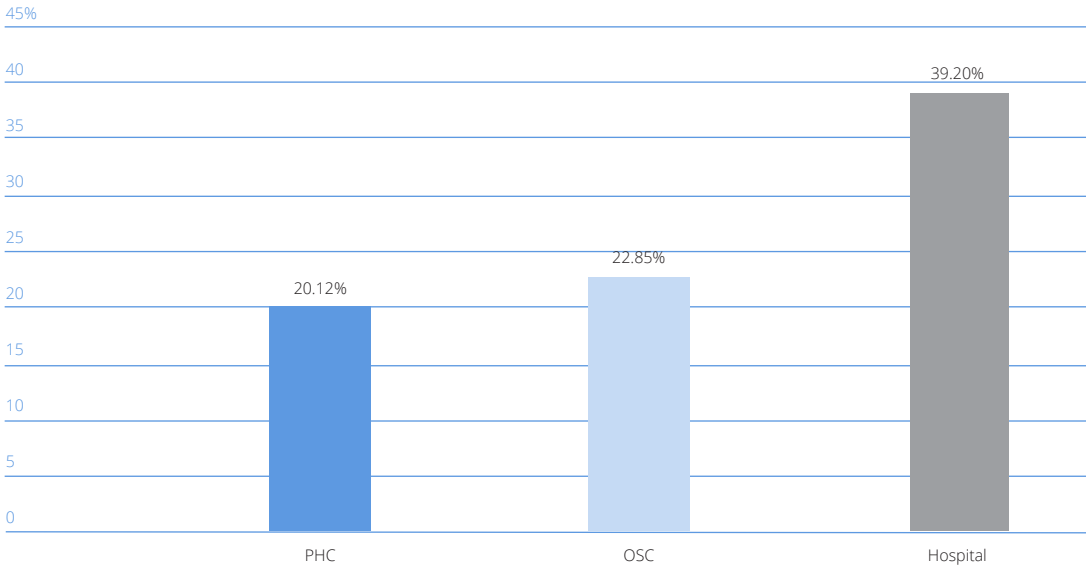
Figure 15: Number of 65+ year old patient in the respective areas of healthcare in 2015 (public services financed by NFZ)



Source: World Bank analysis based on NFZ data

One in five of all PHC patients in 2015 were over 65 years old; in OSC they represented 22.85% of all the patient in 2015. Moreover, more that 39% of patients in hospitals in Poland were elderly patients.

Figure 16: The proportion of older people (65+) among patients in PHC, OSC and hospitals in Poland in 2015 (public services financed by NFZ)

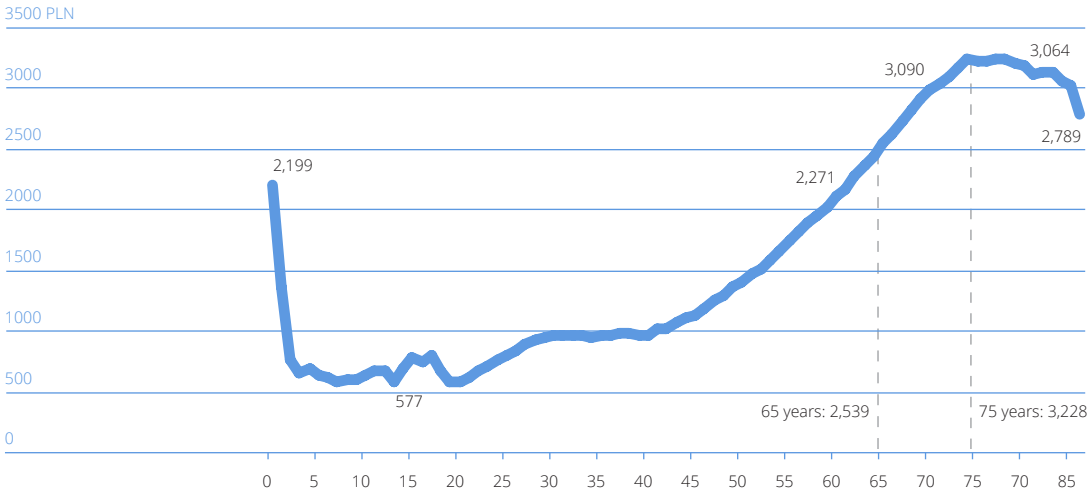


Source: World Bank analysis based on NFZ data

Financing

On considering health spending over the average patient's lifecycle, the curve has a distinct U shape: spending is high below the age of 5, and then begins to sharply increase after the age of 50. The highest average costs relate to treatment of the older population. An average cost of a 65-year-old in Poland is 2,539 PLN per year (data from 2015). The costliest age of a patient for the NFZ is 75-years-old, where an average patient costs the Fund 3,228 PLN.

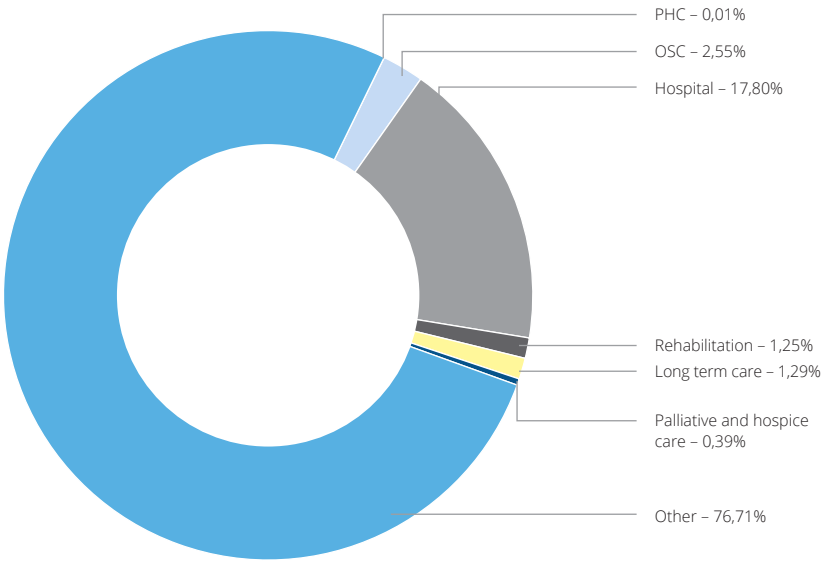
Figure 17: Average NFZ spending per patient in 2015



Source: NFZ, 2017

The cost of services provided to the older population (65+) accounted for 26% of the National Health Fund budget in 2015, with hospital care for 65+ population representing the biggest share of that costs at almost 18% of the budget. OSC care provided to the elderly population accounted for 2.5% of the 2015 NFZ budget, LTC for 1.29% and rehabilitation for 1.25%. Palliative and hospice care cost 0.39% of the almost 68 billion PLN budget. The total cost of PHC, mostly related to capitation, is not estimated, while additional services provided at that level account to 0.01% of the total NFZ budget.

Figure 18: Costs of healthcare services provided to the elderly as % of the total NFZ budget in 2015



Source: World Bank analysis based on NFZ data

The highest number of visits in OSC among those 65 and above were to the outpatient surgery clinics (17.3%), ophthalmology clinic (14.4%), cardiology (10.6%) and neurology (7.2%) clinics. (4)

Types of health services available specifically for elderly population

Health care for the elderly in Poland can be divided into three types of services, each of which are regulated and organized separately. It is recommended to use these three distinctions for analyzes: geriatric care, long-term care, and palliative and hospice care.

Geriatric care services for elderly

Geriatric Care services in Poland are provided under the scheme for guaranteed services in the healthcare system and are paid by insurance from the NFZ budget. When describing the healthcare services provided to the elderly in the polish context, each level of care and where care is provided must be analyzed. To ensure comprehensive and quality geriatric care at all levels, treatment standards for geriatric care in Poland have been introduced, however, their implementation to-date is considered poor.

Guaranteed healthcare services that provide geriatric care services include the following:

Primary health care

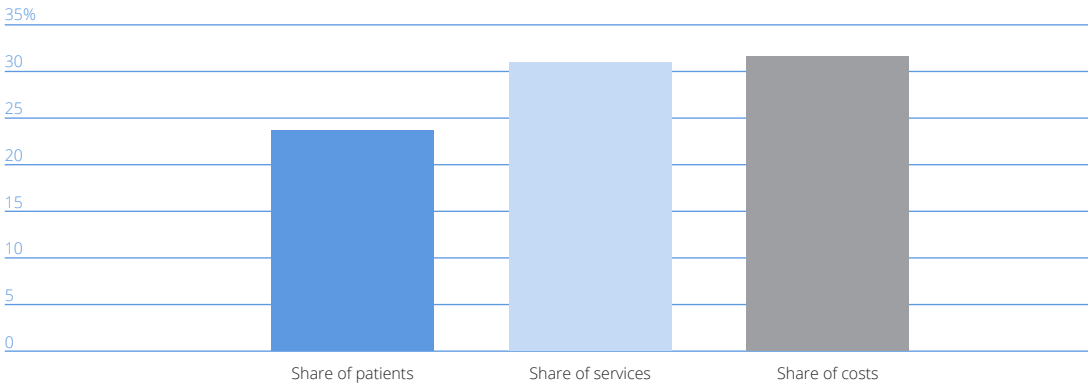
Primary health care services for the elderly are included in the existing scope of care provided by the PHC team and financed based on capitation. Services at this level are provided by the PHC doctor or PHC nurse. Responsibilities of the PHC nurse include providing care in the ambulatory settings, at the home of the patient (subject to medical status of the patient) and, prevention and prophylaxis. Around 20% of all PHC patients are 65 years or above.

Ambulatory specialist care

Ambulatory specialist care services for geriatric patients include services provided in the specialist geriatric and psychogeriatric clinics, as well as a range of other services provided for the elderly in other ambulatory clinics.

In 2016, 24% of all ambulatory specialist care patients were 65 or above, and accounted for 31% of all the costs of ambulatory care.

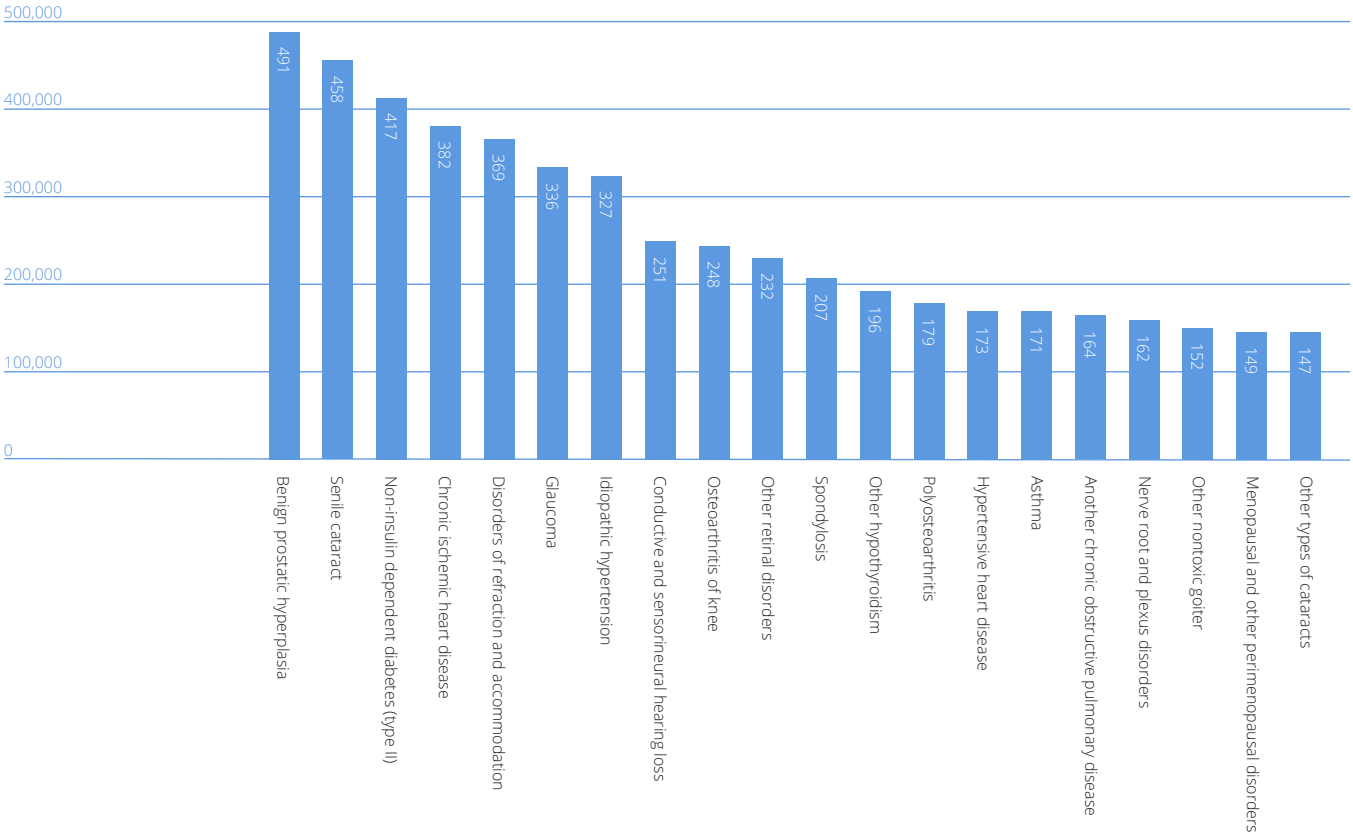
Figure 19: Ambulatory specialist care for 65+ population in 2016



Source: World Bank analysis based on NFZ data

The most common diagnoses at the ambulatory level for the above 65 population is prostate hyperplasia, cataracts, diabetes type 2, and chronic ischemic heart disease. The 20 most common reasons for visits to ambulatory specialist care clinics for those above 65 are presented in Figure 20 below.

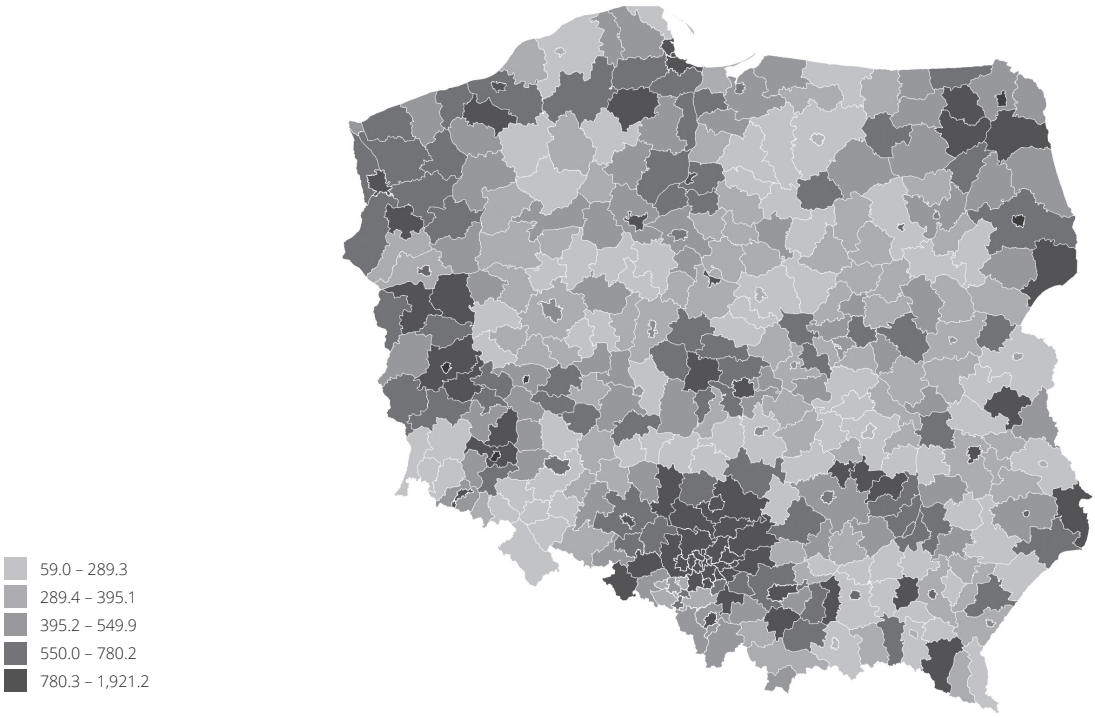
Figure 20: Twenty most common diagnoses among the 65+ population at the ambulatory specialist level in 2015



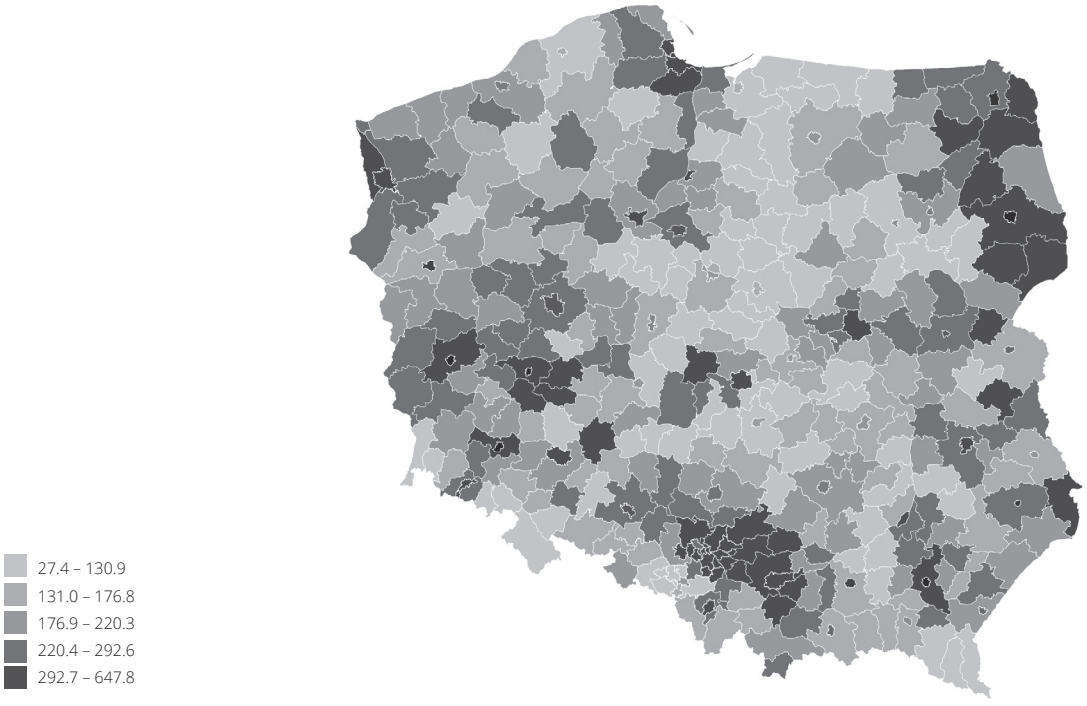
Source: World Bank analysis based on NFZ data

Taking a closer look at the healthcare service utilization at the ambulatory level for specific diseases among the elderly (75+), there are clear regional and country differences. For example, in the case of ischemic heart disease where the lowest rate is 208.8 in klodzki county, and the highest 4,348 in Simianowice Slaskie: almost 21 times higher the lowest (11). The same inequalities are seen when it comes to hypertension: the most prominent health problem among the elderly population. On a county level, the highest rate of service utilization related to this disease among 75+ patients were reported at 5,346 services per 10,000 insured in 2015, in lubartowski county, and this rate is 34 times lower in walbrzyski county with only 156.6 services per 10,000 insured.

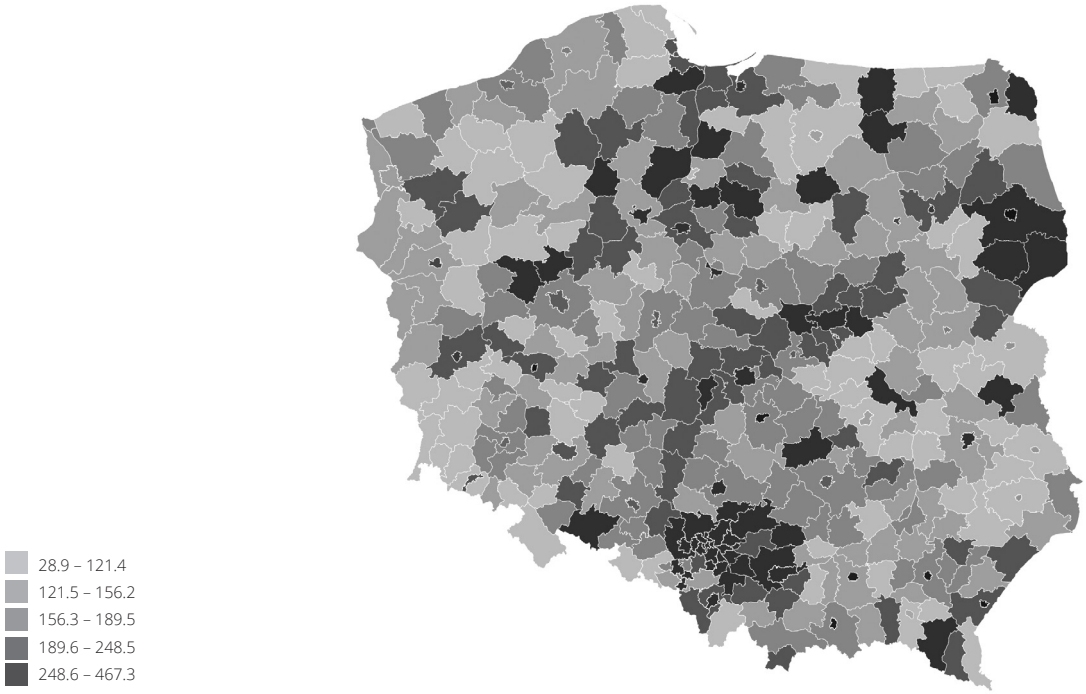
Map 1: Services provided at the OSC level to 75+ population related to the I25 (chronic ischemic heart disease) as a rate per 10,000 insured people. (2015). County level.



Map 2: Services provided at the OSC level to 75+ population related to the I10, I11, I12, I13 (hypertension) as a rate per 10,000 insured people. (2015). County level.



Map 3: Services provided at the OSC level to 75+ population related to the E11 (diabetes type 2) as a rate per 10,000 insured people. (2015). County level.

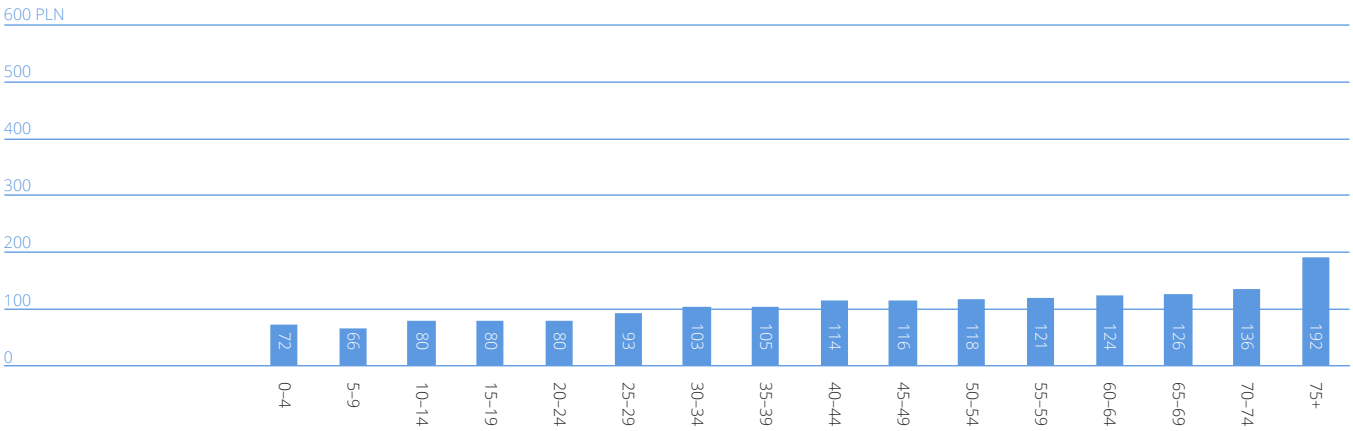


The maps present the disparities in service utilization across regions. One of the objectives of health care system reform should be to tackle these inequalities at the county level and address the underlying issues of these problems (e.g. unhealthy behavior, low participation in preventive programs).

Outpatient care costs for specific diseases

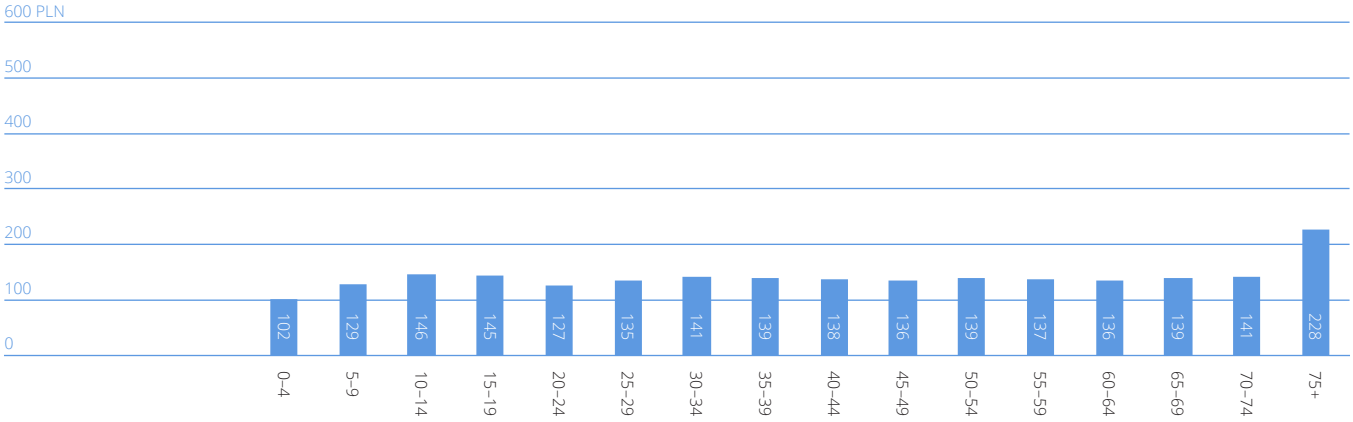
Statistics from the National Health Fund identify the average spending over a patient's lifecycle related to treatment of specific diseases in ambulatory specialist care, and identify diseases which are related to higher costs of ambulatory treatment at an advanced age. The risk associated with these diseases tends to increase with age, as these are most prevalent among the elderly population, they include circulatory system diseases, especially atherosclerosis, ischemic heart diseases, followed osteoporosis and diabetes type 2.

Figure 21: Average NFZ spending per patient related to the treatment of diabetes type 2 (E11) at ambulatory specialists care in 2015



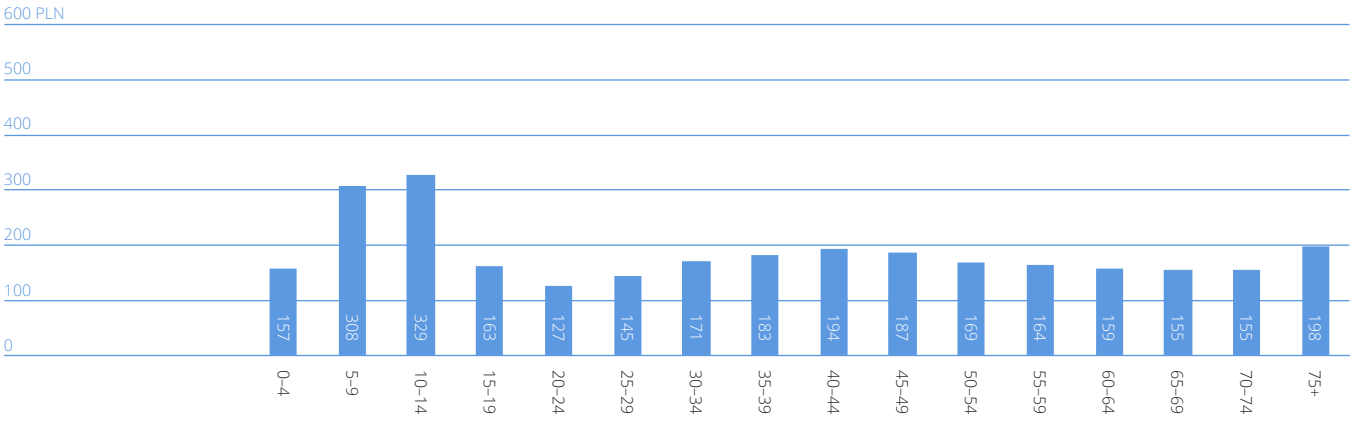
Source: NFZ, 2017

Figure 22: Average NFZ spending per patient related to the treatment of hypertension (I10–I13) at ambulatory specialists care in 2015



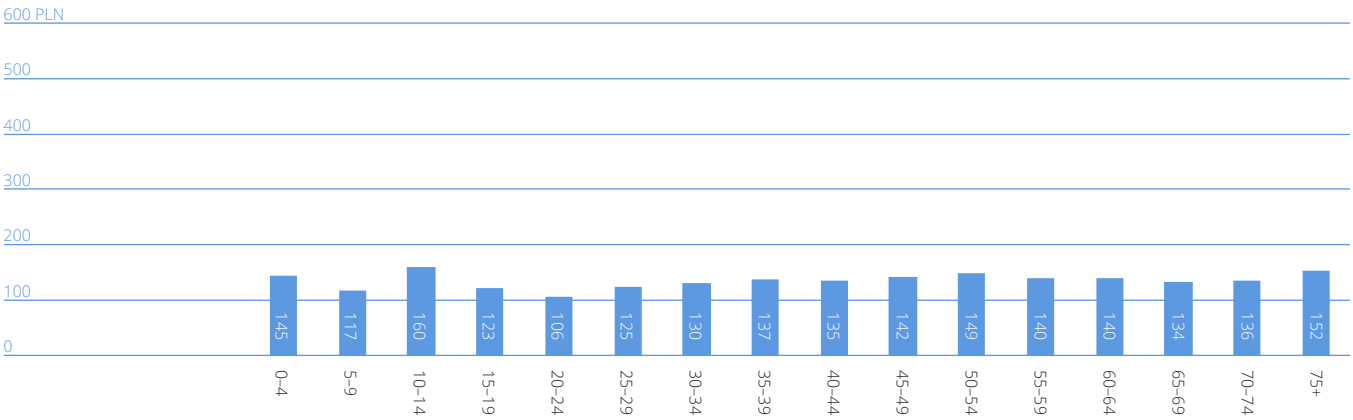
Source: NFZ, 2017

Figure 23: Average NFZ spending per patient related to the treatment of chronic ischemic disease (I25) at ambulatory specialists care in 2015



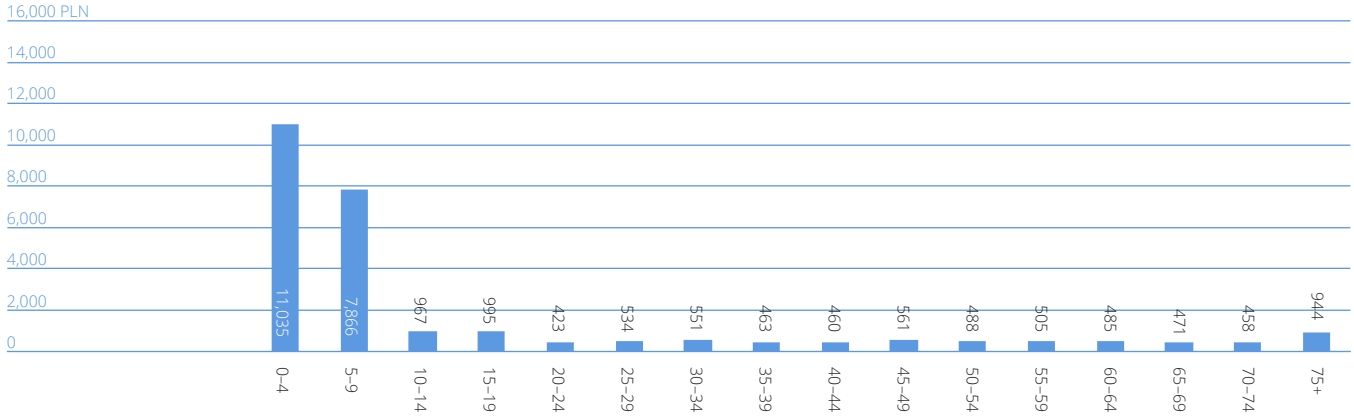
Source: NFZ, 2017

Figure 24: Average NFZ spending per patient related to the treatment of atrial fibrillation and flutter (I48) at ambulatory specialists care in 2015



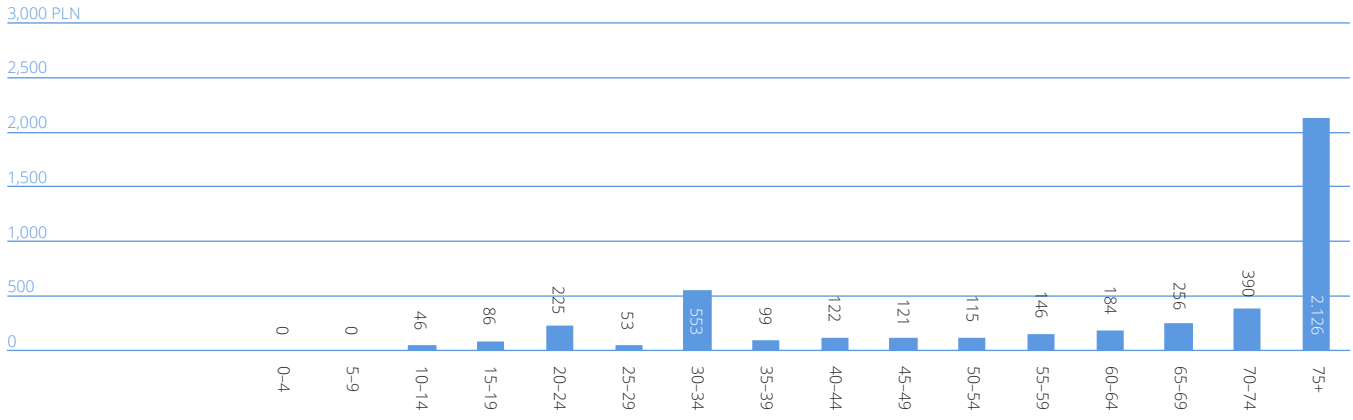
Source: NFZ, 2017

Figure 25: Average NFZ spending per patient related to the treatment of heart failure (I50) at ambulatory specialists care in 2015



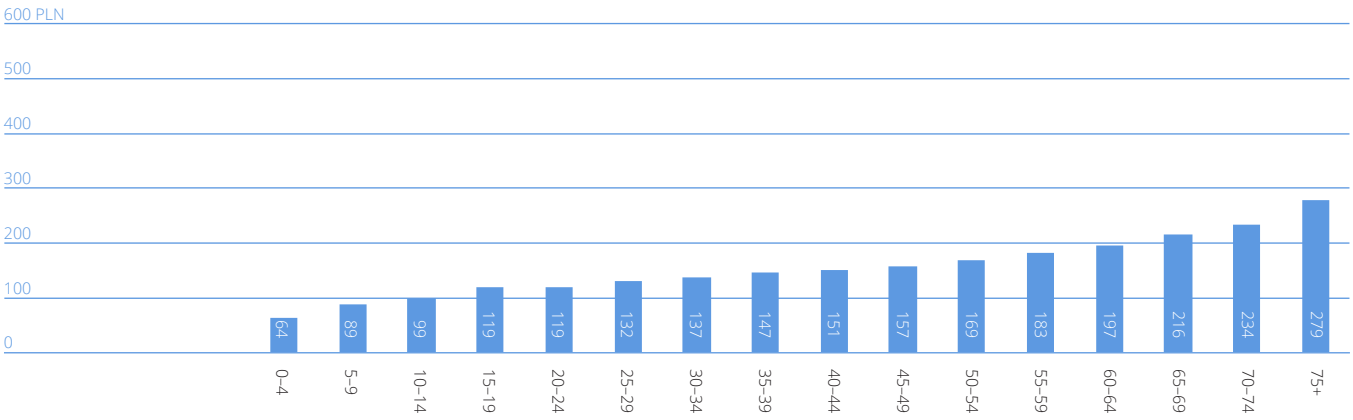
Source: NFZ, 2017

Figure 26: Average NFZ spending per patient related to the treatment of atherosclerosis (I70) at the ambulatory specialists care in 2015



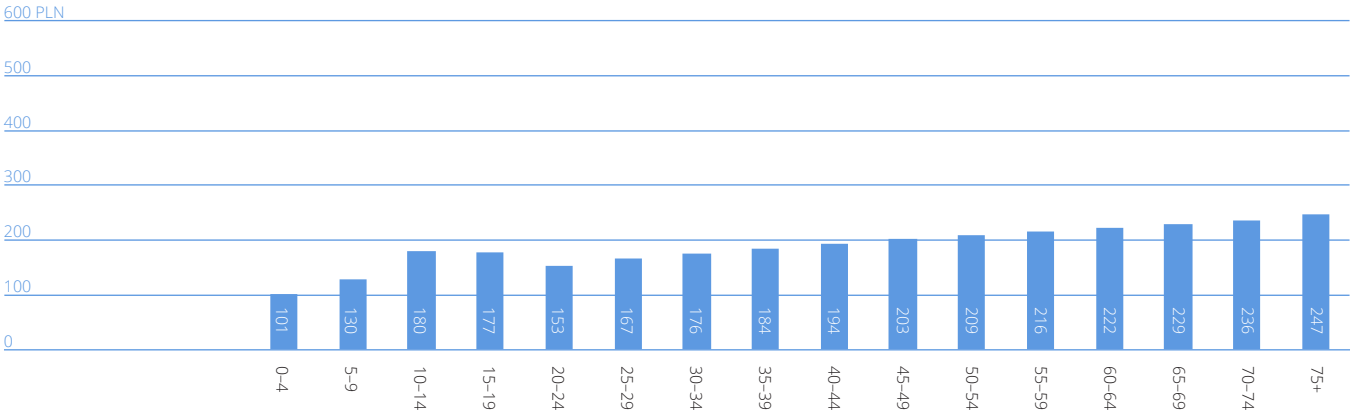
Source: NFZ, 2017

Figure 27: Average NFZ spending per a patient related to the treatment of osteoporosis (M15-M21) at the ambulatory specialists care in 2015



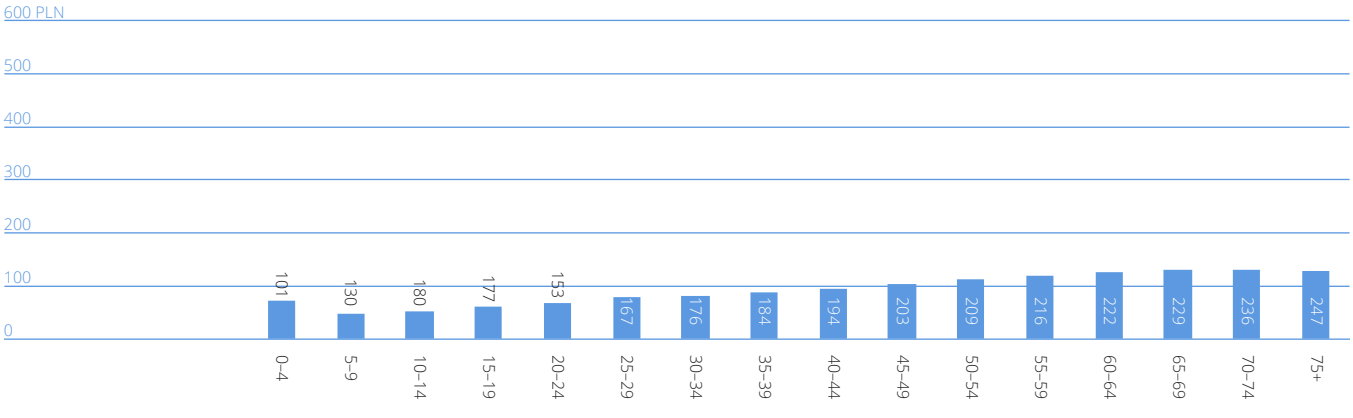
Source: NFZ, 2017

Figure 28: Average NFZ spending per patient related to the treatment of spondylitis/ spine related osteoporosis (M45, M46, M47, M48, M50, M51, M53, M54, G54) at ambulatory specialists care in 2015



Source: NFZ, 2017

Figure 29: Average NFZ spending per a patient related to the treatment of prostatic hyperplasia (N40) at ambulatory specialists care in 2015



Source: NFZ, 2017

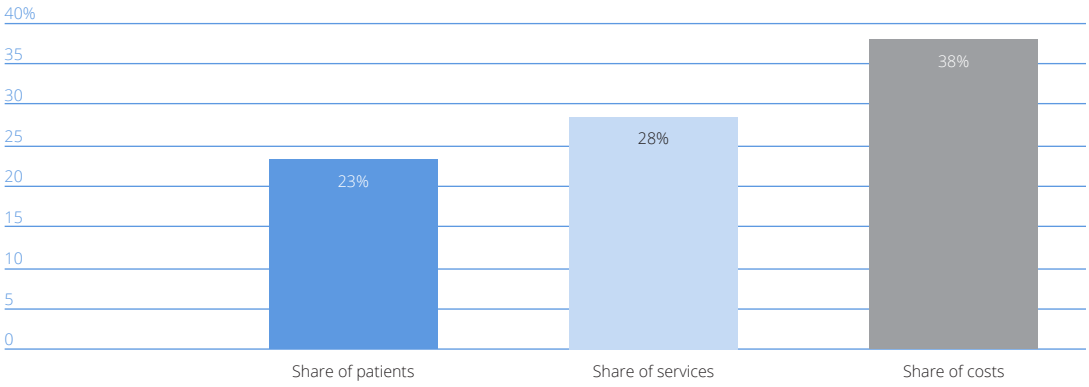
Hospital care

Geriatric services can be performed as part of the geriatric or psychogeriatric wards, as well as in other hospital wards where the elderly person is placed and treated.

In 2016, 23% of all hospital patients were patients over 65 year of age.

Hospitalization rates are almost twice as high for the elderly population compared to the whole population. In 2014, every 1 out of 5 persons of 65+ had been admitted to a hospital for at least one night. Comparatively, men are hospitalized more often than women - especially in the eldest group. As health deteriorates with age, hospitalization rates are also rising, as a result only 18% of 60–69 years old, compared to every fourth person in the group of 80+ was hospitalized in 2014.

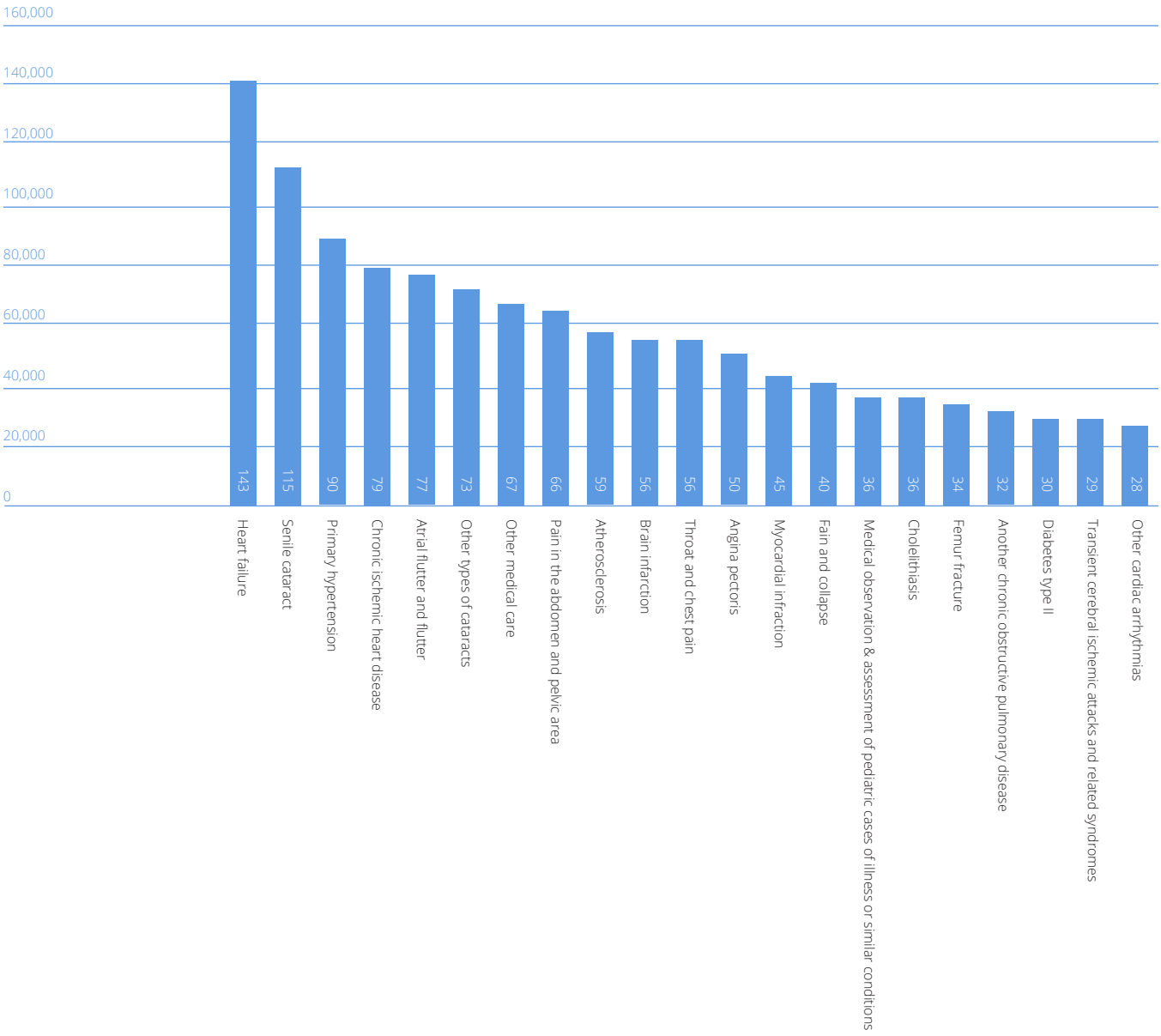
Figure 30: Hospital care for 65+ in 2016



Source: World Bank analysis based on NFZ data

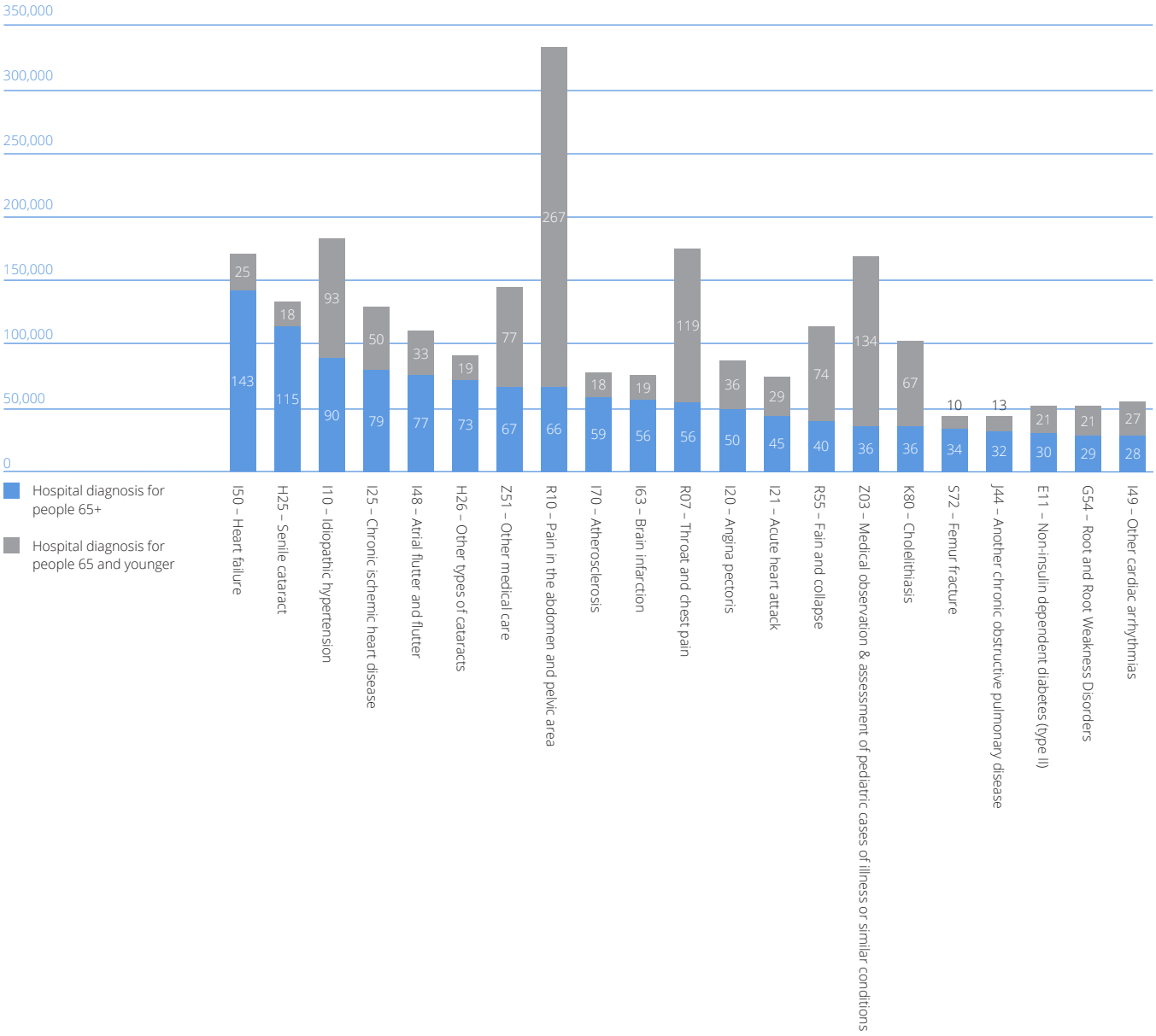
The main reasons for hospitalization of those 65+ are heart failure, old-age cataract, hypertension, and coronary artery disease. The 20 most common diagnoses at the hospital level for 65+ year olds are presented in Figure 31 below by the number of unique diagnoses reported at the hospital level.

Figure 31: Twenty most common diagnoses among 65+ population in hospitals



Source: World Bank analysis based on NFZ data

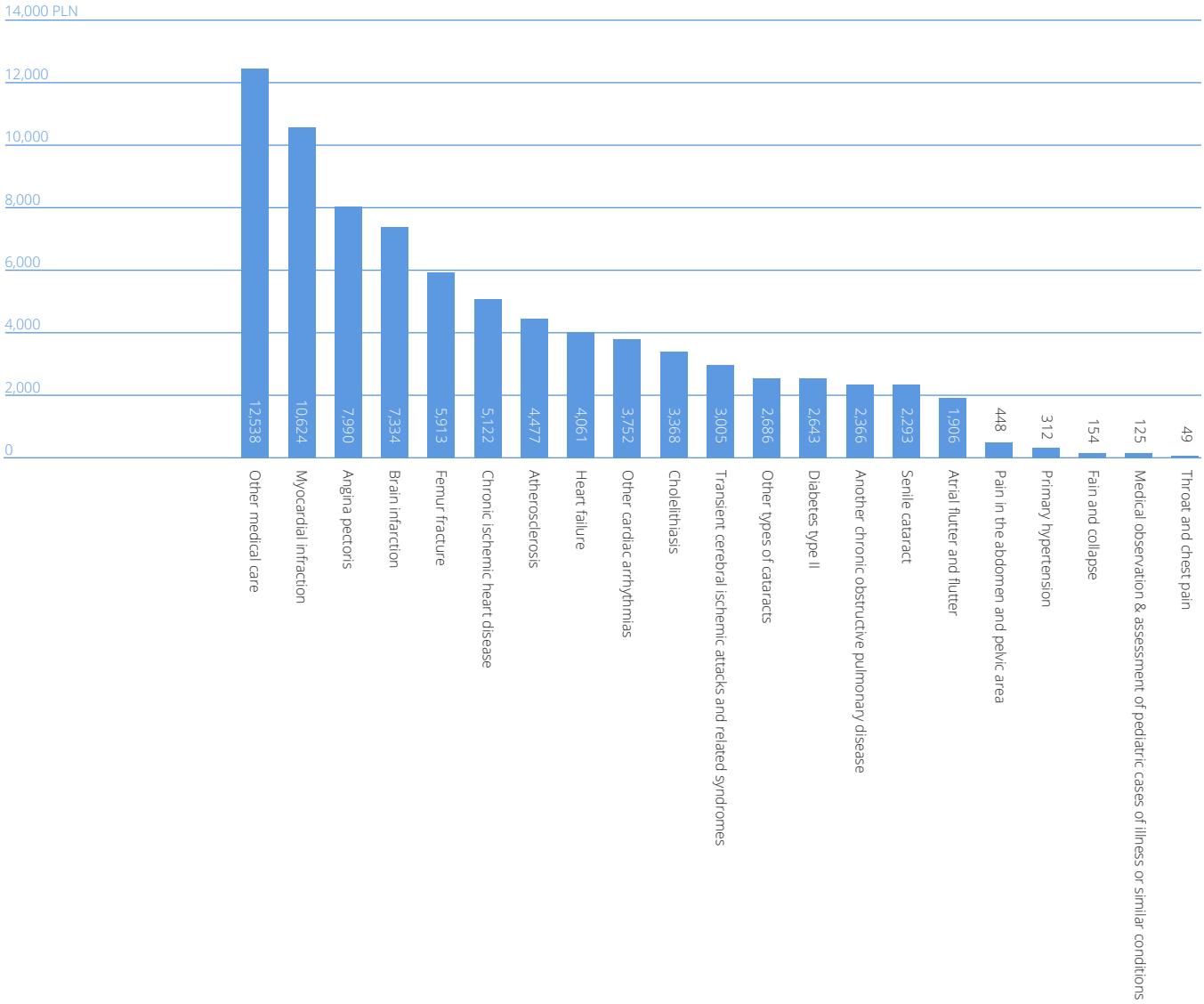
Figure 32: Hospital diagnoses in 2015 for the 65+ population and the below 65 population



Source: World Bank analysis based on NFZ data

Treatment of the above 20 diagnoses for the 65+ population at the hospital level cost 4,747,742,674 PLN in 2016. The most expensive (per patient) hospital services provided to the elderly were 'other medical care' and myocardial infraction costing the National Health Fund 12,500 and 10,600 PLN respectively.

Figure 33: Cost of healthcare services per patient aged 65 and above in the hospital in 2016

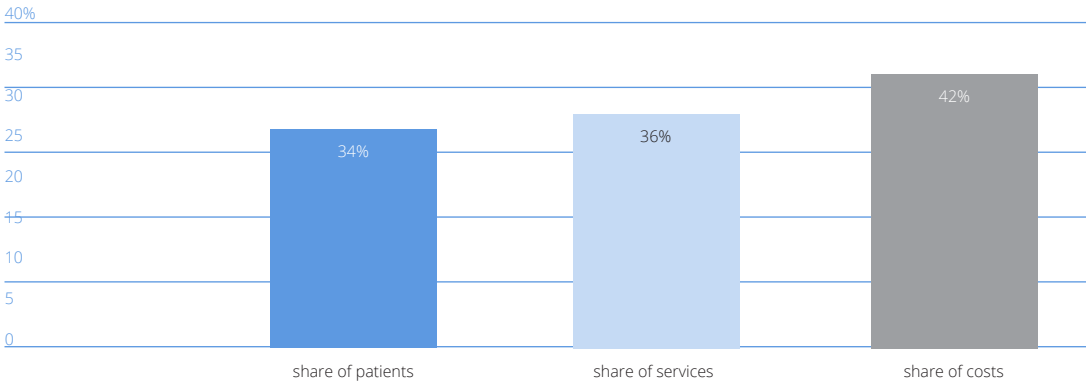


Source: World Bank analysis based on NFZ data

Medical rehabilitation

In 2016, 42% of expenditure on medical rehabilitation (excluding rehabilitation services for children) was associated with services provided to patients over 65. The highest utilization of services in medical rehabilitation for the elderly was home physiotherapy. The elderly accounted for 63% of home physiotherapy services provided; for 52% of cardiology rehabilitation in institutionalized settings and day care settings at 51%; and neurology rehabilitation at 49% of all services.

Figure 34: Rehabilitation services for 65+ year olds in 2016



Source: World Bank analysis based on NFZ data

Geriatric care is also provided as part of psychiatric care and the treatment of addiction, however, this level of care falls outside of the scope of the model and is not be addressed in this document.

Geriatric care, nursing, and other services at the level of long-term, palliative, and hospice care are elaborated in the next subchapter

Long-Term Care

Although long-term care (LTC) is required by patients of all ages – this section focuses exclusively on long-term care for the population of 65+. LTC can be delivered in the home or in an institutional setting. Typically, long-term care services in Poland are performed in nursing and care facilities (ZPO)/care and treatment facilities (ZOL), by the long-term home-care team, and long-term home-care nurse (nursing home care services).

Institutional care: Nursing and care facility (ZPO)/care and treatment facilities (ZOL)

Health services for LTC in an institutionalized setting are mainly performed in two care facilities: ZPO and ZOL. Patients admitted to these facilities generally require 24-hour care, nursing care, rehabilitation services and continuity of treatment, but their condition does not warrant hospitalization.

Services in ZOLs and ZPOs include:

- services performed by the doctor,
- services performed by the nurse,
- basic general rehabilitation to mitigate the effects of the impairments and to improve the mobility of the patient,
- psychologist services,
- therapy activities,
- medication therapy,
- dietary therapy,
- medical equipment used for the guaranteed services in the facility, and
- health education to prepare the patients, their families and caretakers to self-care and self-nursing at home.

Nursing home services: long-term home-care team and long-term home-care nurse

The long-term home-care team provides necessary care for mechanically ventilated patients who do not require hospitalization. Guaranteed services that can be provided by the healthcare team include services of the doctor, nurse, and physiotherapists, as well as diagnostic tests that enable appropriate therapy at home settings. One of the responsibilities of the team is to provide necessary medical and auxiliary equipment to the patient.

A long-term home-care nurse provides services to patients who scored 40 or less in Barthel scale: an ordinal scale used to measure performance in activities of daily living (ADL). The number of nurse visits to a patient's home should be no less than 4 times per week. Services provided by the nurse include:

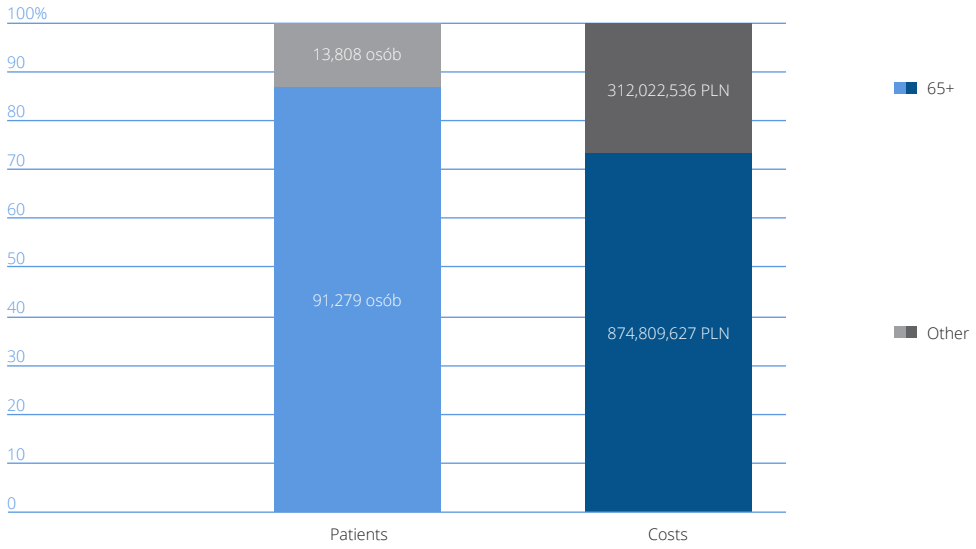
- usual services performed;
- preparedness of the patient and his/her family/caretakers to self-care and self-nurse, as well as counseling about how to deal with the impairments;
- nursing services, according to nursing processes;
- health education of the patients and his family or caretakers;
- assistance in solving health issues related to the independent functioning at home, and;
- assistance in acquiring medical and rehabilitation equipment necessary to perform appropriate care and rehabilitation activities at home.

Health services provided through home-based nursing and care are carried out in cooperation with the PHC doctor, PHC nurse and PHC midwife. Additionally, chronically ill patients staying at home are eligible for financial assistance from the NFZ in buying the necessary medications, special dietary products, and

medical equipment sold by pharmacies. Medical equipment issued on request is also subject to co-financing from the NFZ (see section below).

In 2016, 77,7% of long-term care, hospices and palliative care patients were over 65 years old and the 65+ population of patients in LTC accounted for 70.7% of all LTC costs.

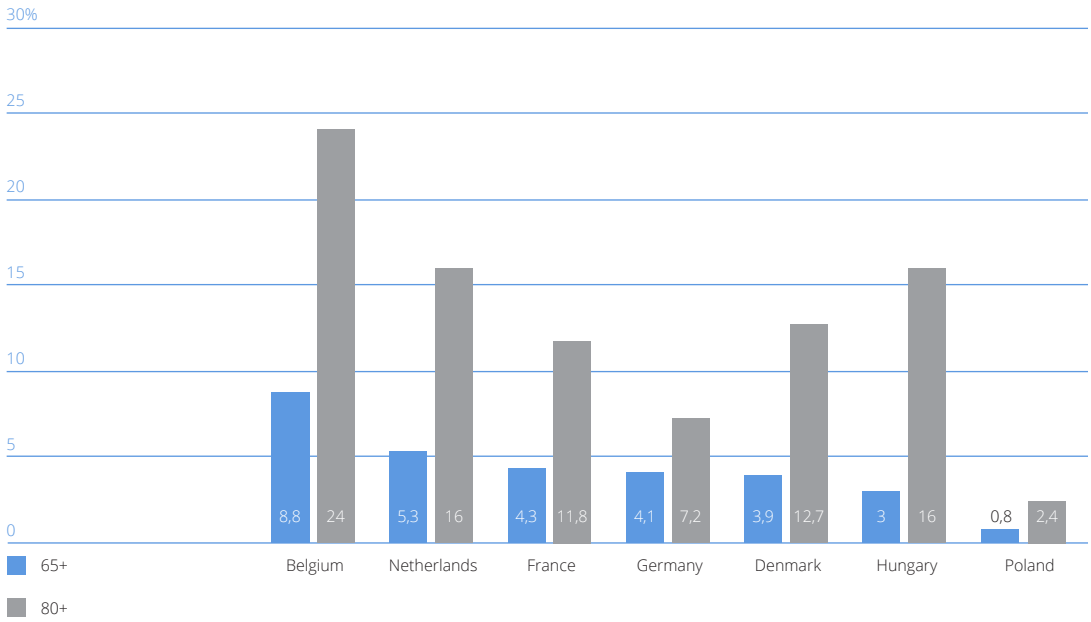
Figure 35: Patients 65+ in LTC in 2016



Source: World Bank analysis based on NFZ data

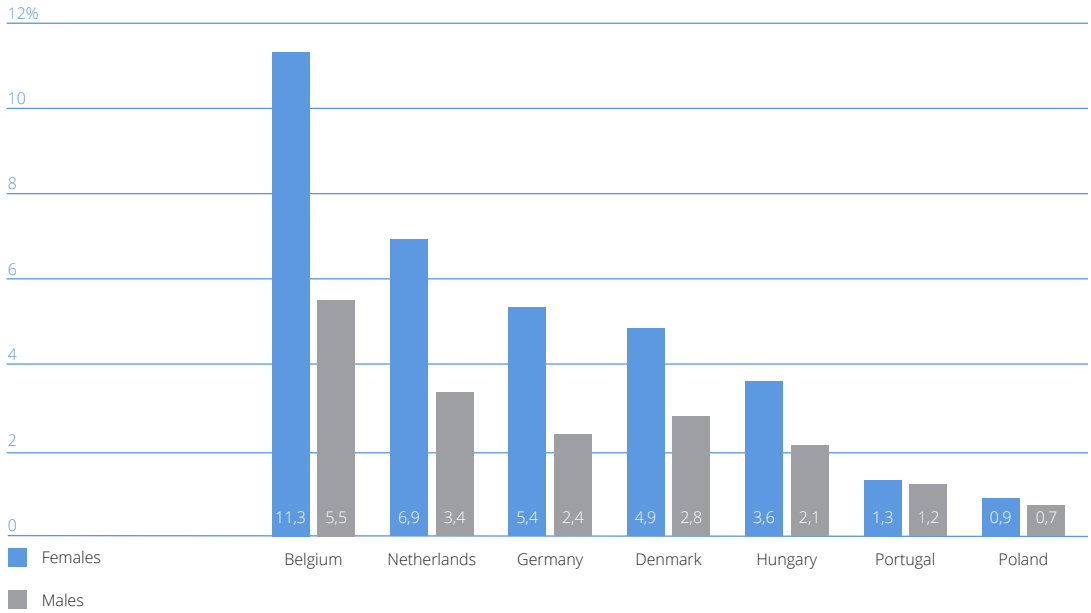
Utilization of formal care services in Poland is low compared to other countries. Only 0.8% of the total elderly population (65%) is receiving long-term care in institutions. In the group of 80+ population, the percentage rises to 2.4%. Additionally, females are more likely to receive LTC in formal institutions, and the difference between sexes and utilization of LTC services in institutions widens as patient's ages increase.

Figure 36: Utilization of formal long-term care by the population 65+ and 80+ (data from 2014, both sexes)



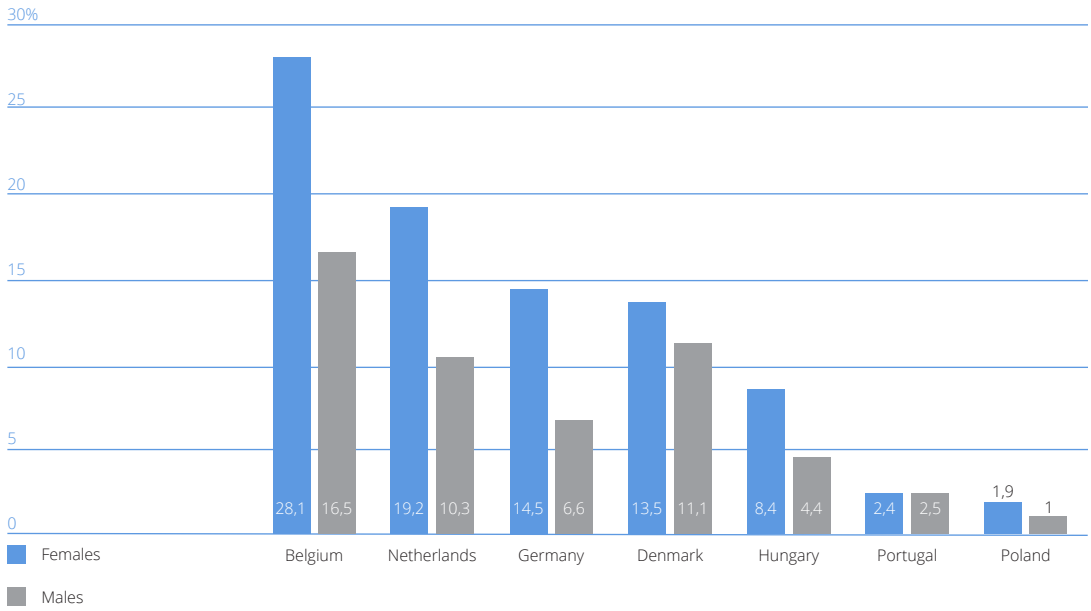
Source: OECD Health Statistics (12)

Figure 37: Utilization of formal LTC by the 65+ population by gender (data from 2014)



Source: OECD Health Statistics

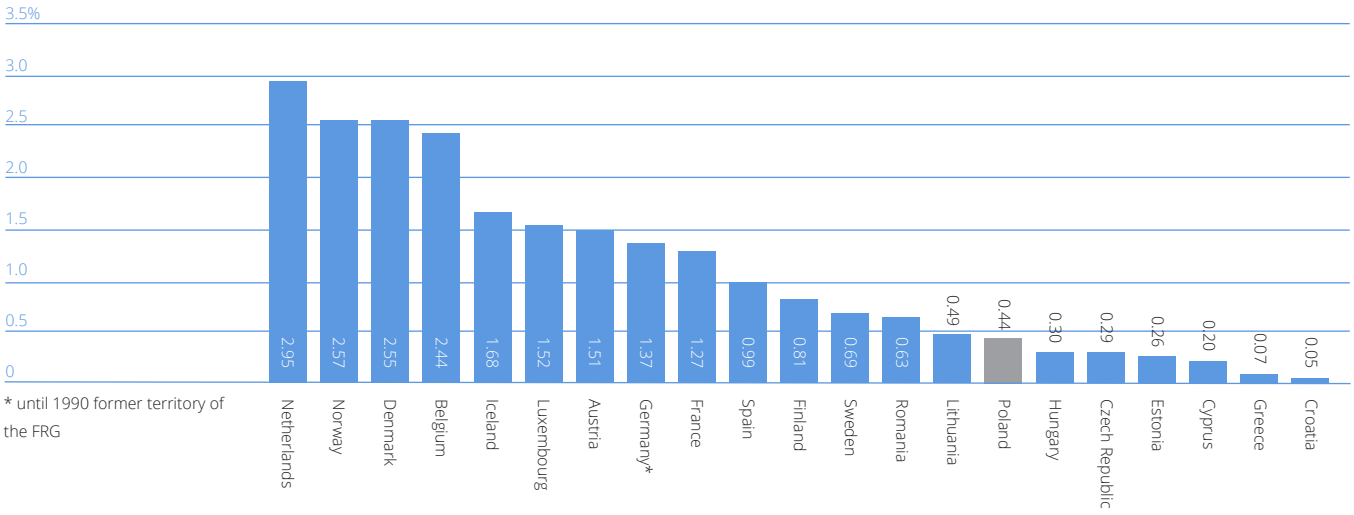
Figure 38: Utilization of formal long-term care for the population 80+, by gender (data from 2014)



Source: OECD Health Statistics

Poland's expenditure on LTC nursing services is one of the lowest in Europe and amounted to only 0.44% of GDP in 2012. Moreover, NFZ spending on LTC, palliative and hospice care on contracts signed with service providers in 2017 has dropped by 0.85 percent points compared to the value of contracts in 2016 (Fig.40).

Figure 39: Health care expenditure on LTC nursing services (% of GDP) in 2012 (HC.3 categories of SHA)

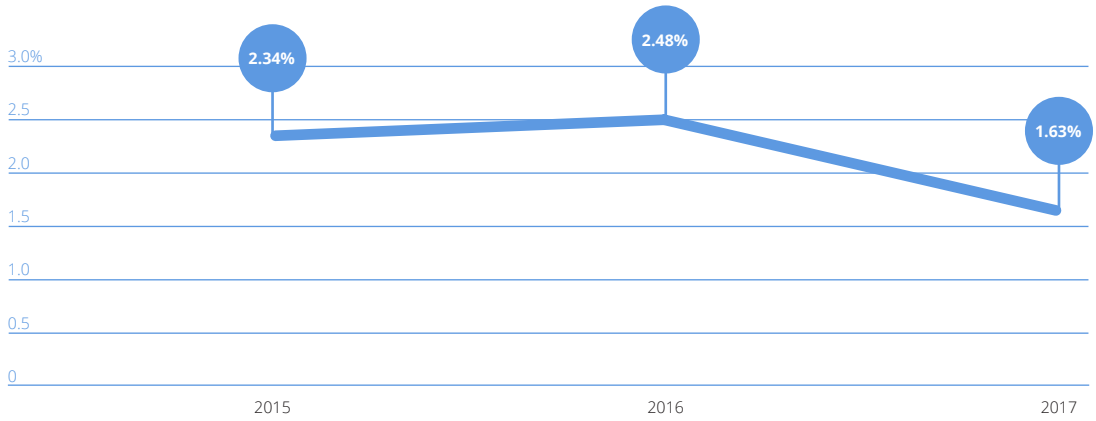


* until 1990 former territory of the FRG

Source: Eurostat/SHA, 2016 (13)

LTC and palliative care contract costs are foreseen to drop in 2017. Contracts do not equal actual expenditure presented above.

Figure 40: LTC, palliative and hospice care contracts as % of the NFZ budget (situation at the beginning of 2017)



Source: World Bank analysis based on NFZ data, 2017

Hospice and palliative care

Hospice and palliative care is a comprehensive, holistic and symptomatic treatment provided to terminally ill patients. This type of care is oriented towards removing and reducing pain and other somatic symptoms, and alleviating patients suffering. These services can be provided in institutional, home or ambulatory settings.

Institutional settings

Services in institutional settings are provided in hospice facilities or a palliative care unit at a hospital. Care in these settings requires full availability of services at-all-times: provided seven days per week by a palliative medicine doctor and 24-hour services provided by a nurse. Facilities arrange services of psychologists and physiotherapists, as well as access to medical equipment. Detailed services provided in hospice facilities and palliative care units include:

- services performed by the doctor;
- services performed by the nurse;
- pain treatment according to the WHO standards (analgesic ladder);
- treatment of other somatic symptoms;
- psychologist services for the patients and his or her family, rehabilitation;
- medication therapy;

- prevention of complications, examinations/tests recommended by the doctor employed by the facility or unit;
- provision of necessary medical equipment, and;
- respite care, no more than 10 days.

Home-care settings

Palliative and hospice care in home-care settings is provided by the home hospice care. Services are available as in an institutional setting, with at least 2 visits form the doctor per month, and at least 2 visits from the nurse per week. Specialists determine the frequency of physiotherapist and psychologist visits suited to the patient's needs. Necessary medical and auxiliary equipment is provided as needed. Services provided at this level of care in the home are performed in cooperation with the PHC doctor, nurse and midwife and include:

- services performed by the doctor;
- services performed by the nurse;
- pain treatment according to the WHO standards (analgesic ladder);
- treatment of other somatic symptoms;
- psychologist services for the patients and his or her family, rehabilitation;
- medication ordinance;
- prevention of complications;
- examinations recommended by the doctor employed by the home hospice care, and;
- free rental of necessary medical equipment.

Ambulatory settings

Ambulatory setting services, performed of ambulatory palliative care clinic staff (in the clinic or patient's home), include:

- medical consultations and visits in the clinic or at patients' home, including patients who were not admitted (qualified) to home hospice care;
- psychologist consultations at the clinic or at the home of a patient, and;
- nursing services at the clinic or at patients' home.

Medical visits in the palliative care clinic or at patients' home includes:

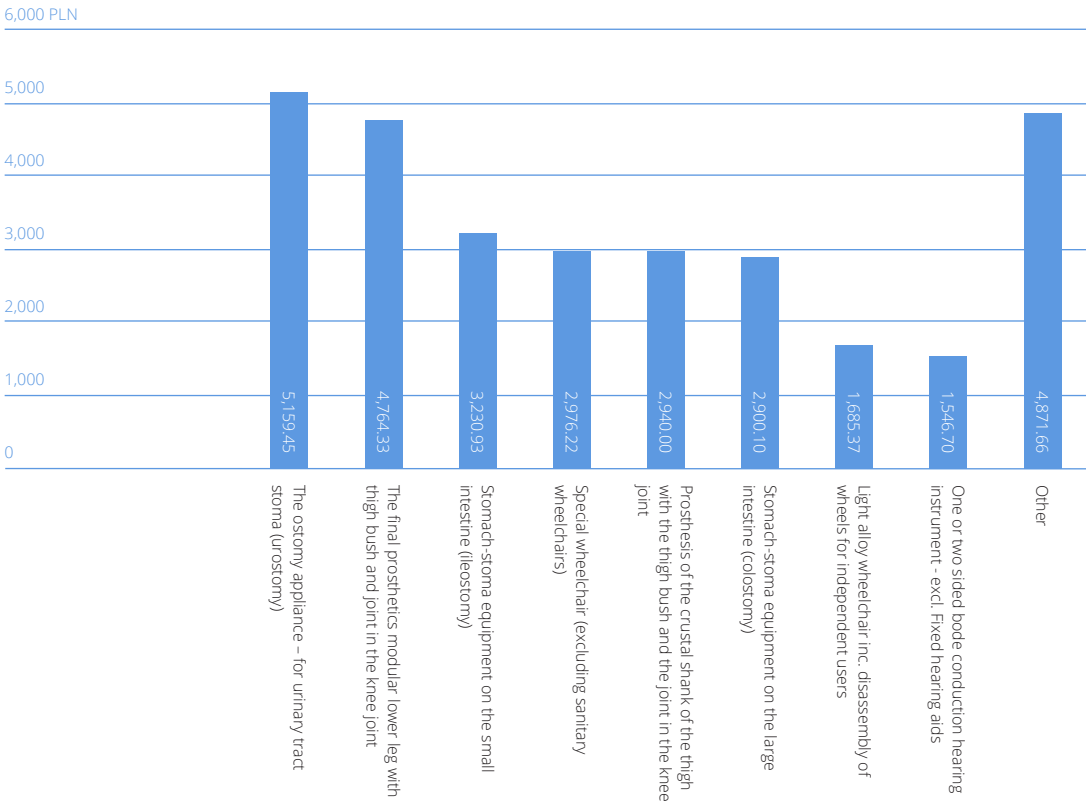
- medical interview and examination;
- medication ordinance, including painkillers;
- necessary diagnostic examinations;
- ordering of necessary nursing services;
- referral to treatment facilities, including the facilities providing palliative and hospice care in institutional and home care settings;
- issuing necessary statements and opinions about the health state of the patient;
- medical consultation at patients' home;
- psychologist consultations or visits at patients' home, and;
- nursing intervention or nurse visits at patients' home.

Patients eligible to receive ambulatory palliative care services are generally patients with a stable overall health state who either travel to the clinic if able, or, due to issues with mobility, require home visits. Guaranteed ambulatory care services include no more than two visits or consultations at patients' home.

Medical equipment

For all care received by the elderly across all healthcare levels, the National Health Fund is providing or financing medical equipment necessary to provide quality care to this group. In 2016, the NFZ financed 174million units of equipment and materials worth 418million PLN for nearly 693,000 elderly patients (65+). The most expensive products per patient were related to stoma and prosthetics. The only products that were not fully reimbursed or financed by the NFZ were two types of hearing aid devices.

Figure 41: Cost of medical products provided to 65+ patients (NFZ expeniture) in 2016



Source: World Bank analysis based on NFZ data

Types of care services available for the elderly

Care services provided in the social sector include home-care services, organized day-care and residential care services. These types of services are provided at the local level (country, gmina) by the social assistance institutions.

Home-care

Home services cover basic care and specialist care services, including the provision of care to those suffering with mental impairments. Home care services are granted by the social assistance centers based on community inteviews with solitary people who due to age, illness or disability require care – which cannot be provided by their relatives. In the Polish law on social assistance, there is an implicit assumption that care provision is a family obligation: to be provided by spouse, children, grandchildren and other relatives.

Home-care services cover the following:

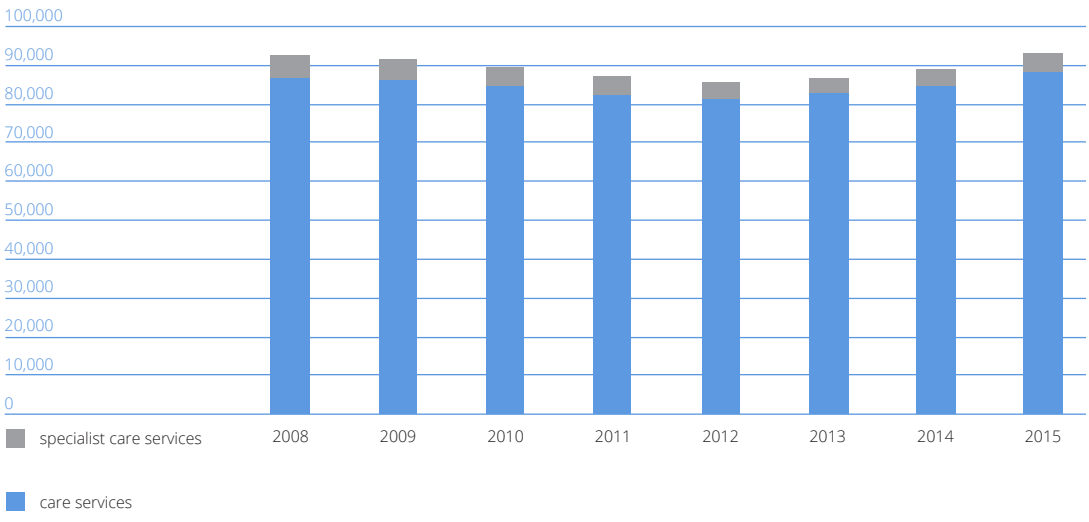
- assistance in every day activites,
- personal hygiene,
- tasks related to houseworks (meals preparation, cleaning, etc.),
- nursing (if prescribed by a physician), and
- support in social networking.

Specialist home care is adjusted to specific medical needs of receipients related to their illness or disability, and services are provided by qualified personnel, such as physiotherapists.

The scope of services and the place of their provision (home, care facility) is determined by the individual needs of the recipient, and also on local government capacity and institutional environment.

The level of provision of home care services depends on the ability of local governments to organize adequate care in terms of staff, qualifications, and facilities. In communities with lower financial assets and a lower proportion of qualified social assistance staff, service provision is often inadequate in meeting individual needs (14). Local authorities (gminas) organize provision of services based on own resources by contracting out resources to non-governmental organizations, which act as service providers. The number of recipients of care services is low, even if it has slightly increased over the past years: from 85,000 in 2012 and to 93,000 in 2015. Specialist care services constitute only 5% of the total number of services provided.

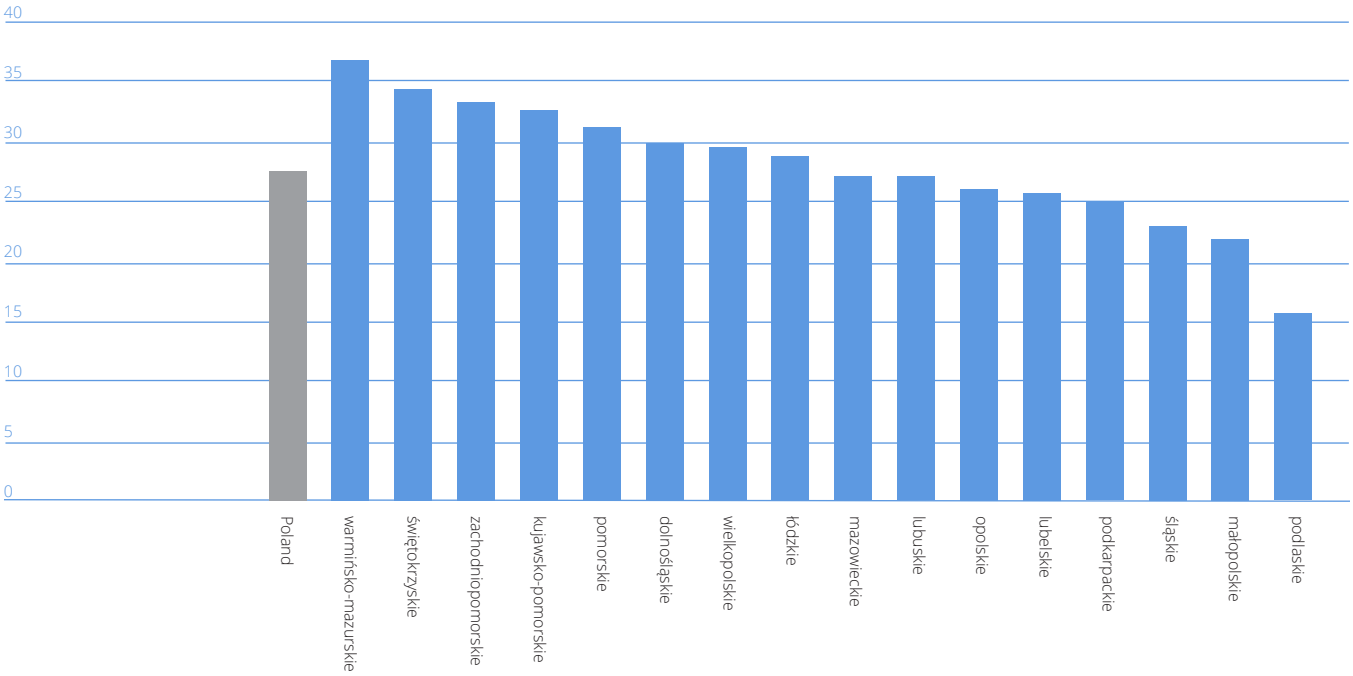
Figure 42: The number of total recipients of care services and specialized care services, 2008–2015



Source: MPiPS-03 2008–2015 (15)

The distribution of services varies between voivodships with the highest number of services provided in the most populated regions of Mazowieckie, Śląskie, and Wielkopolskie region. The lowest number of services is in Lubuskie and Podlaskie voivodships. An indicator of the number of care services recipients shows that on average there are only about 27 recipients per 10 thousand population, with the highest density of services in Warmińsko-Mazurskie, Świętokrzyskie and Zachodniopomorskie region and the lowest in Podlaskie region.

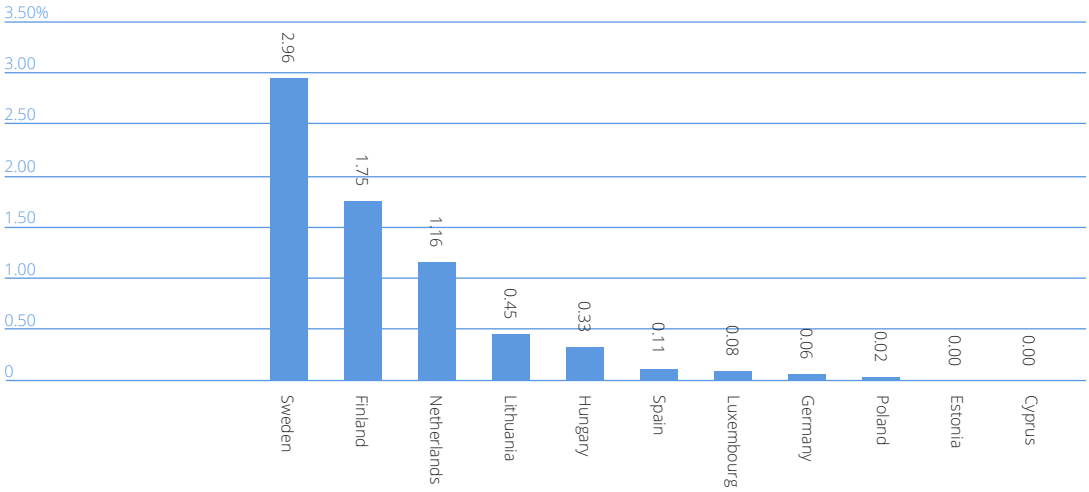
Figure 43: The number of recipients of care services and specialized care services provided in regions per 10,000 population, 2015



Source: GUS 2015

According to European Commission estimates (16), Poland's expenditures on social services are low compared to most other european countries, accounting for only 0.02% of GDP, whilst the total expenditure on long-term care is estimated at just 0.46% of GDP.

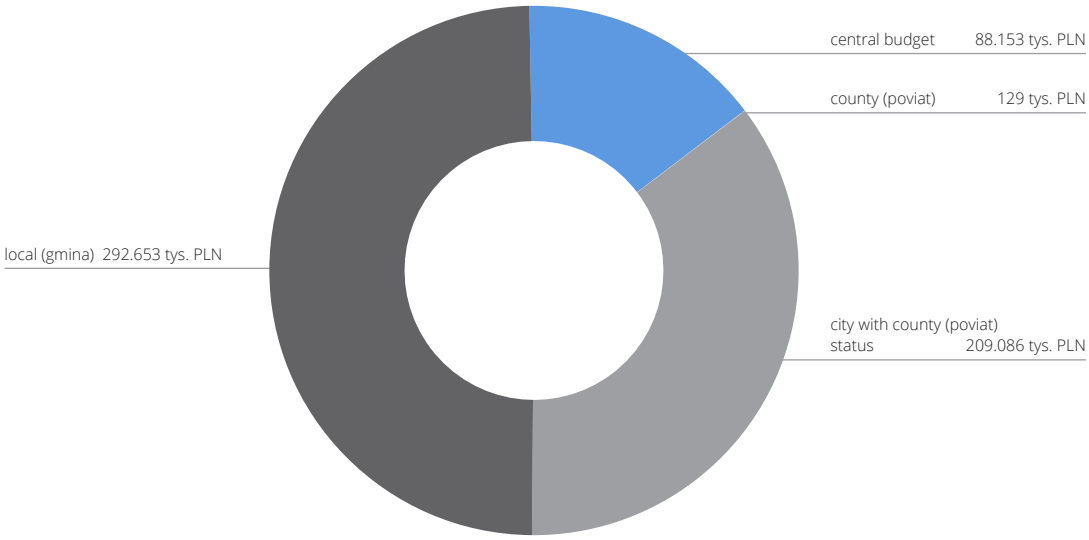
Figure 44: Expenditure of LTC social services as % of GDP (HC.R.6.1 clasification in SHA)



Source: Eurostat/SHA

The largest share of financing for home-care services comes from local governments' budgets (49.6%), followed by county budgets (35.4%). Approximately 15% of expenditure comes from the central budget. At the local level, services are also co-funded with private resources of care recipients. The level of co-funding is determined on an individual basis, depending on the scope of care provided and financial situation of care recipients.

Figure 45: The level and the structure of public expenditure on home and specialized home care services, 2015



Source: GUS 2016 (17)

Day care

An important support for older or dependent solitary people are **day-care centers** (dzienne domy pomocy – DDP), which provide care and aim to support social integration and provide opportunities for activity. Day-care center activities are coordinated by the social assistance centers, often in cooperation with non-governmental organizations. Services provided in day-care centers include health education, assistance in provision of health and rehabilitation services and, social and cultural integration. Centers can play a vital role in health education and activation of older people (health promotion and prevention). Although becoming more popular in recent years and supported with governmental policies for active ageing, the number of recipients of care services is low at 18,500 in 2015. In recent years, day-care centers have also been created under the governmental Senior-Wigor programme: in 2015, 99 Senior-Wigor centers were established. Since 2017, the programme contiuned under new name Senior+. Despite this, the sustainability of these facilities is under threat due to local authorities' budget constraints.

Full time residential care

Full-time residential care is provided in several types of facilities:

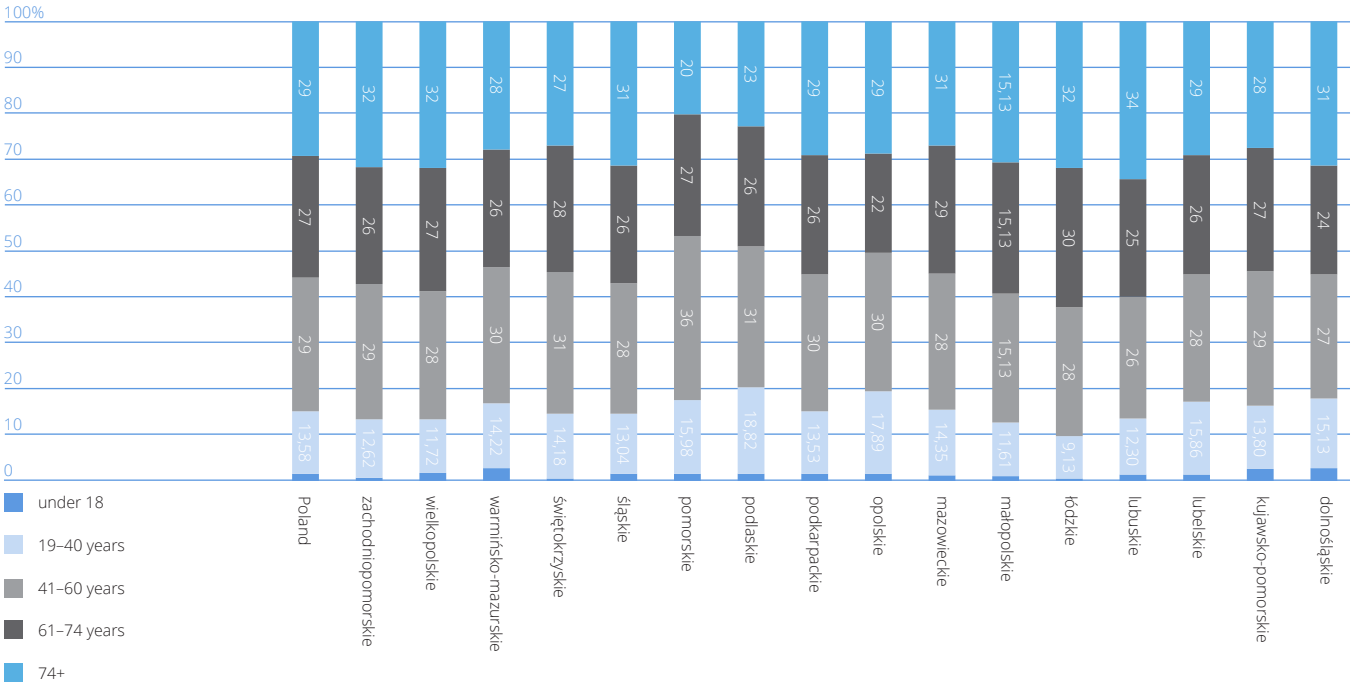
- social assistance homes (domy pomocy społecznej – DPS),
- family care homes (rodzinne domy pomocy), and
- full time care facilities (domy opieki całodobowej).

Social assistance homes are the main care facility in the social assistance system, while the role of family care homes is still under development. There are several profiles of social assistance homes for the following recipient categories: the elderly; disabled; chronically ill; children or adults with mental impairments; physically handicapped children or adults; and mixed. Although social assistance homes do not cover medical treatment, the personnel should enable beneficiaries to avail medical treatment i.e. by contacting a physician. For individuals with more severe conditions who require medical treatment and nursing are recommended to utilize services of ZOL and ZPO rather than DPS - research on these facilities report that recipients of both types of residential care services have a similar health status and, in fact, require similar treament (18) (19).13% of all residents of social assistance homes at the country or higher administrative level and 8% of local (gmina) social assistance homes are bed-bound with severe health impairments or disability.

Social assistance homes are run by public entitities (approximately 74% of all DPS) or non-public entities (approximately 26% of all DPS) – non-public are mostly non-governmental or religious organizations.

Full-time residential care services are provided in social assistance homes to persons requiring full-time care due to age, illness or disability with severe functional limitations and who cannot receive assistance in their home environment. Eligibility criterion do not include any medical or functional abilities assessments. The overall number of recipients of care in DPS is recorded at 76-78,000 annually. About 39% of beneficiaries stay in homes for older or chronically ill people, and the following 25% reside in homes for chronically ill people with mental impairments. The significant majority of people living in social assistance homes are the elderly, with the same group availing of most services. Namely, 56% of all residents of social assistance homes at the country or administrative level are above the age of 61 and 29% are above the age of 74 (MPiPS-05 statistical report, 2015 data).

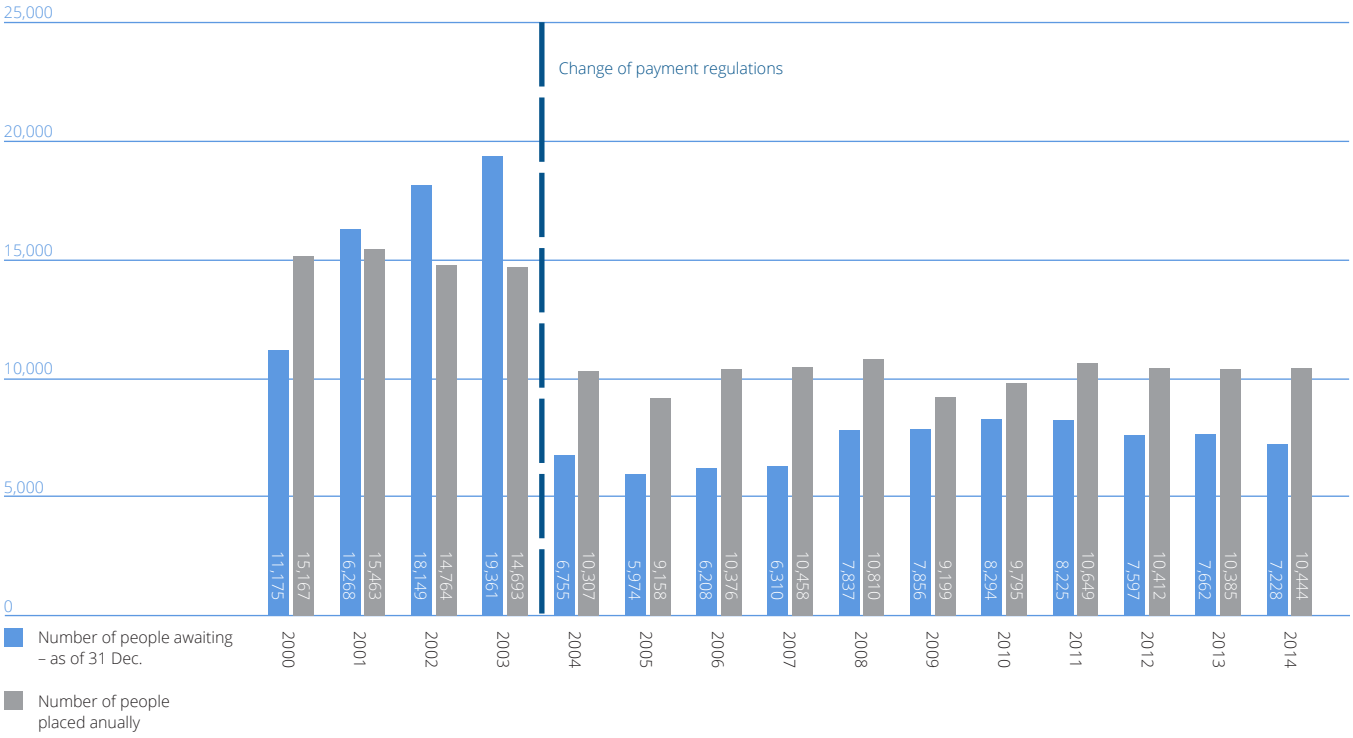
Figure 46: Age structure of residents of social assistance homes at the country or higher administrative level in 2015



Source: MPiPS-05, 2015

Every year the number of people who receive full-time care in DPS (social care homes) is recored at approximately 10,000, while 7,000 people remain on waiting lists. The number of new recipients of care dramatically dropped in 2004 when co-payments for services were introduced.

Figure 47: The number of places and new recipients of care in poviat (DPS)

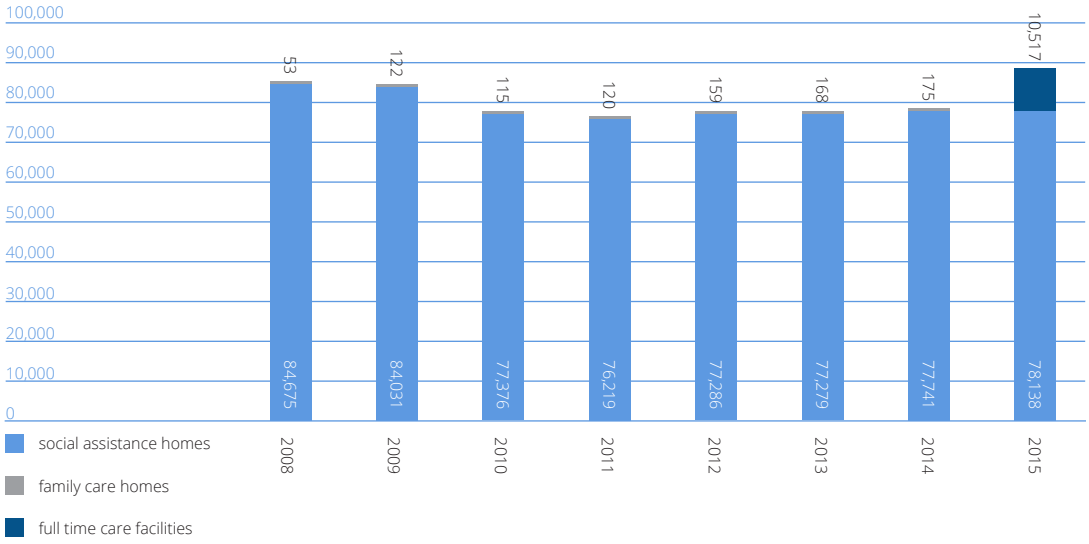


Source: MRPiPS 2015

Full-time care services are also provided in family care homes (rodzinne domy pomocy) which are organized by individual persons or non-governmental organizations. The family care homes must provide care to no less than 3 and no more than 8 persons living together and require care due to age, illness or disability. Since its introduction in 2008 the number of recipients has tripled, but it remains minimal and covers just 175 people as recorded in 2014.

According to the law on social assistance, full-time residential care for older, disabled, or chronically ill people can be provided in facilities run by private providers. As long as they meet certain standards for care and are certified by a voivod office. In 2015, there were 10,500 residents in these facilities.

Figure 48: The number of recipients of care in residential care facilities 2008–2015

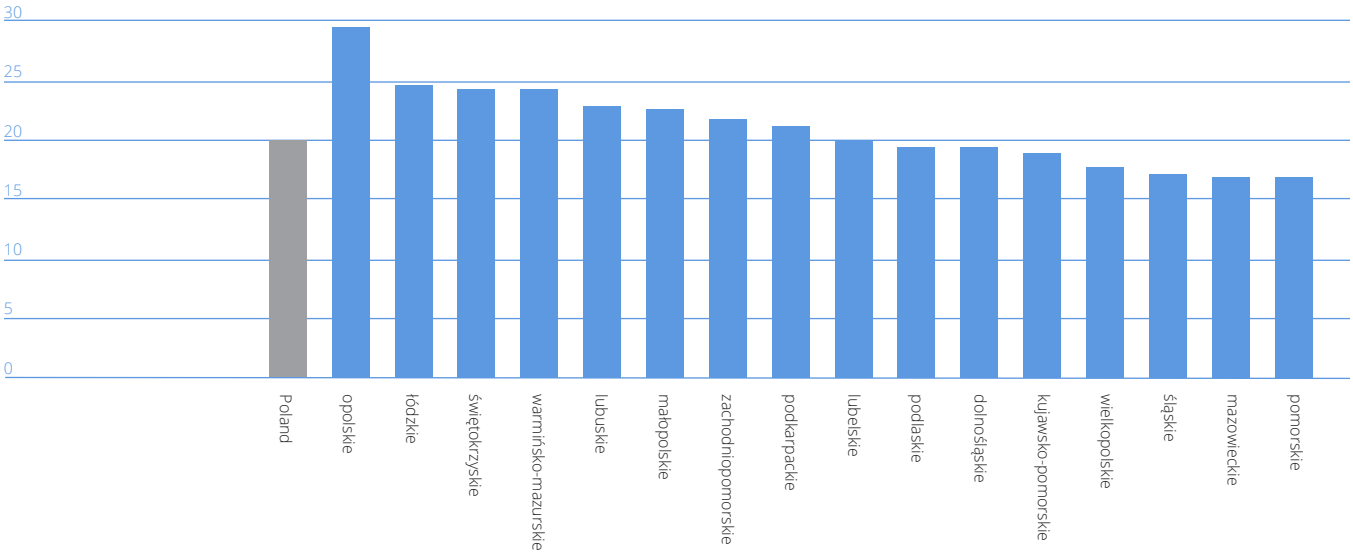


*gmina and poviat DPS

Source: MPiPS-03, MPiPS-05 2008-2015

The level of residential care provision differs between regions. The higest density of residential care recipients is in Opolskie region, a region with high emigration of young people to Germany, leaving behind their older, often solitary, family members. High density of care beneficiaries is also reported in Łódzkie and Świętokrzyskie region.

Figure 49: The density of recipients of social assistance homes at the county or higher administrative level

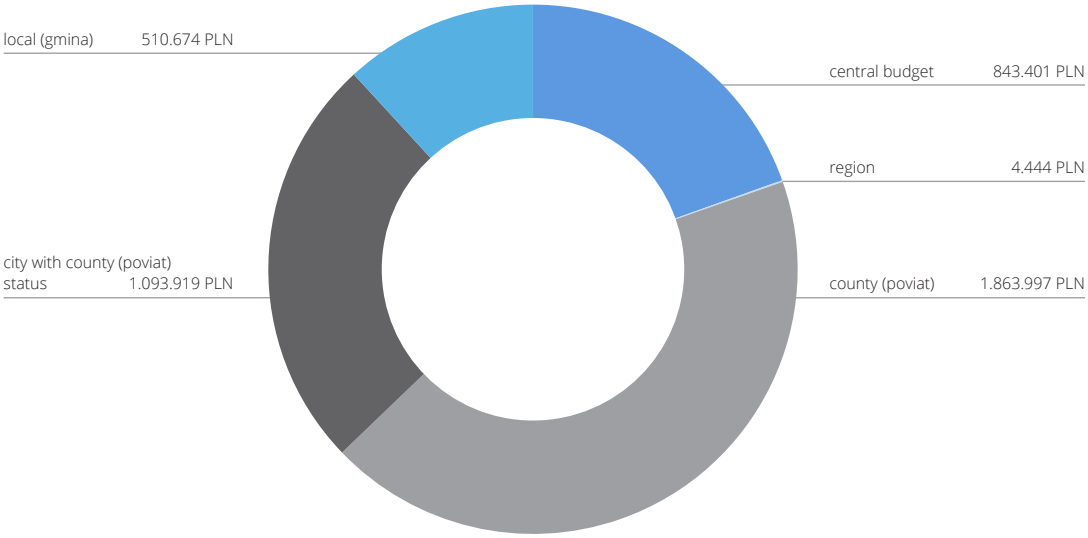


Source: MPiPS-05

Long-term care services provided through the social sector are financed from the central, regional and local budgets. Home care services and residential care are partly co-funded from private resources. Since 2004, stay at a social assistance home requires partial payment of fees by a care recipient or his/her family. If the family cannot manage these costs, they are covered by a local authority. According to the 2014 data, up to 60% of care recipients avail of partial or full financial support from the local government (15)

Public expenditure of social assistance homes amounted to about 4.3 million PLN in 2015. Almost 70% of expenditures on residential facilities and more than 60% of expenditure on care services is funded from counties' budgets and close to 12% of expenditures on residential facilities and above 16% of expenditure on care services comes from local (gmina) budgets.

Figure 50: The level and the structure of public expenditure on social assistance homes, 2015



Source: MPiPS-05

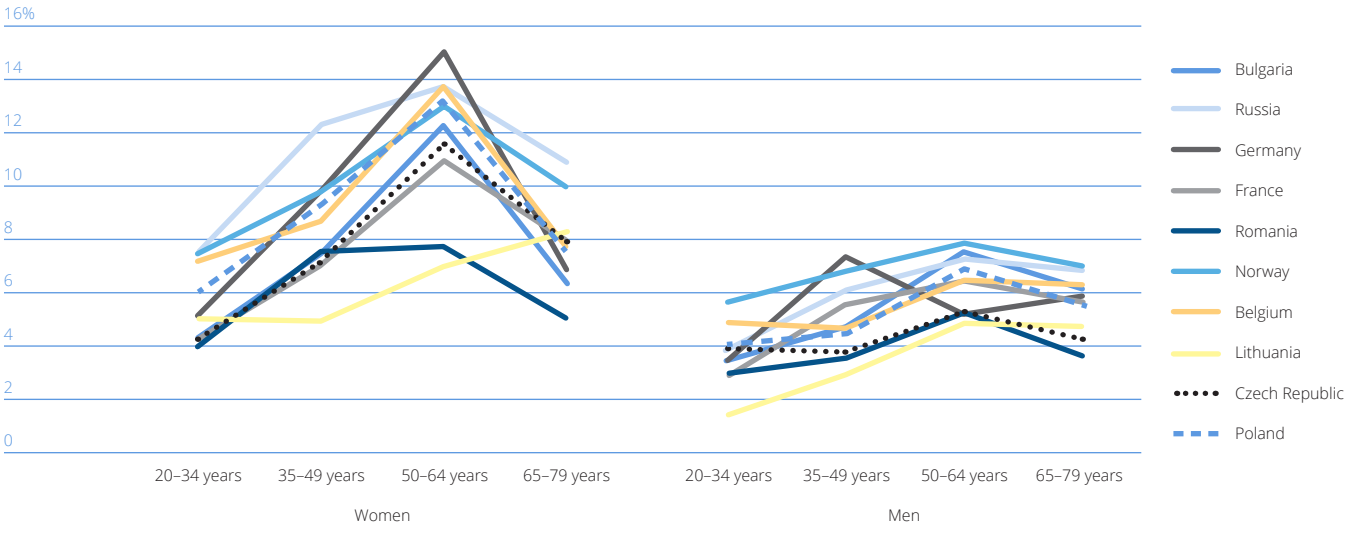
Informal care provision

Despite various available arrangements in the health and social assistance sector, provision of formal services to the dependent and mostly aged population is low. European Commission estimates that formal home and residential services are received by less than 10% of the dependent population of all ages in Poland (16). Provision of care for dependent and older people remains largely within the family domain. There are different estimates of the proportion of recipients of informal care in Poland, varying from 80% (20) to over 90% (21) of the dependent population At the same time, according to the EHIS study, 16% of the respondents report to, at least once a week, provide care to a dependent (long-term ill, disabled or older) family member. Informal care providers are typically women over the age of 45. Women of 45-64 years

old provide typically provide care to seniors, while women entering retirement age (60+) provide informal care to children (22). Since Poland is a traditional country, it has retained the social expectation that the family takes over care responsibilities in the eventuality that a family member becomes dependent.

Figure 51 below presents the response to the following question "Did you give someone regular help with personal care in the last 12 months (excluding small children)?"

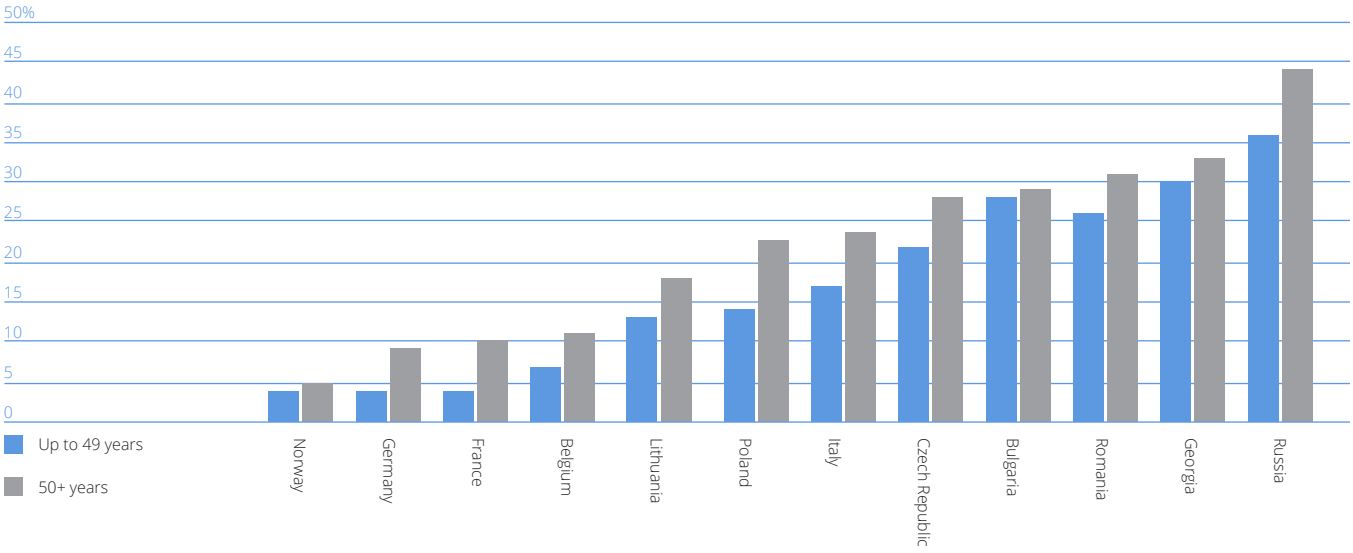
Figure 51: "Did you give someone regular help with personal care in the last 12 months (excluding small children)?" response by Men and Women, cross-country comparison, 2015



Source: World Bank, 2015 (23)

Moreover, it is mostly women who are expected to provide care to dependent family members.

Figure 52: Percentage of those who agree with statement "When parents are in need daughters shall take more responsibility than sons"



Source: World Bank, 2015

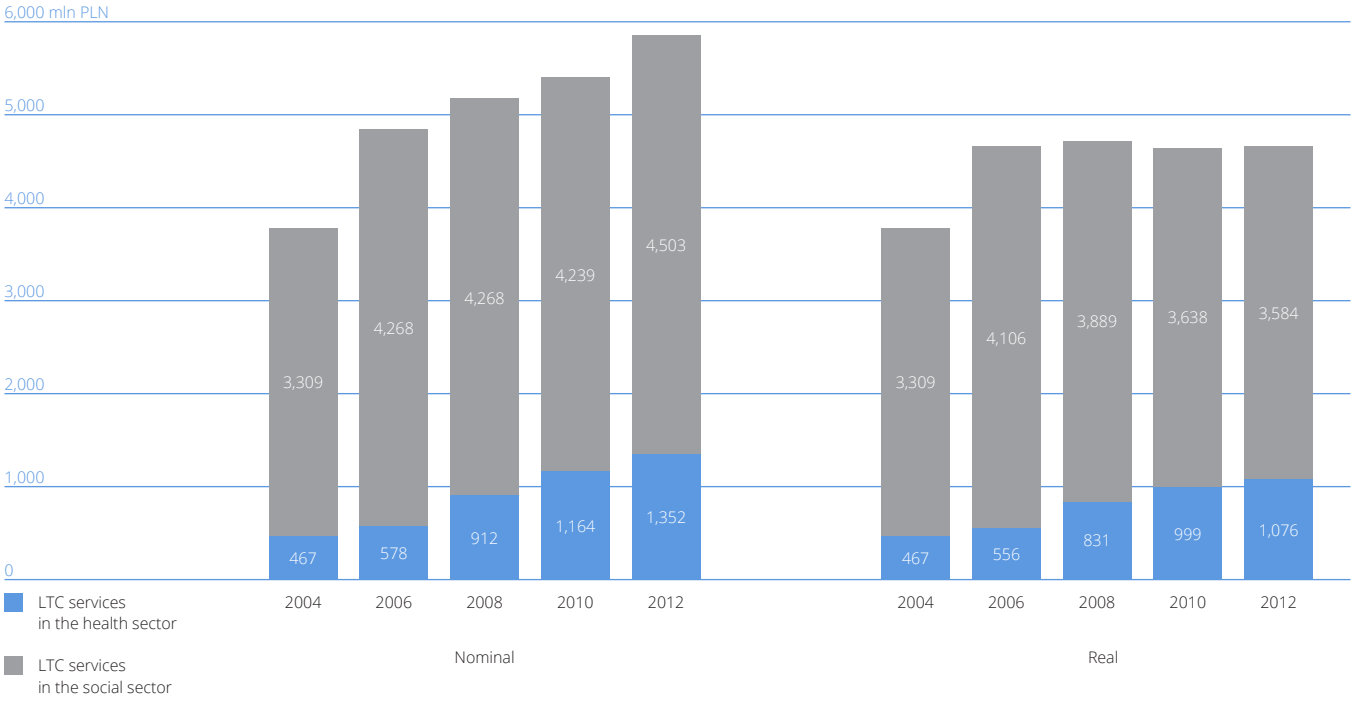
At the same time, financial support for those caring for older people is almost non-existent. According to the current regulations there is a preference for supporting informal carers of disabled children rather than dependent elderly. Care allowances are provided to older people universally, but are too low to cover the actual costs of care (14).

Financing

The total expenditure related to long-term home and residential care services in the health and social sector, excluding care provided to older people in primary, specialist and hospital care, amounted to about 6 billion PLN in 2012. These expenditures include:

- home nursing care provided within community (excluding ventilation services),
- nursing residential care in ZOL,
- palliative care and hospices,
- home and specialist home care services, and
- residential care expenditures on services in social assistance homes.

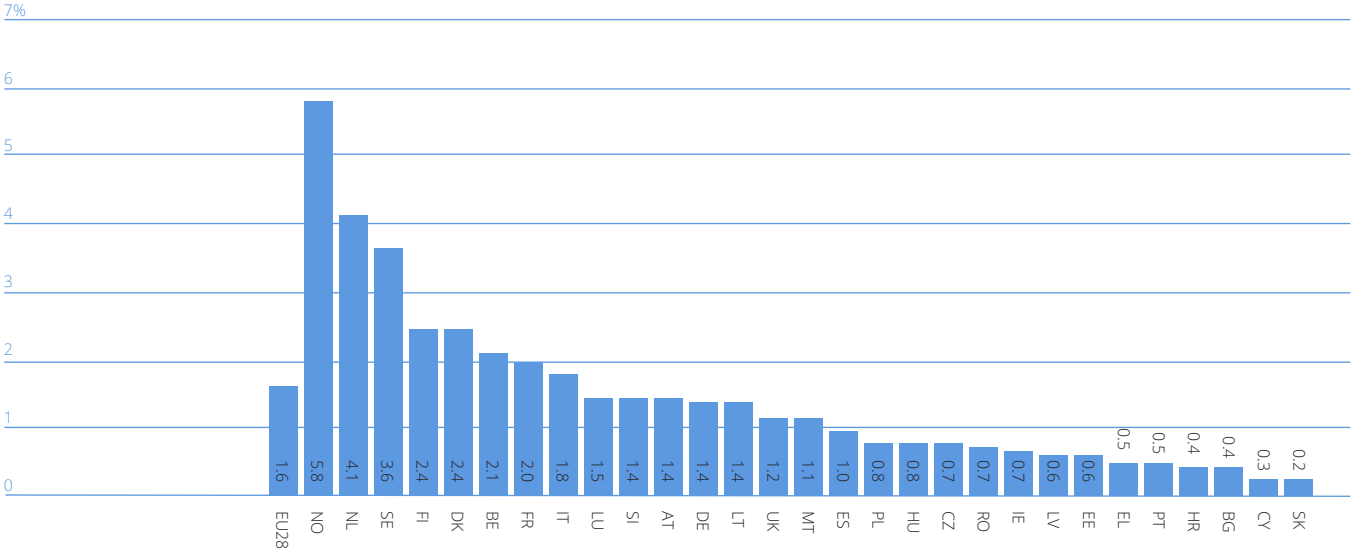
Figure 53: Estimates of the total long-term care expenditures on home and residential services in health and social sector



Source: WB 2013

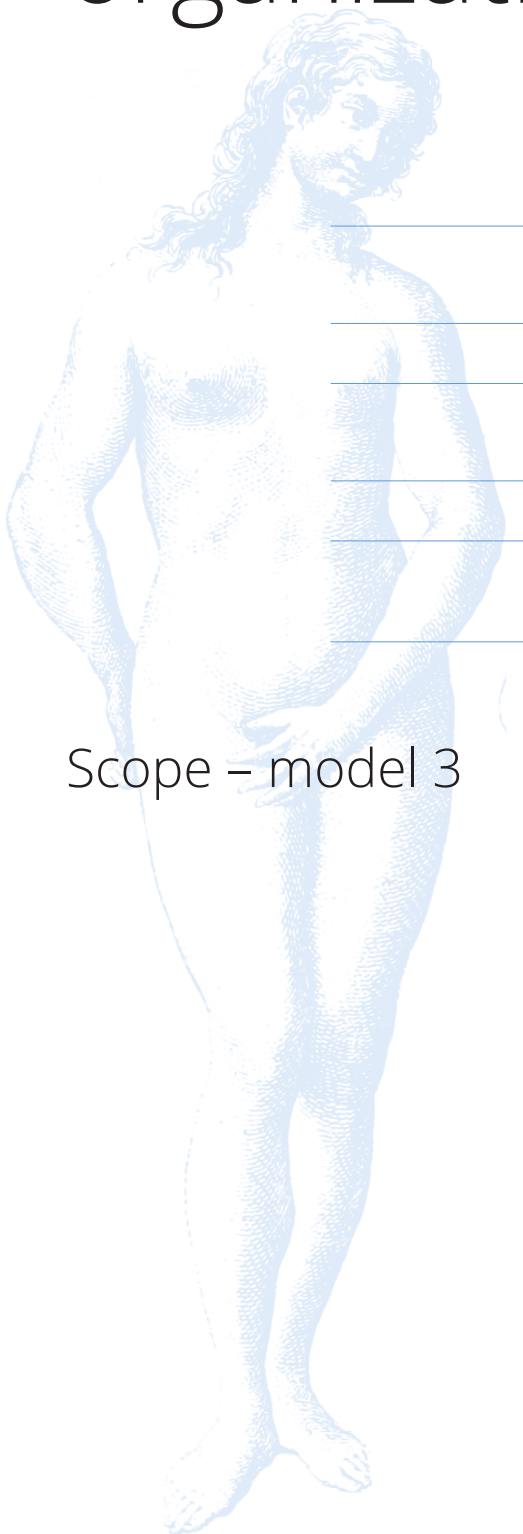
These expenditures amounted to 0.8% of the GDP in 2013, which is 50% lower than average expenditure in the EU-28.

Figure 54: Expenditure on LTC as % of GDP in 2013



Source: European Commission, 2015

Service delivery organization model



The objective of the Model 3 is to improve quality of care and quality of life of elderly patients after hospitalization. How to pursue this goal:

- develop care plans for the elderly, considering the function of the implementation coordinator and the budget;
- facilitate access to indispensable services, including diagnostics;
- reduce the frequency of unnecessary consultations with specialist physicians, as well as hospital admissions;
- reduce polypharmacotherapy, and;
- improve care process by making better use of financial, physical and staff resources available at municipal/PHC practice level.

Scope – model 3

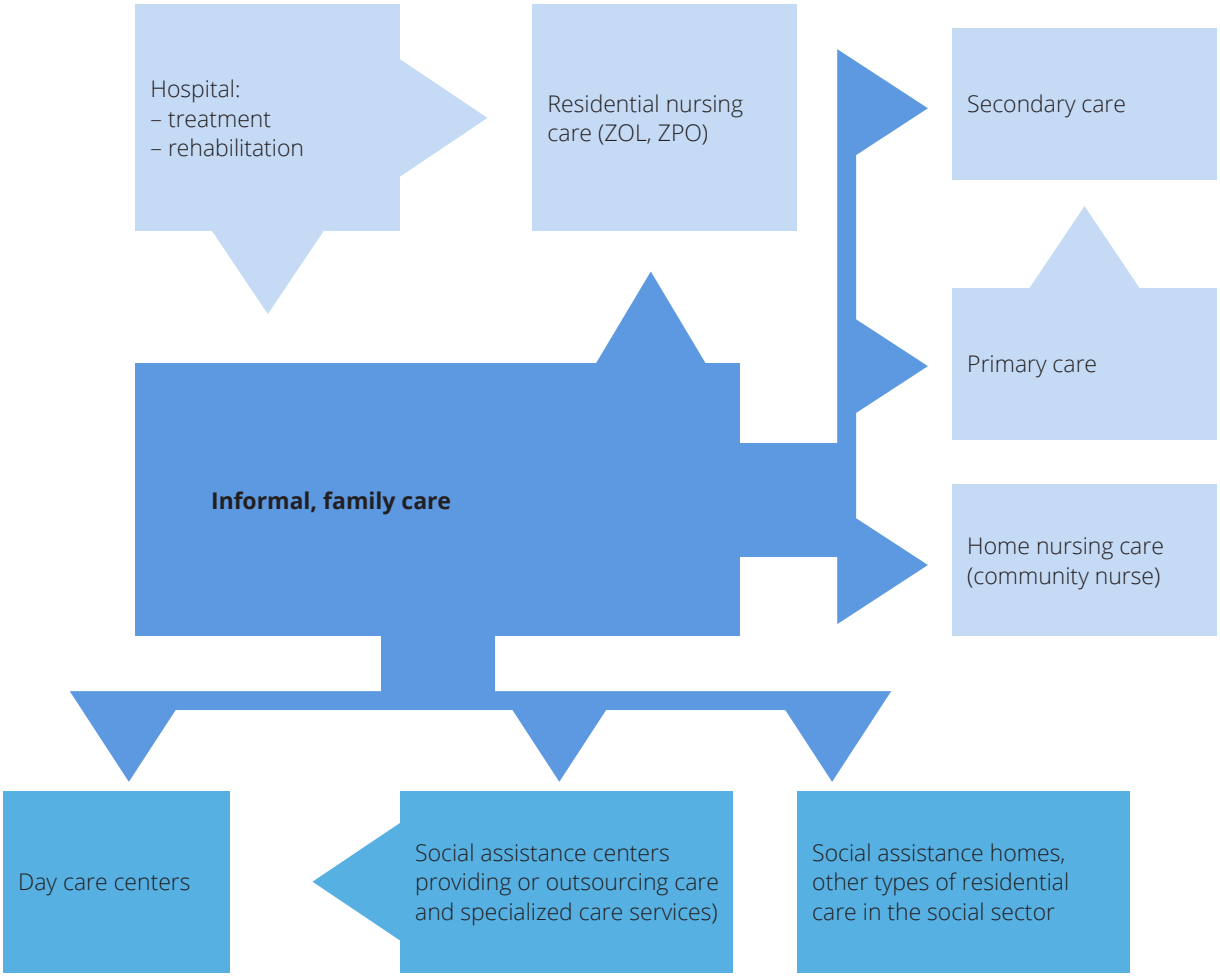
The scope of coordinated health and social care services for older people after discharge from hospital

In proposing the model of coordinated health and social rehabilitation, different elements of the care system are addressed: nursing and care services, the current design of the healthcare system and long-term care system for older patients, and pathways for patients between institutions after being discharged from hospital. These pathways depend on the type of disease the individual is hospitalized for, the severity of disease, the patients' functional capabilities, self-sufficiency, as well as the need for rehabilitation.

After being discharged from hospital, an older patient typically returns home, unless he/she has a health condition resulting from a cardiovascular intervention (surgery), or is in a serious neurological condition and requires further hospital rehabilitation. For care received in a hospital, a patient typically requires a referral for rehabilitation with a specialist. If the patient has limited functional capabilities and requires further nursing, he/she may be referred to a residential nursing facility in a healthcare system (ZOL, ZPO). In most circumstances, a patient returns home with a referral to a primary or

secondary healthcare unit, which becomes responsible for further treatment. At this stage, only the health status of the patient and the need for further medical treatment are assessed, with very limited (if any) assessment of further nursing needs and no assessment of further care needs.

Diagram 2: Patients after hospitalization in the current system of nursing and care



The individual and/or a family member becomes fully responsible for the recognition of further needs of the older patient, selection of physician who becomes primarily responsible for his/her treatment, and the decision on the provision of care, if needed. A key limitation of this kind of informal care and family oriented model is the lack of comprehensive information available to the family member on the different options of nursing, rehabilitation, and care for an older patient. It is typically the family that assumes care responsibilities, and consequences can include labor market exit, especially for women on retiring or during pre-retirement age. Information on social services for the elderly is limited largely due to the responsibility for providing this information belonging to social assistance units: commonly perceived as poverty oriented while providing elderly services information being a less

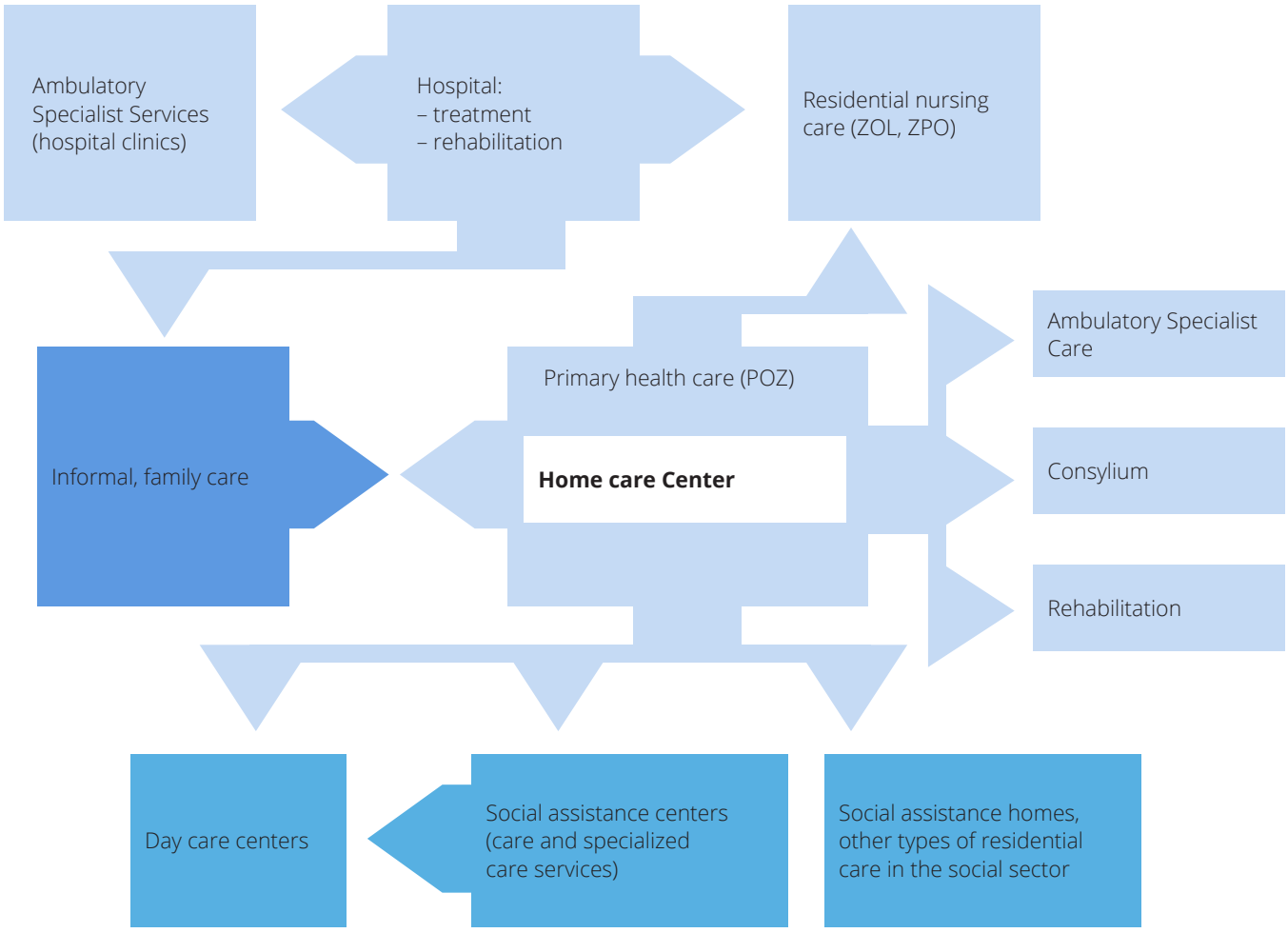
prominent aspect of their work (24). In addition, the care provided is reported to be of poor quality. To avail of a community nurse depends on the decision of a primary care physician, while rehabilitation of a patient depends on decisions of specialist care physician. These solutions appear cost-containing at the delivery point (i.e. due to gate-keeping), but can increase long-term costs by hindering progress through the system due to needing a referral at each stage, and the creation of inefficiencies from long-waiting times resulting in provision of services. These issues can be compounded when the health status of a person after hospital discharge further deteriorates and increases the risk of re-hospitalization. A drawback of the current system is the level of fragmentation in this long-term care provision. Patients can receive nursing and care from different institutions with potential for overlap. Additionally, in most cases nursing and care from public institutions is insufficiently provided and in poor quality.

The current provision of long-term nursing and care is low and it is believed that less than 10% of the total dependent population of all ages are receiving care: less than 2% of the older population (16). One of the aims of improved coordination is to increase utilization of rehabilitation and low-cost at-home nursing and care, to prevent further decline in health status and dependency that would lead to increase costs of OSC and hospital treatment.

In the proposed model, the nursing/caring family member is supported with professional advice, management of medical treatment, and nursing and care that is needed for previously hospitalized persons by a **Home Care Center**. The established centers are closely linked to the primary care unit (in the same facility) and managed by a community care nurse. The center closely cooperates with the primary care physician and – if needed – specialist care physicians on the one hand and social assistance center on the other. The care center is responsible for managing nursing and organizing care for an individual to improve patients' quality of life, use time more efficiently, and prevent re-admission to the hospital by providing safe and adequate care within the community. Local and responsive service provision supports the recovery of older people and prevents further health deterioration. To strengthen newly established community nursing and care office, hospital discharge of a person aged 65 years or more should incorporate referral to this type of service.

The proposed scheme of service delivery under Model 3 is presented below.

Diagram 3: Pathways of patients in the new, coordinated system of nursing and care



The scope of services managed and provided by the home care center include:

- primary health care services;
- home nursing (health status check-up, prescribed inseminations, assistance in preparation of prescribed medications, change of bandages, etc.);
- personal home-care services (personal hygiene, etc.);
- home-care services (assistance in housekeeping, meals' preparation or meals on wheels, etc.);
- specialist care services (tele medicine/ tele consultations, rehabilitation, physiotherapy, etc.);
- dietary consultations;
- assistance in contacting medical facilities (primary, secondary, tertiary care);

- *at later stage transfer to the PHC disease management scheme (optional for the facilities providing the DM programs)*
- providing and helping in the use of ICT supporting care (telecare, falls prevention, etc.), and;
- cooperation with the local pharmacist to prevent polypharmacotherapy.

Responsibilities of home care center with respect to coordination and management of nursing and care provided to older patients after hospital discharge include:

- through primary care, and in cooperation with secondary care physician when needed, family and social assistance, assessing and recognizing the needs of patients after hospital discharge for further nursing, rehabilitation and care;
- informing the patient after a hospital discharge and his/her family with information on the possible further method for acquiring nursing, rehabilitation, dietary consultation, care, etc.;
- assisting patients and their families with establishing contacts to nursing, rehabilitation, dietary consultation, care services' providers;
- managing nursing, rehabilitation and care provided to older people after hospitalization, closely cooperating with service providers, social assistance centers, day care centers;
- establishing individual plan of home care and assistance within community in cooperation with the social assistance center;
- provision of services by the facility itself or services contracted out and provided by public (i.e. primary care nurses firms, social workers) and private (including non-governmental) providers.
- managing patients' data and information on undergone treatment, use of pharmaceuticals, provided services (nursing, rehabilitation, dietary consultations, care services), and;
- assisting patient or his/her family in acquiring place at the residential care facility if needed (ZOL, ZPO, DPS).

Diagram 4: The process of care under home care center (HCC)

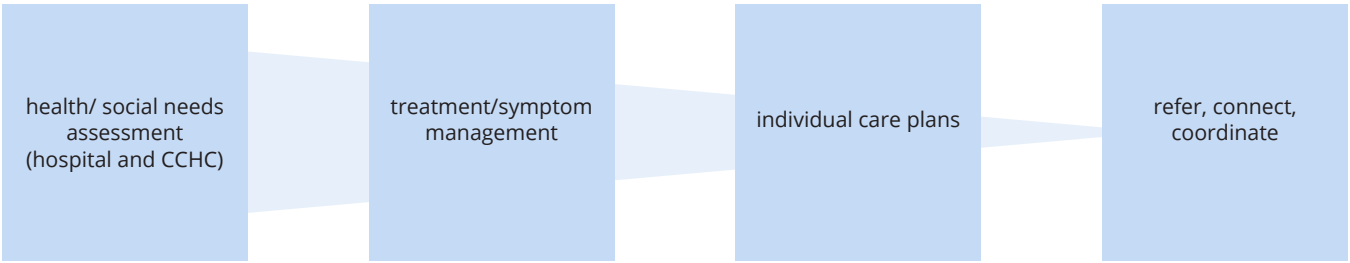


Table 3: Selection criteria for the pilot project of locally coordinated health and social care services

Category	Type of data		Source of data	
Demography	Number of residents and demographic structure of the population (share of population 50-64, 65-79 and 80+, old age dependency ratio)		GUS data (Bank Danych Lokalnych)	
Health status	Mortality of 65+ population by causes		NIPH-NIH data	
Provision of services	Healthcare infrastructure (tertiary, secondary, primary care, rehabilitation facilities, long-term care facilities – ZOL, ZPO)		GUS, NFZ, MoH data	
	Social infrastructure (social assistance centers, DPS, day care centers)		MRPiPS data	
	NGOs in the field of health, nursing and care (patient organizations, rehabilitation, health promotion)		KLON-JAWOR, local government	
	Private providers of nursing, rehabilitation and care		NFZ, Local government	
Utilization of services	Utilization of healthcare services by 65+ population ((tertiary, secondary, primary care, rehabilitation facilities, long-term care facilities – ZOL, ZPO), re-admission to hospitals of 65+ population		NFZ data	
	Utilization of care services, specialized care services, DPS, day care centers		MRPiPS data	
Social and economic indicators	Unemployment rate (poviat)	Alternatively these indicators could be replaced by Local HDI at the poviat level	GUS data (Bank Danych Lokalnych)	SGH estimations
	Incomes per capita (gmina)			
	Proportion of people receiving social assistance (gmina)			

Beneficiaries of model 3

Patients aged 65 and above after hospitalization with pre-defined health conditions. Approximately 25% of all hospitalized people 65+ are potential beneficiaries of the Model 3 scheme. On poviat level, where the pilot could be implemented by one or several entities, this would mean approx. 1400 beneficiaries each year.

Excluded would be: Majority of the hospitalized 65+ population who are to be treated either at the primary health care level, hospice care or with the support of the hospital's ambulatory care.

Instruments for implementation

Instruments for implementation of locally coordinated health and social care services for people after discharge from hospital include:

- Establishment of local, integrated home care center whiting the primary care unit or with the close collaboration. Home care center would operate with the cooperation of specialist care unit, social assistance center, local rehabilitation providers, residential care facilities of the health and social sector, palliative care unit(s), NGOs involved in provision of care and services to older and dependent people.
- Assessment and stratification of older patients with nursing and care needs depending on health status (illnesses, treatment), functional capabilities, recognition of needs for nursing/rehabilitation/care. The assessment should be performed based on information from: hospital discharge card, geriatric assessment, primary care physician, and consulted with community nurse from the community nursing and care center.
- Patient information system (data) coordinated by the community nursing and care office. The system should allow home care center coordinator access to the health and some elements of the social data available in the electronic health records of the patients and "empatia" It systems.

Services are delivered locally and coordinated by the community/ PHC nurse closely cooperating with the primary care unit. There are several focal points for cooperation that are important for organization of the service delivery:

- close cooperation between hospital and nursing and care center;
- close cooperation between primary physician and nursing and care center represented by community nurse, specialist, rehabilitation and social services based on local contacts and IT systems, and;
- networking of nursing and care center with local services' providers.

A two-step nursing and care validation process is to be established, first based on information included in the hospital referral which provides information on nursing and rehabilitation requirements, and secondly, based on primary physician opinion. For each patient, a personalized nursing, rehabilitation and care plan should be prepared and adhered to. A community nurse coordinates care under the supervision of a primary care physician who consults each patient at the beginning of nursing, mid-term and after completion of prescribed nursing care. The primary care physician has the right to decide upon completion if there is a need to extend the nursing, depending on health status, functional abilities, and need for care of a patient. If needed, consultations with specialists and geriatricians should be carried out. Treatment and nursing provided should also meet the highest standards of care.

Before establishing nursing and care center, community or PHC nurses and physicians in a pilot area should undergo training on the role of nursing and care centers, communication requirements, geriatric standards of care, and budgetary procedures.

Coordination entity:

Home care center in collaboration with:

- PHC (or a part of the PHC facility)
- a physiotherapist,
- a caseworker,
- a social care institution,
- a LTC or hospice facility, and
- specialist physicians, as needed: geriatrics, cardiology, neurology, diabetology, oncology, psychology, or other depending on the patient's needs.

Scope of services covered by the care plan:

- smooth transfer procedure from hospital care to home based care and care center;
- assistance with care after release from hospital (social care, nurse, PHC physician, consultations by specialist physicians);
- care for persons with chronic diseases (nurse, social care worker, PHC physician, specialist physicians);
- rehabilitation services (including group rehabilitation where possible);
- social activation services, and;
- family support services (including psychological support).

Venue of care provision:

- Patient's home
- PHC center
- Specialized care clinic
- Day-care wards
- Specialist consultations in health care facilities, PHC facilities, patient's home, telemedicine
- Nursing establishments (Polish: ZOL), social welfare homes (Polish: DPS)

Services background concept:

- Teamwork approach to care: step one - health status assessment based on Comprehensive Geriatric Assessment or Vulnerable Elders Survey 13 and LACE index score. The evaluation should cover health issues, physical fitness, mental condition, social support including family circumstances, financial situation and standard of living of the geriatric patient.
- Activities undertaken by an interdisciplinary medical team coordinated by PHC/ community nurse with the close collaboration with primary health care doctor.
- PHC and a representative of a municipal social welfare facility assess patient's condition, in consultation with specialist physicians (at least 2), care plan is developed and agreed between the patient and his/ her family and care team.
- Care plan is financed largely from the PHC fundholding budget, a municipal social welfare facility provides contribution in-kind or support of caseworkers where applicable. When the patient cannot access social care as per assessment of the social worker but still needs social support, copayment for the social services can be introduced.
- PHC physician "buys" additional services on the market, making sure they address patient needs.
- The team includes a caseworker (on a permanent basis) sponsored by the welfare facility or/and patient's copayments.
- Care plan is reviewed once a quarter or more frequently, if needed. Care plan is reviewed by a PHC physician/a specialist designated by that PHC physician, e.g. a geriatrician, in accordance with the Comprehensive Geriatric Assessment. CGA is a platform for exchanging information about geriatric patients among team members, other providers, and social welfare. CGA enables integration of services provided by a physician, a nurse, a physiotherapist, a psychologist and a caseworker with social welfare services.
- The team works through case conferences (also virtual) to monitor patient's status and properly adapt medical, rehabilitation and community interventions.
- The team also gets involved in health education and disease/disability prevention among older patients and their families or caregivers.

Care plan – development and implementation:

- In response to a signal from the hospital, a community nurse checks on the patient while in hospital, assists the patient at the point of discharge and contacts a PHC physician, a social welfare worker employed by the hospital (if necessary), and a municipal social welfare facility.
- Full hospital documentation including Comprehensive Geriatric Assessment is provided by the hospital nurse contracted by the PHC and the social worker based in the hospital. At the point of discharge, the hospital performs a Comprehensive Geriatric Assessment on the patient and contacts community care center.
- The PHC team monitors adherence to recommendations following the discharge from hospital.
- A care coordinator in the community care center (typically, a nurse) is assigned to the patient.
- A care coordinator's responsibility is to provide medical and social information about the patient and to coordinate care plan execution.
- Medical history taken in PHC is more detailed and it includes the following: fainting, swooning, bodyweight fluctuations, sphincter dysfunctions, medications (OTC included), questions with neurological, psychiatric and community focus, as well as interviews with patient's family or caregivers (verification of geriatric patient's examination exhibiting symptoms of mental disorders should relate to symptoms reported by his/her family or caregivers).
- Internal medicine examination should be more detailed and it should include the following: general neurological examination, orthostatic examination, skin assessment and visual and auditory assessment.
- The following assessments should be performed:
  - the Geriatric Depression Scale (GDS) developed by Yesavage;
  - cognitive function assessment, including screening for dementia, particularly, Abbreviated Mental Test Score (AMTS) or Blessed Test, MiniCog Test, Folstein's Mini Mental State Examination (MMSE), Clock-Drawing Test and other methods recognized in currently applicable guidelines for diagnosing dementia;
  - Tinetti Balance and Gait Test, the Timed "Up and Go Test", walking speed in m/sec.;
  - nutrition status assessment using MNA (Mini Nutritional Assessment) or SCALES (Sadness-Cholesterol-Albumin-Loss of Weight-Eating Problems-Shopping);
  - assessment of patient's environment and support received from geriatric patient's caregiver based on COPE questionnaire and index;

- a nurse's assessment of patient's physical and mental health and nursing care status;
- an analysis of additional tests, including imaging, endoscopic, ECG, 24-hour ECG/Holter blood pressure, densitometry, and;
- an analysis of additional tests and specialist consultations.

- The following activities should then be carried out:
  - discussing the condition and therapeutic approach with the patient and patient's family or caregiver;
  - pharmacotherapy: setup, modifications, reduction;
  - the PHC team monitors adherence to recommendations following the discharge from hospital;
  - clearly written recommendations for geriatric patients and their families or caregivers; repeating those recommendations as needed;
  - rehabilitation and dietary recommendations and instructions;
  - coordination/scheduling appointments with a rehabilitation specialist, physiotherapist, specialist, nutritionist;
  - interviews with and/or counselling for patient's family or caregivers;
  - support in getting help for the family (psychologist, social worker);
  - recommendations for pharmacotherapy, psychotherapy, care. Support in getting help from relevant professionals;
  - purchase/lease/co-financing of medical devices, incontinence briefs, etc.;
  - recommendations for disease prevention and health promotion;
  - monitoring therapeutic outcomes, including aggravation of symptoms and incidence of adverse events or side effects resulting from pharmacotherapy;
  - scheduling follow-up visits at a site where geriatric care services are provided or where a geriatric patient is based, and;
  - keeping proper medical records.

Contracting

Contracts are signed by enrollment, same way as other PHC and/or nursing contracts.

The requirements that must be met by service providers applying for a contract include, *inter alia*:

- a minimum number of PHC/family physician enrollment declarations per one locality of the service provider, the consortium, or the group of providers – in the territory of a county or adjacent counties in total, no less than 20,000 patients in the cities (more than 300,000 residents) and 10,000 in smaller counties;
- organizational standards, including the chart and the by-laws for Outpatient Managed Care service provision, developed in accordance with the template provided by pilot program organizer;
- the resources (personnel, premises, equipment) to enable contract execution - held by the facility itself and by its subcontractors, in line with relevant regulations issued by the Minister of Health and ordinances issued by the President of the National Health Fund regarding the OMC package of services and the requirements set by pilot program organizer;
- capacity to exchange the information about health events and electronic medical records between OMC service providers (transition period can be allowed to develop the system for electronic data sharing in the first year of operation);
- a system for patient communication in OMC consultations, particularly identification of patient health needs and feedback information (e.g., e-health platform, tele-medicine solutions to monitor selected health parameters) – a transition period can be allowed to develop such a system in the first year of operation;
- telemedicine tools implementation scheme, jointly prepared with the social care centers;
- training for physicians and other medical personnel on OMC medical and organizational standards (transition period, accompanied with the training schedule, can be allowed in the first year of operation;
- cooperation agreement signed with the local DPS/ social and LTC care facilities, and;
- an organizational scheme taking into consideration the upgrade of the IT systems and communication flows.

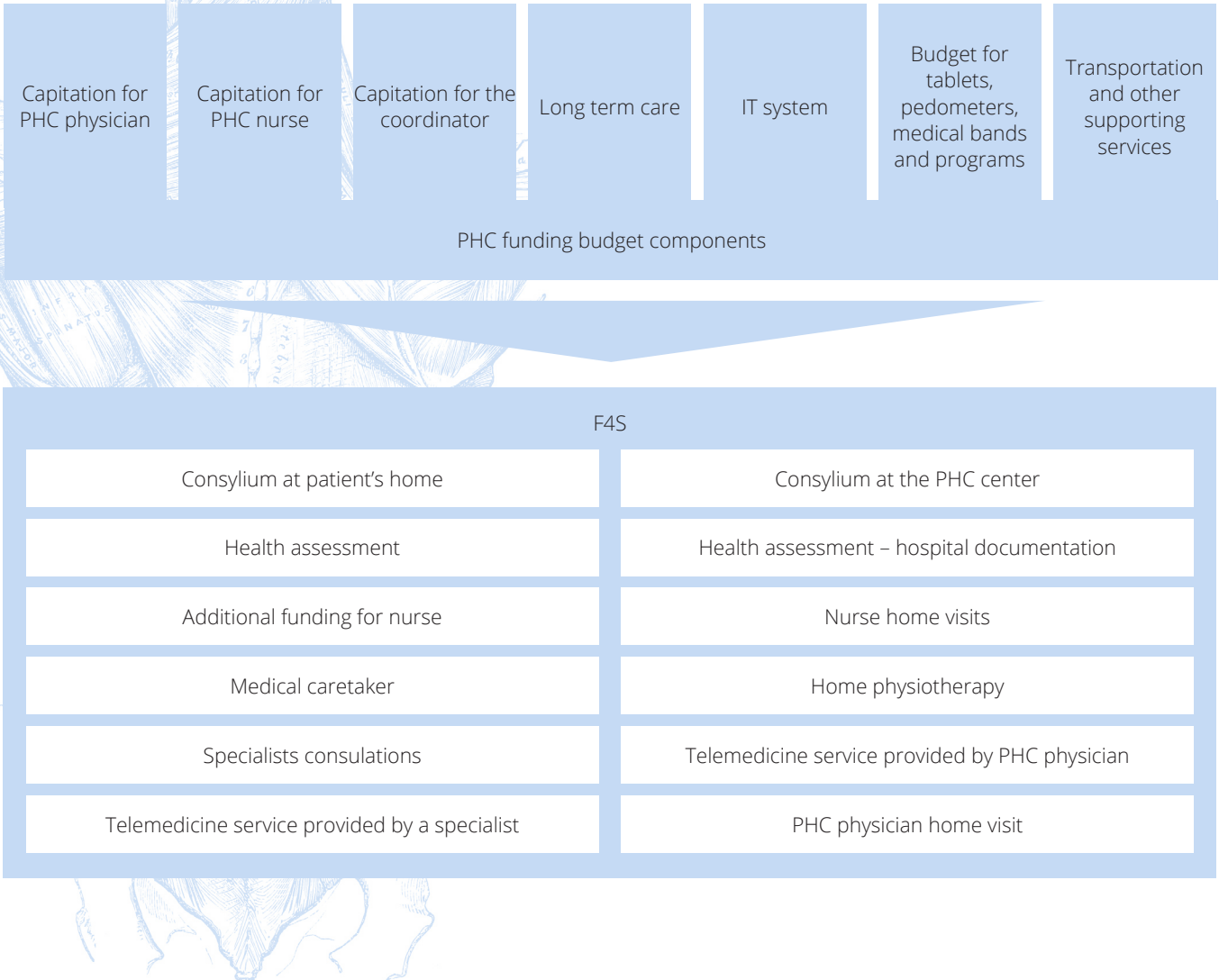
The OMC involves the following tasks:

- providing medical care to patients in the scope of services referred to in the contract, including prevention and education in health, in line with developed organizational standards and implemented, encompassing, **roles and responsibilities of health personnel** (PHC/family physicians and OSC physicians, nurses, midwives, health educators, medical assistants, physiotherapists, etc.), and the terms of their cooperation – including the coordination of care;
- developing, implementing and coordinating **individual plans of medical care** for patients from active counselling groups, **based on a comprehensive health evaluation;**
- **providing doctor and nurse consultations** in PHC and OSC clinics, including operative interventions, in line with PHC and OSC mandates and their terms of cooperation, and in accordance with pre-defined organizational standards;
- **ordering diagnostic tests** included in the common pool for PHC and OSC clinics (OMC-dgn), in accordance with the competences specified in diagnostic and therapeutic path - tests resulting from the scope of prevention activities and the plan of care determined by the physician can be based on a referral issued by medical personnel other than physicians;
- **providing social and community support to the patient and his/ her family based on the agreed with the health team, care plan;**
- communicating between individuals who provide care, including **exchanging of information about health events and medical records**, to be based on a robust IT system for the exchange of information about medical events and electronic medical records (EMR). All and any health information pertaining to the patient should be available to the PHC/family physician;
- collaborating with the facilities that provide health care services (outpatient and inpatient) outside of the OMC, including the exchange of health-related information – in the event of health issues falling outside the OMC mandate, the patient is referred to another provider in accordance with generally applicable principles;
- monitoring and supervision of **service quality and efficiency**, in line with the procedures laid out in the organizational chart, and;
- organizing and conducting rehabilitation services.

Financing

The funding would be designed to combine regular PHC and nurse budgets with the fund holding budget for the extended scope of services. For the pilot different sources of funding are foreseen, namely: NFZ regular budget, EU fund, social care regular budgets of the level pf Poviats as well as patient's co payments where needed.

Diagram 5 PHC fundholding budget. Components



Performance-based budgeting

A separate performance-based budget should be allocated to unit-based settlement of services for nursing and care services, which improve cost and time efficiency in care provision. The Home Care Center should have its own performance-budget allocated to specific services (see budget Annex 1) and used for contracts with service providers. Up-to date financing of nursing services in the health sector are subject to NFZ contracts with primary care providers. The social assistance centers are contracting provision of care services to providers operating in the market. The common practice is to grant the contract to the provider offering the best price, while quality of services is of lesser importance. This changes under the new financing rules. The principles of financing of nursing and care services to older people after hospitalization should be as follows:

- The medical treatment of primary physician and secondary care, etc. remain financed under the current regulations. The Model 3 pilot budget is based on bundled payment for selected services.
- The HCC, to efficiently manage care, can pay for required home nursing services from their budgets, including home care services, specialized care services, rehabilitation, dietary consultation in line with personalized and prescribed guidelines regarding care.
- The allocated budget of the nursing and care center consists of a part of the current budget of the National Health Fund with respect to home nursing and medical rehabilitation, and further as a part of the budget of the local governments with respect to care services and specialized care services, physiotherapists and other services of personal care currently provided by the social assistance centers. The coordination of the budget remains within the scope of the community care center, however, due to the legal constraints, the two streams of funding remain as per contractual and legal arrangements.
- The costs of medical, nursing and physiotherapy services are priced by the NFZ, while care services are granted based on market prices. Providers of services should be selected based on cost, quality and timing of service provision.
- Budget of the home care center includes fees for the use of transportation for nurses and doctors to patients.
- There is potential for patient co-payments for care, nursing and rehabilitation services priced by the NFZ and/ or social services, as some co-funding may be required in the case of personal care.

It should be noted that per patient expenditures in the coordinated care Model 3 are not distributed equally, with some patients generating small per capita expenditures whilst expenditures rapidly grow in line with increases in the need for nursing and care. Earlier studies, such as Care First, report that 8% of patients can generate costs of up to 50% of the nursing and care budget. (25)

Implementation of integrated care incentives

For the implementation of integrated care, there could be different incentives introduced such as, (i) for healthcare professionals: professional ethics, organizational cultures or financial incentives; (ii) for patients: to maximize health or financial incentives, and (iii) for the NFZ: social codes, social responsibility and financial incentives.

Based on the initial development and evaluation of the model's implementation, it is possible to incorporate patient incentives into integrated care models. Patient incentives can be personalized health care plans, health self-management applications, discounted gym memberships, and reductions to some out-of-pocket expenditures.

Bonus for results

It is possible for the pilot to introduce and develop measures that assess the quality of care and outcomes that can potentially be analyzed by the NFZ to trigger an additional bonus, e.g. in the form of an increased capitation rate coefficient.

These tools may additionally be used as benchmarks for quality and result generation across facilities, and therefore incentivize facilities to improve their performance and share lessons learnt during the initial period of the pilot scheme.

Model 3 pilot budget

Model 3 budget is designed per Poviat. The average number of patients covered by the care calculated for the purposes of the budget is 1375 annually per Poviat. It is estimated that part of the patients will remain in model 3 care for one year. Vast majority however should be covered with the home care center no longer that six months.

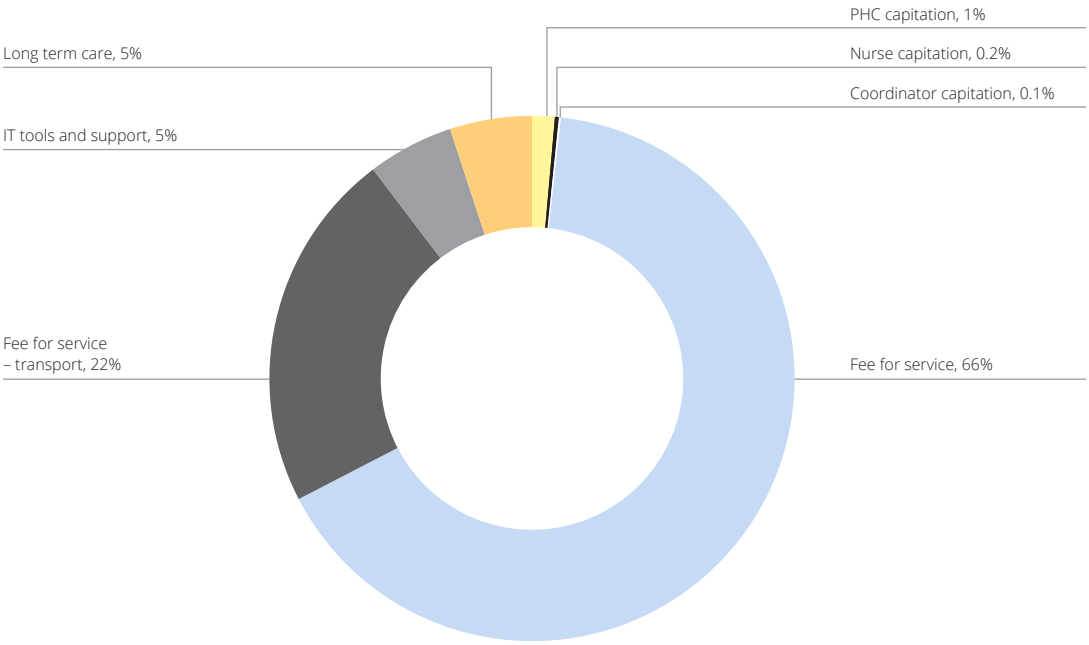
Table 4. Model 3 Pilot budget summary 2017–2020

	2017	2018	2019	2020
PHC physician capitation	451,163 PLN	451,163 PLN	451,163 PLN	451,163 PLN
Coordinator capitation	41,250 PLN	41,250 PLN	41,250 PLN	41,250 PLN
Nurse capitation	78,540 PLN	78,540 PLN	78,540 PLN	78,540 PLN
Long term care	1,633,738 PLN	1,633,738 PLN	1,633,738 PLN	1,633,738 PLN
Fee for service				
Consylium at patients' home	550,000 PLN	550,000 PLN	550,000 PLN	550,000 PLN
Consylium at the PHC facility	137,500 PLN	137,500 PLN	137,500 PLN	137,500 PLN
Health assessment	165,000 PLN	165,000 PLN	165,000 PLN	165,000 PLN
Health assessment – hospital documentation	206,250 PLN	206,250 PLN	206,250 PLN	206,250 PLN
Additional funding for nurse	96,250 PLN	96,250 PLN	96,250 PLN	96,250 PLN
Home physiotherapy	1,106,875 PLN	1,106,875 PLN	1,106,875 PLN	1,106,875 PLN
Medical caretaker services	7,150,000 PLN	7,150,000 PLN	7,150,000 PLN	7,150,000 PLN
Specialist consultations	550,000 PLN	550,000 PLN	550,000 PLN	550,000 PLN
PHC physician home visit	825,000 PLN	825,000 PLN	825,000 PLN	825,000 PLN
Nurse home visit	7,150,000 PLN	7,150,000 PLN	7,150,000 PLN	7,150,000 PLN
Telemedicine services – PHC physician	1,237,500 PLN	1,237,500 PLN	1,237,500 PLN	1,237,500 PLN
Telemedicine services – specialist	2,062,500 PLN	2,062,500 PLN	2,062,500 PLN	2,062,500 PLN
Transportation	7,198,125 PLN	7,198,125 PLN	7,198,125 PLN	7,198,125 PLN
IT support for the patient and PHC facility	1,712,500 PLN	612,500 PLN	612,500 PLN	612,500 PLN
Pilot cost for one poviat	32,352,191 PLN	31,252,191 PLN	31,252,191 PLN	31,252,191 PLN
Total pilot cost for 5 poviats	161,760,953 PLN	156,260,953 PLN	156,260,953 PLN	156,260,953 PLN

Vast majority of the cost for the Model 3 services are services paid FFS. As an implication this therefore is proposed maximum budget that can not exceed provided limits of services. The number of services however can be lower depending on the actual patient's needs (see figure 56).

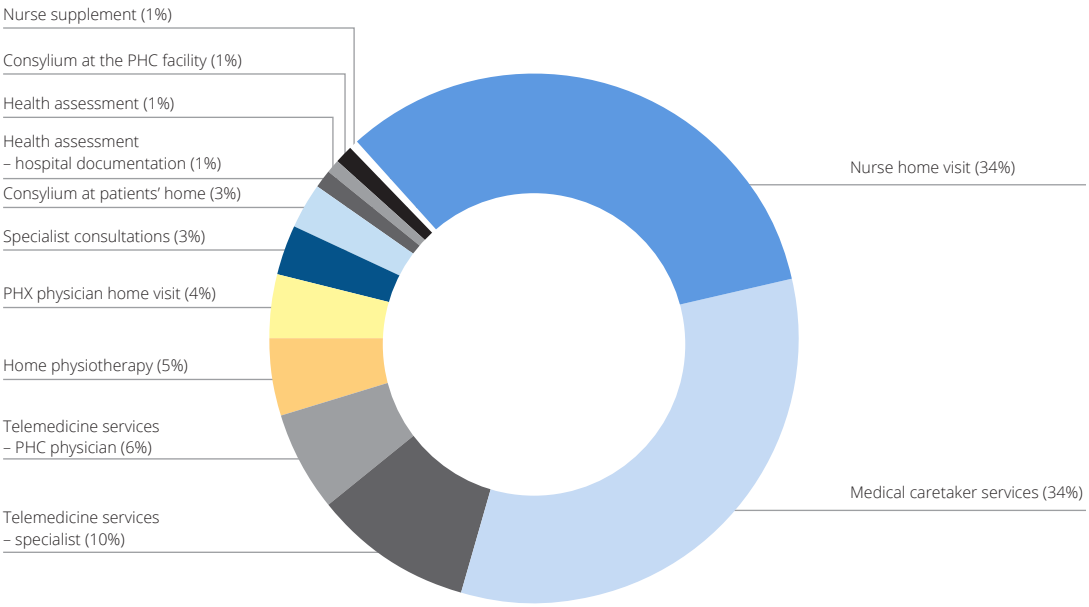
Another substantial element of the budget is Long Term Care which can be provided and paid as an addition to the current level of LTC funding or as an add on allowing more patients receive appropriate care.

Figure 55. Allocation of resource in the model 3 annual budget



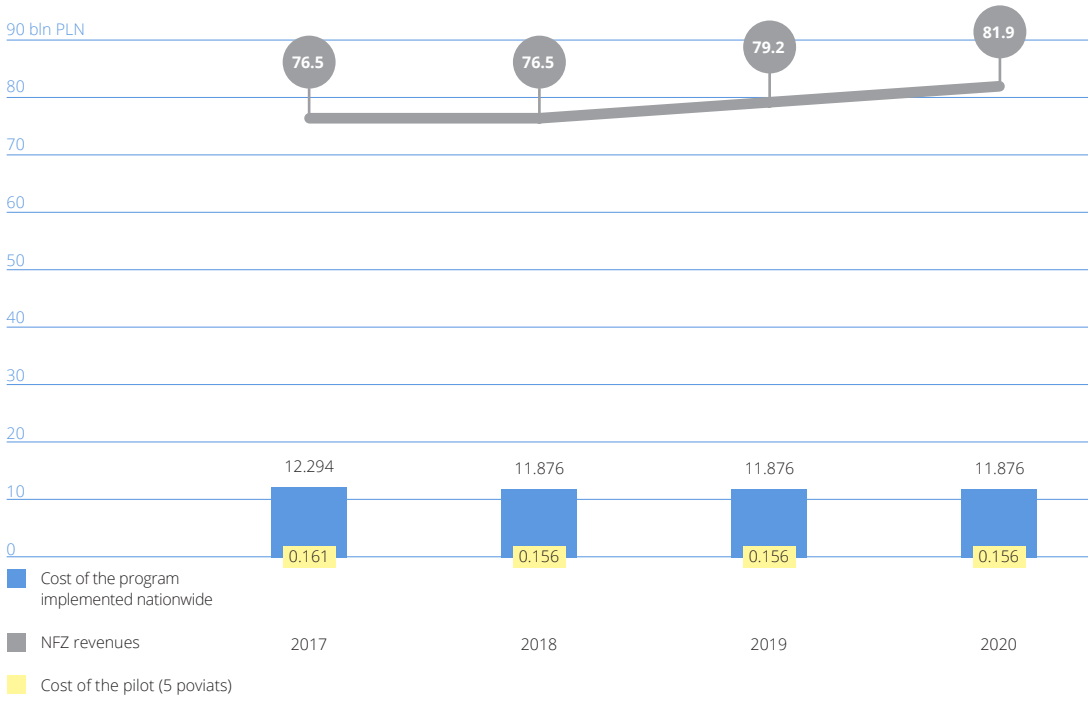
Source: World Bank own analysis

Figure 56. Allocation of fee-for-service resources in the Model 3 annual budget



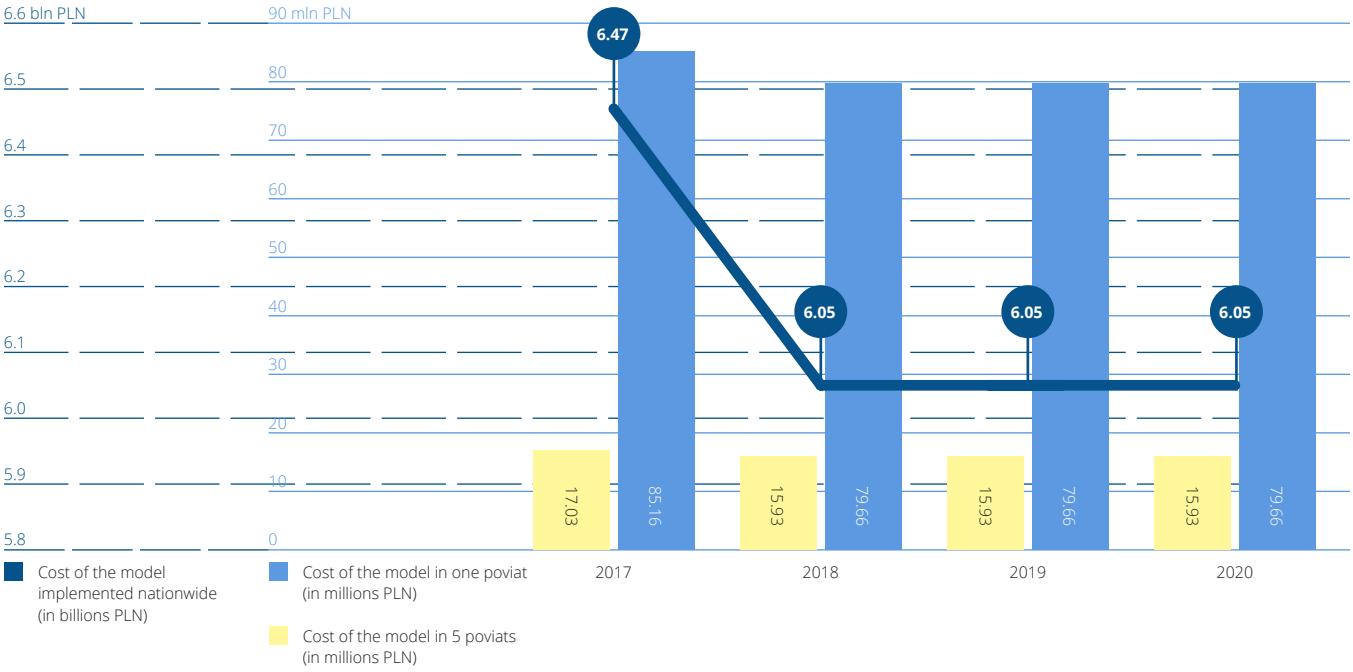
Source: World Bank own analysis

Figure 57 Cost of the pilot (5 poviats), cost of the program if implemented nationwide and predicted NFZ revenues



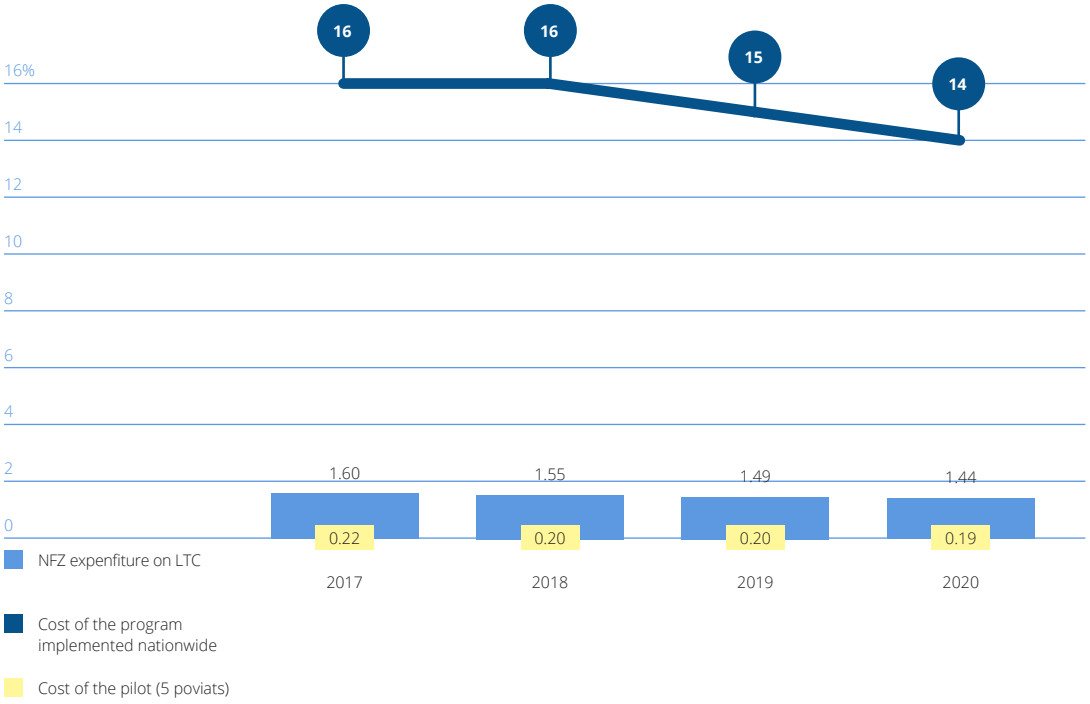
Source: World Bank own analysis

Figure 58 Costs of the model for 6 months



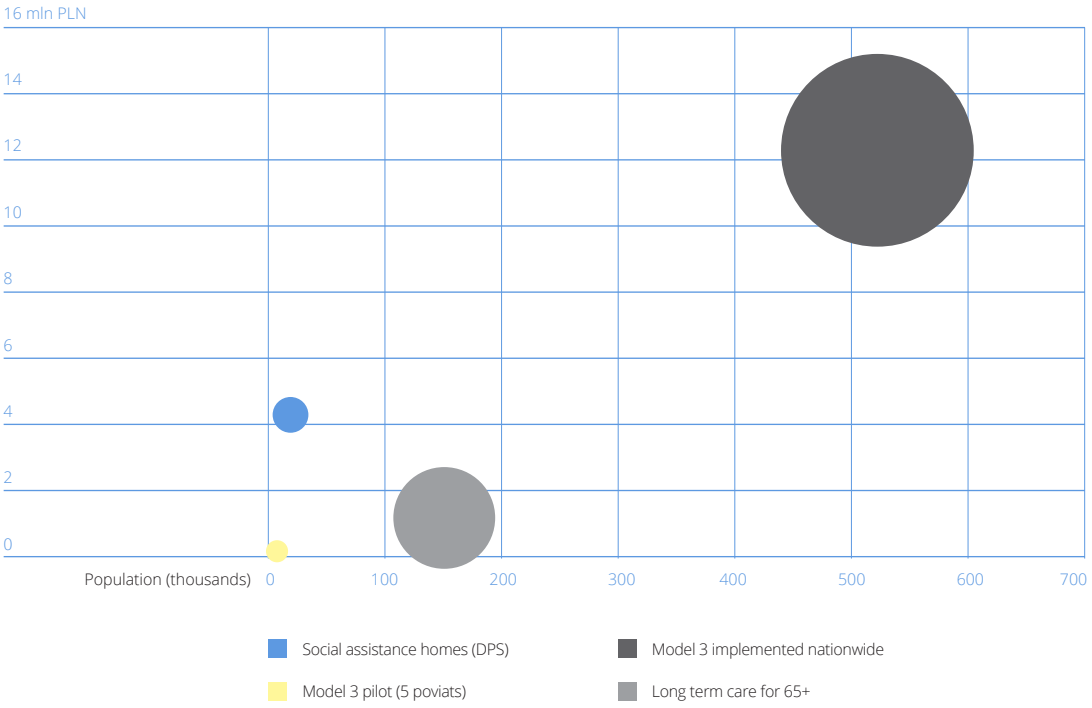
Source: World Bank own analysis

Figure 59. Costs as a share of the annual NFZ budget



Source: World Bank own analysis

Figure 60. Costs of the programs and their target population



Source: World Bank own analysis

Reporting

Service performance reports are submitted to the NFZ once a month, via robust software of the payer (e.g., an appropriate modification of the Service Provider Portal). Reports are submitted in a personalized mode, per patient and per medical professional, including information on the locality that provided the service.

Scope of reporting requirements are the same as for the PHC reporting systems and “empatia” reporting system available under the social care system.

Information on the type and volume of services provided to older people is to be made available for the social assistance center to ensure information exchange on clients and their characteristics.

Capacity building

Readiness and capacity building of providers

There is a need to create a set of implementation tools that support the integrated care pilots. The tools can vary in their stages of development with those currently under development by the NFZ such as clinical paths, communication tools between provider and patient, prevention and intervention tools, management tools, as well as newly conceptualized tools for rules and control systems, gathering of data and monitoring and evaluation of the models. This is considered a separate activity, one of the very first to be undertaken throughout the pilot model implementation and continued over the course of the pilot's implementation.

This component finances providers' readiness, technical assistance and capacity building in implementing the new package of services. This component finances the following:

- improvements in the basic capacity of providers and areas where shortages of supply are hindering the delivery of the extended package, primarily through: the hiring of additional health and social workers, providing new and upgraded medical equipment supporting the delivery of the package, but excluding investments in infrastructure or complex equipment;
- short-term refresher courses for training healthcare professionals in: diagnosing and delivering of newly introduced expanded packages, clinical protocols, technical on the job training, and use of equipment. Special emphasis is given to training staff on shifting the service delivery model from its current focus on curative care to prevention and education.
- technical assistance and personnel training that support program management such as contract management, monitoring and reporting requirements, and;
- upgrading and expanding the health information system and training of staff in the use of software, particularly the IT systems that could work together with the social care information systems (like" empatia").

The capacity building activities should be designed and implemented by the PIU.

Management and development of competence of the payer

The payer, who is the Beneficiary of the project, conducts activities related to project management as part of the project implementation unit (PIU), and develops competencies in terms of acquiring, controlling and managing care in the system of coordinated health care.

Employing committed individuals aids the development of the beneficiary's competencies, before the employed individuals then become core elements of the payer's structure in the future. The payer develops the model of coordinated care on a national level, and is equipped with new IT tools for serving the pilot project as well as new functions not implemented at present e.g. documentation exchange, recording medical data.

The payer purchases telemedicine tools or provides technical documentation for the purchase of the telemedicine equipment supporting the care for the covered population.

Patients stratification tools

Patients stratification tools may be considered as one the elements of care management. This task would however need to be considered as a separate tool to be tailored to Poland's context. There are several methodologies that could be considered**.**

Case finding – an approach that identifies the population for a specific purpose or treatment e.g. smokers for prevention purposes, the elderly for flu vaccination, etc.[2]

Population segmentation – Population segmentations is the action of grouping the cohort population based on, both, the kind and the frequency of care required. (26)

Most physicians segment their population intuitively to deliver better care and prevention, e.g. patients over 75 years old, patients with diabetes. There are many reasons for which grouping the population this way is important, including to understand the needs of different population groups, to define the combination of care people need, to enable prioritization, and to allow new models of incentives for the providers. It also allows for better monitoring and redesigning of the approach. There are several approaches to population segmentation:

[2] Using case finding and risk stratification: A key service component for personalized care and support planning. NHS England. January 2015

- Risk stratification (Utilization risk)
- Age and condition
- Social and demographic factors
- Behavior
- Population grouping

The first and the second approach are the most common.

Age and condition segmentation

In this approach, the population is first divided into age groups, and then into subgroups relating to their conditions. This approach is preferred by many integrated care providers as it is easy to define and understand, and remains moderately constant throughout time. Despite many advantages, the downsides of this approach include potential for disagreement on the "right" boundaries used for creating the segments. This may cloud the effectiveness of the segments in determining the right care for the grouped individuals.

To perform a valid and reliable age-and-condition segmentation, it is important to include the following in the analysis:

- judgement of multiple professionals, e.g. medical, social, public health, and other stakeholders;
- an in-depth analysis of the integrated care and social care dataset, and;
- a review of internationally applied grouping models.

Stratification

Risk stratification is defined as "a statistical process to determine detectable characteristics associated with an increased chance of experiencing unwanted outcomes" (27)

For better management of patients, some elements of risk stratification and disease management should be introduced. A separate risk management model needs to be designed.

Risk Stratification is a systematic tool that predicts how the population (or a subgroup of the population) is going to utilize the services and who is most at risk of deterioration or needing higher levels of care.

Although risk stratification is widely used, it holds a disadvantage of focusing on acute care. Therefore, the risk groupings may not be stable on yearly basis. Moreover, risk prediction tools alone have no impact on health outcomes of the population, they require combination with the proper interventions and behavioral change stemming from the risk assessment. (28)

In addition to the grouping tools, there are also tools used for disease management processes.

Disease management

According to Epstein et al. (1996), disease management refers to "the use of an explicit systematic population-based approach to identify persons at risk, intervene with specific programs of care, and measure clinical outcomes." (29)

Dellby (1996) (30) identifies 3 parts of disease management:

- "a knowledge base that quantifies the economic structure of a disease and includes guidelines covering the care to be provided, by whom, and in what setting for each part of the process;
- a care delivery system without traditional boundaries between medical specialties and institutions, and;
- a continuous improvement process which develops and refines the knowledge base, guidelines and delivery system."

More recently in 2004, Faxon et al. defined the concept as "a multidisciplinary efforts to improve the quality and cost-effectiveness of care for selected patients suffering from chronic conditions" (31)

In 2006, The Disease Management Association of America included in their definition the aspect of self-care efforts, and defined DM as "a system of coordinated health care interventions and communications for populations with conditions in which patient self-care efforts are significant". (32)

In the Model 3 of coordinated nursing and care services to the 65+ population after hospitalization, patients grouping for services should be based on the assessment of health risks accounting for:

- health status (geriatric scale, Barthel scale, hospitalization health and care evaluation, general health history at the PHC level, drugs intake);
- the need for rehabilitation (Barthel scale, recommendations from hospital);
- the need for nursing, assistance in medicaments and medical equipment use (Hospitalization health and care evaluation);
- the level of functional abilities (Geriatric evaluation including Barthel scale), and;
- the need for personal care (Geriatric evaluation including Barthel scale).

Patients could be grouped into following groups:

Group of patients/ clients	Needs level	Description
Group I	Light	People after hospitalization, with a need for several check-ups within 4–6 weeks after hospitalization; some nursing and care over this period might be required, but; no need for long-time nursing and personal care.
Group II	Moderate	People after hospitalization, with a need for setting up a rehabilitation plan and nursing requirements; may face temporary functional impairments and need for temporary personal care, and; promising full recovery.
Group III	Severe	People after hospitalization with chronic, often multiple illnesses, with a need for setting up a rehabilitation plan and nursing requirements; face functional impairments, sometimes severe and long-term, with a need for personal care, and; promising partial recovery.
Group IV	Very severe	People after hospitalization, fully dependent, bed-bound, with a need for full-time personal care and nursing at home or – in time – in an institution.

A patient's grouping and personalized nursing and care plan should be prepared by a community nurse based on a hospital discharge card, in a consultation with primary care physician and, if required, with secondary care physician.

The grouping of patients must not limit a patient's access to services which are necessary for their health condition nor to the organizational systems established for their care.

If Model 3 is implemented on a larger scale, the Scottish model of patient stratification SPARRA could serve as additional support in preparing a similar tool for Poland.

Project management and monitoring

The objective of this component is to ensure an effective and efficient regulation, administration and implementation of the pilot through under the NFZ. This component also improves the effectiveness of the NFZ in contracting with providers. To achieve its objectives, this component finances:

- **the establishment of a Project Implementation Unit (PIU) operation**, including the hiring of personnel, arranging of equipment, establishing operating costs, and provider payment processing. A detailed description of the roles and responsibilities of the PIU is provided in the next section;
- **program monitoring**, the strengthening of the PIU's ability to monitor providers' performance including M&E and Health Information Systems (HIS) design, software and equipment, and reporting;
- **capacity building and technical assistance to the PIU**, and;
- **satisfaction surveys**, the potential for contracting an external firm to evaluate the satisfaction of patients and providers with the new model.

The NFZ is responsible for overall pilot coordination and management in close collaboration with multiple strategic and implementing partners including PHC providers, ambulatory centers, hospitals, and the MoH.

The formation of a Steering Committee is recommended to review and address both strategic and policy level issues arising during the project period. The committee is headed by the NFZ and includes key stakeholders.

It is recommended that the PIU is established at the NFZ which is responsible for the day-to-day management of the pilot and acts as both the coordinating unit for the technical implementation of the components and the business office for the pilot. IT is responsible for overseeing the following: (i) planning, execution and oversight of the pilot activities, (ii) financial management of pilot funds including data validation and payments to providers, and (iii) monitoring and reporting on pilot activities and outcomes.

The formation of the PIU includes NFZ employees (civil servants), full consultants to the NFZ, and full-time committed employees, hired under the fund of this pilot. The PIU staff have the opportunity, through the pilot, to receive training relevant to their assignments on different processes, such as monitoring and evaluation or financial planning.

The Project Implementation Unit (PIU) team may be comprised of the following members:

- Pilot Coordinator
- Part Time-Finance and Accounting Officer
- IT Chief officer
- HIS Officers
- M&E Specialists
- Field Coordinators
- Administrative Assistants
- Data Validation Officer
- Field Coordinators
- Administrative Assistants
- Data Validation Officer

Summary of PIU implementation responsibilities:

1. advisory role in contracting and reimbursing providers for health services provided;
2. supporting and ensuring implementation of pilot activities as per the agreed implementation plan and timeline;
3. ensuring the active monitoring of pilot implementation in terms of performance and quality;
4. developing and operating a Health Information System (HIS) to monitor pilot implementation and achievement of pilot objectives;
5. organizing the evaluation of the pilot using monitoring indicators, analyses and other appropriate methodologies;
6. organizing and delivering the training activities for providers in the pilot, and;
7. communication facilitation between the NFZ and providers, as well as support to the providers in communication with the patients.

Summary of PIU's monitoring and evaluation responsibilities

The PIU is responsible for pilot monitoring functions, including planning, implementing, monitoring and evaluating the progress of the pilot, and preparing reports on pilot implementation. Capacity building of the PIU can be done through a combination of knowledge building activities and external technical assistance on contracting, provider payment mechanisms, monitoring and evaluation (M&E), improvement of the MIS, providing and maintaining IT equipment, etc.

Table 5. Preparation of providers for service delivery

Orientation event	The PIU familiarizes the Providers with the objectives and implementation details: training, outreach, communication, organizational and reporting changes required.
Provider Contract signing	The PIU advises on the process of signing contract with providers. The PIU participates in the readiness payment as per the payment schedule.
Provider implements readiness plan, performs outreach activities, and attends pilot trainings	The PIU sets up HIS equipment, applications, trainings, and verifies readiness of Providers
Beneficiary Enrollment & service delivery	Providers enroll beneficiaries and deliver services See service delivery arrangements for payment schedule See M&E section for more information

Monitoring and evaluation

Monitoring pilot implementation is essential for the following reasons:

- allows for early identification of implementation challenges and for timely, appropriate corrective actions to be taken;
- to regularly inform the NFZ, MoH, providers and other stakeholders of progress towards the achievement of the pilot objectives; and
- to help explain the findings of the evaluation by providing contextual information on how and why the project is or is not successful.

Quality indicators are clearly defined and measurable items referring to the structures, such as the care environment; processes, such as the care received by patient; or outcomes of care, such as mortality. (33) (34) Desirable characteristics of quality indicators include unambiguity and easy measurability; explicit definition of the population to be included and the context to which they apply; and clear linkages between process measures and health outcomes. (35) Targets monitored by these indicators should be specific, measurable, achievable, relevant and time-specific. (36)

Monitoring functions of the pilot

Establishing a monitoring system, as part of health information system (HIS), which includes:

- annual work plans, targets, outputs, indicators, and outcomes for each component;
- baseline data, if available, for each outcome indicator; and
- user friendly data entry format and built in methodology that automatically updates the targets, outputs, and signal the achievement gap to alert the implementing agencies.

The focus is on systematic data collection on specified indicators and related deliverables providing management and the main stakeholders the extent of progress and achievement of results and the use of allocated funds. The data is collected and reconciled with the provider databases with a specific focus on service delivery under the extended packages. This enables informed management decisions regarding progress towards achieving project

objectives. The program monitoring system relies on regular and accurate data collection and analyses to identify the timely implementation of activities, the achievement of intended results, and positive and negative unintended effects.

Strategic (Outcome level):

- setting benchmarks and targets to measure pilot success, and consolidating expected outputs/outcomes of all the pilot components into a unified plan to serve as a reference for monitoring performance against these benchmarks and targets;
- establishing a central monitoring and evaluation system for consolidated monitoring, measuring and reporting of pilot outcomes;
- overseeing the pilot implementation process while serving as a key liaison between pilot development and establishing of monitoring and evaluation system, as well as coordinating internally and externally with all the various stakeholders.

Program Level (Output and Input level):

- facilitating the development and implementation of specific pilot related monitoring arrangements and setting benchmarks, performance and outcome indicators for measuring success at both the strategic and programmatic level;
- developing terms of references (TORs) for external evaluation, contracting and coordinating with the external evaluator and overseeing the evaluation process;
- overseeing implementation performance of major monitoring initiatives and linking them to pilot outcomes, helping to recruit relevant experts and personnel, and recommending improvements to raise performance of these initiatives;
- ensuring the active monitoring of pilot progress in terms of performance and quality;
- collecting, compiling, and tracking data needed for the results framework; and
- ensuring the verification and validation of healthcare services at the level of providers and external health facilities.

Pilot evaluation indicators

First, a comprehensive description of the pilot's results framework is developed, after a preliminary approval of the model, containing the list of indicators for overall pilot monitoring, descriptions of each indicator, the unit of measurement, baseline and target values, frequency of data collection, and responsibility for data collection. The results framework is tracked at a mid-term review for progress and to make appropriate mid-course corrections. At midterm, the appropriateness of the targets, indicators and so forth, are assessed and if necessary, restructuring of the pilot can be considered.

An evaluation is carried out to ascertain whether the objectives of a pilot are achieved. The evaluation is carried out to measure the causal effects of the pilot which informs the NFZ's policy options for the implementation of integrated model in Poland.

Consultancy for technical evaluation

As part of the evaluation, the evaluator:

- verifies pilot progress towards the project development objectives;
- conducts an independent user-satisfaction survey to inform the results framework;
- verifies services received by beneficiaries through independently auditing a sample of health facilities for enrollment registers, volume, quality of services and reporting, and a sample of beneficiary households for verification of enrollment and receipt of services;
- determines the effect of the pilot on the household service utilization and
- evaluates the capacity of providers to deliver quality services.

The Project Management Unit provides the evaluator with the necessary baseline data to conduct the end line evaluation. Data sources include the following:

- data routinely collected from the providers through the HIS for the selected indicators in Table 8 and Table 9;
- routinely collected data on primary health care service utilization, gathered from the NFZ;
- available data on quality of services including completed quality checklists and quality indicators collected through the HIS;
- available data verifying both the quantity of care and patient satisfaction, including completed patient satisfaction questionnaires, and;
- results of any past evaluations carried out by the PIU.

To ensure effective monitoring of the above parameters, pilot program organizers must develop an appropriate IT tool to enable up to data collection and analysis of the facilities. A control group is comprised of the patients not participating in the Model 3, those enrolled with other providers, and patients enrolled with Model 3 providers who opted for the traditional model of care. It is also desirable to evaluate the quality of care in the facilities before and after the introduction of the Integrated Care model to better identify potential impacts.

Outcome indicators

The outcome indicators of integrated care, as prior discussed in previous sections, are derived from in-depth discussions on the integrated care models for Poland among the different stakeholders: patients, providers, the MoH, and the NFZ. The outcome indicators for integrated care evaluation in Poland are based on international benchmarks, but adapted for the Polish context taking into consideration the available data in Poland, and expert opinions on the reporting systems available. Instead of replacing existing reporting structures, the indicators seek to utilize these in a more efficient manner.

The characteristics of the selected indicators are as follows:

- Feasible - already collected by more than one country
- Scientifically sound – indicators are valid and reliable
- Interpretable – allowing a clear conclusion for policy-makers
- Actionable – can be directly implemented by the health care system
- Relevant – Reflect important health conditions in terms of burden of disease, cost of care or priorities of health policy

Outcome indicators are key for macro-level analyses carried out by the MoH, and can contain important information on a range of factors, both at the national and system level. However, the importance of these indicators should encourage careful assessment and time allocation for their analysis.

The integrated care Model 3 is evaluated according to several domains:

Table 6: Integrated care evaluation domains

Indicator value	Area of Evaluation	Proposed area of monitoring	Indicators
0–1	Access to care	Access to care can be measured by the access to primary health nurse and doctors	Number of days to meet community center coordinator
0–1	Care coordination	Presence of the care plan, presence of the integrated care heath team (nurse, doctor)	Presence of the care plans for the main dispensary group of patients
0–1	Care coordination	Team (by names) established and introduced to the patient and the family	Creation of the care and health team
0–1	Continuity of care	Care planning	Hospital discharge and Geriatric Assessment provided to the community care center
0–1	User experience (patients and medical personnel)	Patient's and medical personnel satisfaction survey	Survey conducted at the beginning, midterm and end of the pilot's implementation
0–1	Management and organization	Evidence based service delivery	PHC, nurse, social integrated care management tool, IT tools

Source: The World Bank.

Table 7: Output indicators

Indicator	Minimum	Maximum
Number of facilities participating in the pilots	5	10
Number of patients participating in the pilots	5.000	10.000
Community care centers created	5	10
Percentage of organizational plans implemented on PHC level	—	95%
Percentage of patients covered with the personal care plan	—	80%

Source: The World Bank.

In terms of the health care development functions, Model 3 could contribute to overall system performance as indicated in Table 7.

Table 8: The effects of Model 3 implementation on health system performance

Proximal	Intermediate	Long term
Develop individual plans of care	Reduce waiting times for specialist and rehabilitation care	Enhance the health care system experience for the elderly/ quality and safety
Increase the number of complexed cases of 65+ attached to the community nurse and PHC	Reduce readmission rates	Achieve ALC lower
—	Reduce specialist visits	
—	Reduce home visits of the PHC team	
—	Reduce unnecessary hospitals admissions	Economic efficiency gains

Quality indicators

Indicators of quality of care and coordination reported by the entity participating in the pilot.

Table 9: Indicators of quality of care

Area	Subject of monitoring	Indicator	Meaning	Measurement mechanism	Value
Structure	Primary Health Care doctors with relevant competence participating in the Model 3 pilot	Percentage of patients declared to a Family Doctor	Family medicine team's preferred model of care	Declarations of Patients under care	%
Structure	Community care nurse with relevant competence participating in Model 3 pilot	Percentage of patients declared to a community nurse	Family medicine team's preferred model of care	Declarations of Patients under care	%
Process	Waiting time for a visit to PHC in urgent cases	Percentage of patients admitted on the day of application	Limitation of NOCH and SOR visits and threats to life and health	Patients' satisfaction survey	%
Structure	Usage of IT tools	Access to the EDM for each authorized employee at the location	Indicator of the effectiveness of the exchange of medical information within GP/ PHC team and in DM programs	Declaration followed by audit results	Yes / No

Area	Subject of monitoring	Indicator	Meaning	Measurement mechanism	Value
Structure	Usage of IT tools	Access to the EDM for constituting specialists working in other locations	Indicator of the effectiveness of the exchange of medical information within GP/ PHC team and in DM programs	Declaration followed by audit results	Yes / No
Structure	Usage of IT tools	Possibility of electronic ordering laboratory tests and receiving results	Indicator of the effectiveness of the flow of medical information	Declaration followed by audit results	Yes / No
Structure	Usage of IT tools	Possibility of electronic ordering and receiving results imaging tests performed outside the institution	Indicator of the effectiveness of the flow of medical information	Declaration followed by audit results	Yes / No
Structure	Interoperability	Possibility of electronic registration of patients for services realized outside the institution (eg. scans)	Indictor of the effectiveness of coordination of medical care	Declaration followed by audit results	Yes / No
Structure	Interoperability	Access to data from ZIP for the coordinating subject	Indicator of the effectiveness of the flow of medical information	Declaration followed by audit results	Yes / No
Structure	Interoperability	Percentage of patients with valid phone numbers	Indicator of the effectiveness of communication with patients	Declaration followed by audit results	Yes / No
Result	Patient and medical staff satisfaction survey	Survey carried out at the beginning and at each year of the pilot program	Subjective assessment of quality of care, comparison with institutions outside the pilot	Survey	Determined for each question

Table 10: Indicators of coordination

Area	Subject of monitoring	Indicator	Meaning	Measurement mechanism	Value
Structure	Population of 65+ covered with care	Percentage of patients with dispensary groups	Rate of the effectiveness of patients care organization	Patient's data	%
Structure	Population of patients with the social care provided together with health care under community care center	Percentage of patients with social services provided	Rate of the effectiveness of detection of social needs	Patient's data	%
Process	Patient's individual care plans	Percentage of patients covered by the individual care plans	Rate of patient's pathways	Report of performance fulfillment	%
Structure	Care of 65+ covered by individual care plans	Possibility of electronic registration in advance for care plans	Rate of effectiveness of care delivery	Declaration and then the result of the audit	Yes / No
Rezultat	Treatment of respiratory infections	Comparison of average consumption of antibiotics in acute respiratory tract infections in representative groups of patients with institutions participating and not participating in the pilot	Indicator effectiveness of the guidelines	Data from the National Health Fund and OSOZ	Value

Developing reporting mechanisms

Reporting mechanisms are enhanced and include:

- monthly reports from providers to the PIU;
- quarterly reports from the PIU to the MoH;
- quarterly reports from the PIU to the steering committee; and
- an Annual Pilot Implementation Report, consolidating progress of the pilot implementation by each of the institutions involved, based on administrative data, survey data, beneficiary assessments and independent evaluations.

Monitoring is a continuous function carried out by the PIU, with support from the NFZ HIS team. Specifically, it comprises of two parts:

- results monitoring of the pilot using the results framework with the specified indicators, and
- evaluation of the pilot.

Health Information System Modules

The Health Information System (HIS) is an integral part of the M&E system. HIS is a comprehensive system composed of different modules (shown in Table 10) that allow providers to track the patients throughout the different phases of the pilot i.e. from outreach, through enrollment, to service delivery at the PHC level and referral services received in the other facilities.

Providers are expected to input all beneficiary related data into the HIS modules. Accordingly, the service delivery data entered by the provider in the system is the source of enrollment, baseline, administrative, utilization, medical history, and referral and indicator data for monitoring.

Table 11: HIS modules pertinent to the pilot

Module	**Function**	**Primary User (Data input)**
Outreach Module	Identify all outreach activities data including phone calls, home visits, gatherings etc. carried out to recruit beneficiaries.	Provider
Enrollment Module	Gather all enrollment data including active patients and their demographics.	Provider
Service Delivery Module	Gather administrative and service utilization data including appointments given to beneficiaries and services delivered during health visits.	Provider
Electronic Medical Record	Gather all health information related to the beneficiary including patient history, diagnosis, doctor's notes etc.	Provider
Lab results/X-ray results/Drug module	Collect all results of lab tests and x-rays performed for the patient. The drug module contains details on drugs prescribed to beneficiaries.	Provider
Referral Module	This includes data on all referrals performed by the provider to external health facilities.	Provider
Questionnaire module	This module contains all questionnaires that need to be filled by the provider or relevant PIU staff. Provider questionnaires may include a baseline questionnaire, risk assessment survey data, patient satisfaction, etc. Spot check reports and field reports by PIU field coordinators are also included here.	Provider/PIU

Module	Function	Primary User (Data input)
Training/Capacity Building Module		NFZ
Reporting module	This module allows providers to push reports to PIU, allows PIU staff to perform data analysis and produce reports on results.	No reporting needed, this module draws data from all modules

Sources of Data

Sources of data include:

- routine data collected through the claims processing system;
- data routinely collected at health facility level;
- additional data collected by providers and NFZ, such as from enrollment registers, spot checks and ad-hoc surveys;
- information collected during the verification processes; and
- data from the PIU rapid facility assessment.

Information Technology

Information technology is a vital element of support for integrated care system. Different providers having access to patient information, in real time, strengthens patient's safety, quality of care and facilitates coordination across different settings. Patient's data should be collected and managed by the primary care facility and nursing and care office.

The IT infrastructure and software should include:

- remote management capabilities (telephone, email, home monitoring);
- care plan and case management tools with remote communication based in the community care center and PHC, and;
- an electronic medical record to ensure continuity and integration of care/ reporting systems.

A potential area of innovation that can be introduced to support Model 3 implementation is telemedicine. A telemedicine program typically includes a centrally managed, customized portfolio of service lines such as TeleTrauma, TeleRx, TeleStroke, TeleMental, TeleConsult, and other interoperability solutions for exchanging patient information across care settings.

By including post-acute care in interoperability strategies, healthcare organizations can ensure that critical patient information across all care settings is connected, providing a more comprehensive patient history for specific treatment plans and improved patient care.

Information on individual nursing, rehabilitation and care plans should be digitalized covering:

- the number of prescribed home visits, services provided, etc.;
- the number of actual home visits, services provided, etc.;
- the type of medical, nursing, physiotherapists consultations;
- number of periods of hospitalization;
- morbidities;
- medicaments used, and;
- the cost of services provided.

This combined data can create a digitalized nursing and care card for the patient.

Another important consideration is the potential for new information technologies as prevention tools that would allow monitoring of health indicators of care recipients. These would include IT tools provided to patients at home, assisting in everyday life, and monitoring their activities. Examples of such tools include watches that monitor blood pressure, sleep, falls, etc. Implementation of such tools would allow the increased safety of patients, streamline interventions to periods when they are necessary, and in the long-run, decrease costs of medical treatment.

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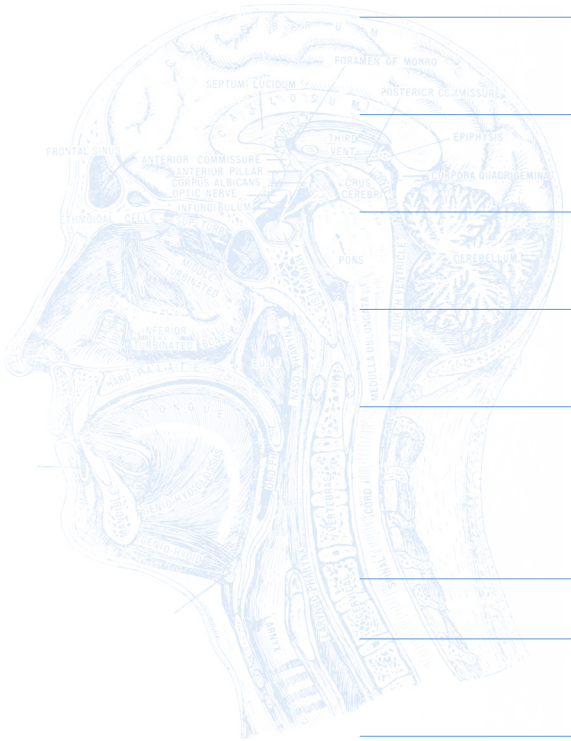

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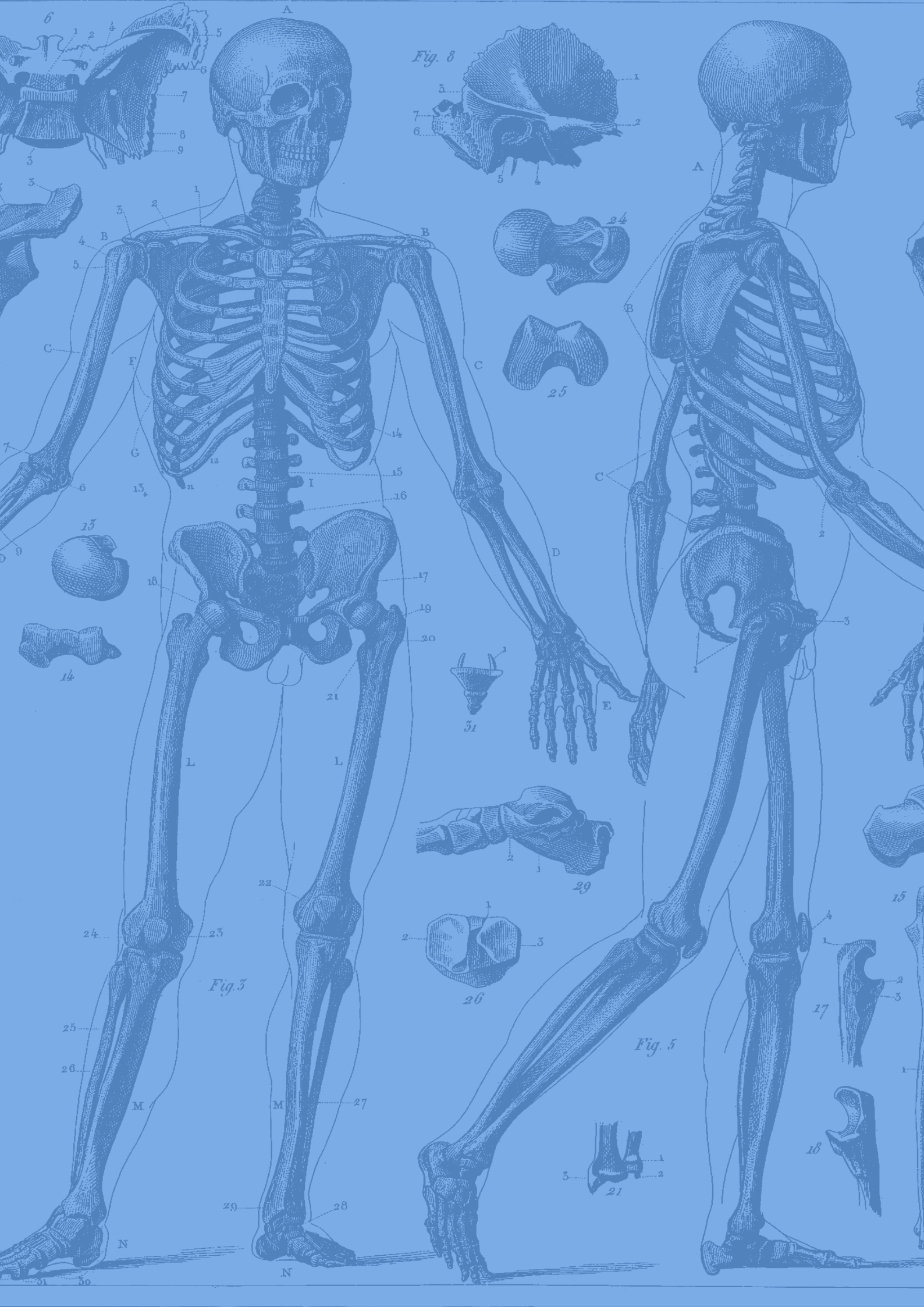
Fig. 3
Fig. 5
Fig. 8