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Research Report

Health status, functional limitations and disability: Changes in Poland

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CASE Network Studies & Analyses

Health Status, Functional Limitations and Disability: Changes in Poland

Stanisława Golinowska
Agnieszka Sowa

No. 447/2012



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Contents

Abstract	4
Introduction	5
1. Health Status	6
1.1. Average Life Expectancy.....	7
1.2. Mortality.....	11
1.3. Chronic Diseases.....	14
2. Disability	19
3. Determinants of Disability	22
3.1. Disability Determined by Genetic Diseases, Perinatal Injuries, and Early Childhood Diseases	23
3.2. Disability Determined by Accidents and Injuries.....	25
3.3. Disability Determined by Chronic Diseases.....	29
Conclusions.....	31
References.....	33

Stanisława Golinowska, a professor of economics, is a co-founder of CASE – Center for Social and Economic Research and Vice Chairwoman of the Council of the Foundation, where she conducts her research. She graduated from the Faculty of Economics (Warsaw University) and studied at the Mannheim University as a scholarship - holder of the Humboldt Foundation. During the years 1991 – 1997 she was a director of the key research institute in the field of the labour market and social affairs – IPISS in Warsaw. She was also a Director of the Institute of Public Health, Jagiellonian University Medical College (Cracow, Poland), where she still is an academic professor and well known researcher. Stanisława Golinowska is the author of numerous articles and books on social aspects of economics and social policy reforms. She was the initiator and coordinator of the debate and projects on reforming such fields as the labour market, pension system, health care, social assistance and the development of NGOs and social dialogue. Based on that she participates in advisory and expert works at the country and international level.

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Abstract

The social changes in Poland over the last two decades have had an impact on many dimensions of life, including on important elements of human capital, such as health and functional and instrumental daily activities. This article contains an overview of the available data and indicators on health status, morbidity and disability. It presents the changes in the level of functional and legal disability and aims to show the reasons for these trends. Functional disability is highlighted as one of the major challenges for social and health policy in the next few decades in the context of dynamic aging.

Introduction¹

The social changes over the last two decades in Poland, which affected many dimensions of human life, led to the formation of a 'new' society with a highly modified structure. These changes have affected both the demographic characteristics and living conditions of the population, as well as the 'content' of the human capital: qualifications and health.

A deeper analysis of the structural changes in Polish society makes it possible to show a more complete picture, in which there are bright and colourful planes, but also dark ones, threatening future development. On the one hand, there have been vast improvements in people's living conditions, but on the other hand certain gaps have broadened, excluding whole groups from mainstream society. The average level of education has increased, but at the same time its quality is too low to make the increase in people's qualifications bring about beneficial and significant effects for the labour market. This ambiguous effect also applies to health, to which this article is devoted. On the one hand, a historical epidemiological change has occurred, evident in the reduced mortality from cardiovascular diseases, especially ischemic heart disease, which for years was the main cause of mortality in Poland, including the phenomenon of excessive levels of male mortality. On the other hand, problems have arisen related to quality of life since longer life spans mean that more and more people are affected by chronic diseases, and, as a result, have become less efficient and less independent.

The presentation of a fully documented picture of the health status and limitations in functional ability of the Polish population is particularly desirable at present, because longer life spans have become an argument for the political actions taken, leading to an increase in the retirement age. In this situation, the question regarding the health and disability of a population that is not only living longer, but is also professionally active for longer, is particularly appropriate.

¹ Inspiration for this paper was provided by the questions the authors were asked by the partners of the 7th EU Research Framework Programme devoted to long-term care - ANCIEN - <http://www.ancien-longtermcare.eu/>, and particularly by Luc Bonneux, MD, PhD, of the Netherlands Interdisciplinary Demographic Institute (NIDI) and Dr. Esther Mot of the CBP Netherlands Bureau for Economic Policy Analysis. The questions concerned the health status and actual level of limitations to functional ability of the Polish population, given the fact that the health status and disability indicators for the Polish population in European research surveys rank Poland very low compared to the rest of the EU. The authors would like to thank Professor Antonina Ostrowska of the Polish Academy of Sciences for her interest and especially for her remarks on this text, which have been taken into account.

The main problem that requires clarification concerns the scale of disability in Poland. Studies conducted in European countries using a standardized methodology (EHIS, SHARE, and EUSILC) indicate a high prevalence of chronic diseases and disability in the so-called immobile productive age (46-64) in Poland. However, national studies have not always confirmed those results, and official statistics on the reduction of the number of disability benefits granted suggest a decrease in health problems and disabilities.

Nowadays, there is data and a number of research projects on the health status and disability of the population in Poland that outline the overall picture and point to the trends that will bring about demographic and civilizational changes, often in spite of the current medical advances. These data are diverse in character and range, which means that many authors take up their own research, adding to the picture or trying to explain it in a comprehensive manner for a selected group of the population. The results of such research are not always consistent, especially in relation to the scale of problems. This requires identification and explanation. For this reason, in this paper we perform a review of the results of numerous studies, compare them, and explain the contradictions and ambiguities. The review covers national and international research, including the authors' own research on the health and disability of the population, with particular emphasis placed on the part of the population referred to by demographers as the population of labour market inactive age.

1. Health Status

For many years, regular statistical and epidemiological surveys of the health status of Poles have been carried out. The main indicators which are used for this purpose are: average life expectancy, mortality by causes, mortality by age and sex, including infant mortality. On this basis, estimates of life expectancy in good health are also made (no disability - for example, HLY), as well as estimates of premature mortality (living up to a specific age - e.g. 70 years PYLL). The basic research in this field, in terms of official statistics, is carried out by GUS – the Polish Central Statistical Office². In addition, both in the official statistics and surveys sponsored by international organizations, numerous surveys have been conducted that allow for a detailed

² In particular, the annual study cycle, "Trwania życia ludności Polski" ["The Life Expectancy of the Polish Population"], and cyclical GUS representative surveys, "Stan zdrowia ludności Polski" ["The Health Status of the Polish Population"] of 1996, 2004, and 2009, and "Ochrona zdrowia w gospodarstwach domowych" ["Health in the Household"] of 1998, 1999, 2003, 2006, and 2010.

assessment of the health status and limitations in the functional ability of Polish citizens, some of which are representative and have a common methodology, which allows for comparative analysis (mainly European, e.g. EHIS, SHARE). Based on the available data sources, various detailed analyses and reports on the health of Poles have been prepared by the Polish National Institute of Public Health - National Institute of Hygiene³, and numerous experts' original studies have been developed by the Institute of Public Health of the Medical College of the Jagiellonian University in Krakow, the Warsaw School of Economics Institute of Demography, the Polish Academy of Sciences, and others.

1.1. Average Life Expectancy

These analyses show that one of the most important achievements of the past two decades is the improvement of the average life expectancy in Poland. However, the indicators in this area are still lower than in the EU-15 (Figure 1); the difference is 6.61 years for men and 3.44 years for women.

Life expectancy in Poland improved in 1990-2009 by an average of about 5 years. The significant decrease in infant mortality had an important impact on the improvement in life expectancy. The decrease in infant mortality was caused by the general improvement in living conditions and also by the improvement in health care for mothers and children during pregnancy and in the postpartum period.

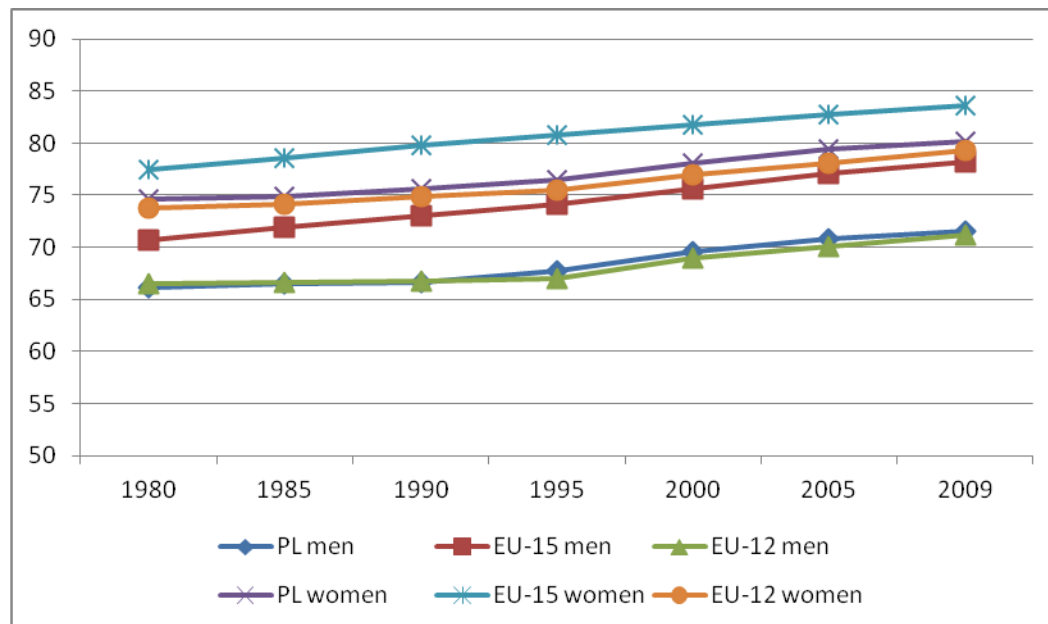
The rate of improvement in life expectancy was slightly higher for men than for women (5.03 and 4.57 years, respectively) (WHO 2012). The higher improvement rate for men is a compensation for the stagnation and "health crisis" of the 1980s (Okólski 2004), when there was a high level of mortality of men of working age. Among women, the improvement in the indicators of life expectancy over the last two decades was slightly lower, although higher than in other European countries (both EU-15 and EU-12). Despite the positive trend, it is worth paying attention to the significant diversity of the average life expectancy, beyond the cross-section according to sex or place of residence:

- Poland has one of the highest life expectancy gaps between men and women in Europe (in 2009 it was 8.6 years, while the EU-15 average was 5.43 years). This significant difference in average life expectancy is due to the premature mortality of men, which, in the modern period, is caused mainly by degenerative (heart disease

³ For example, the study "Stan zdrowia ludności" ["Health Status of the Population"]
<http://www.pzh.gov.pl/page/index.php?id=940>

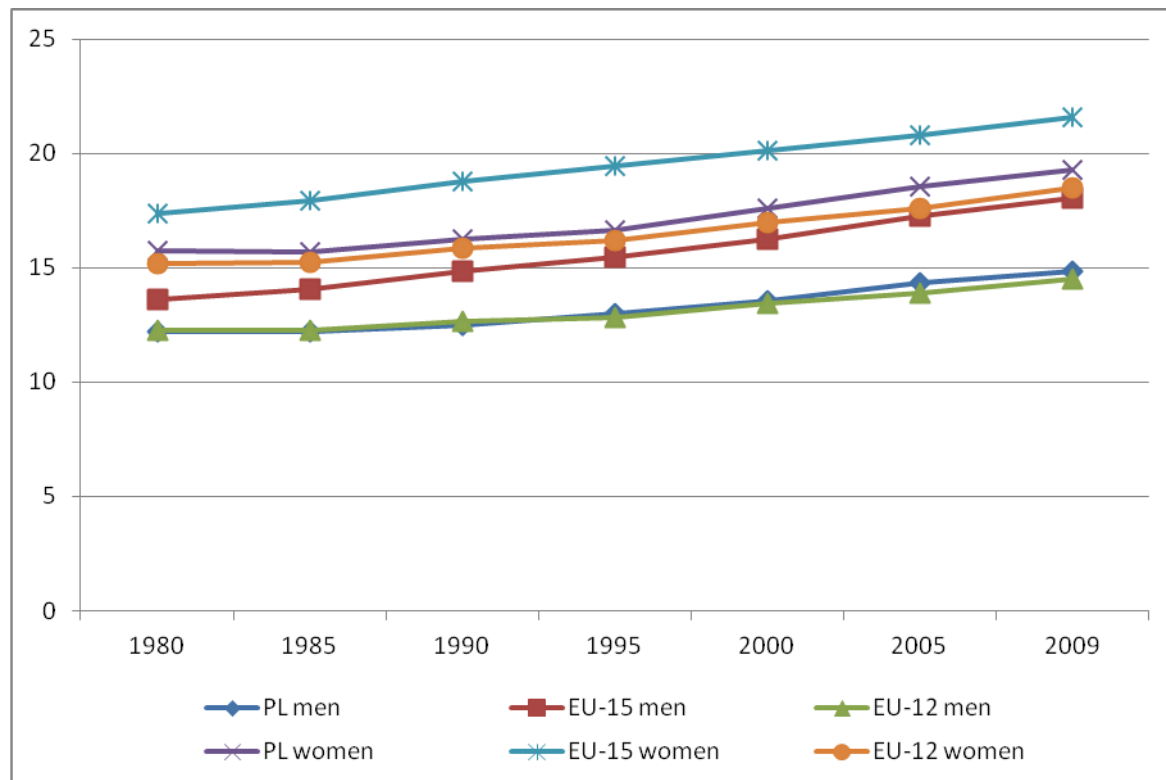
and cancer) and respiratory diseases (Fihel 2011). This list must be supplemented by the relatively high mortality due to external causes, which intensified in the 1980s. Men's premature mortality in the period preceding the political transformation is attributed to factors associated with men's poor lifestyle choices (alcohol consumption and smoking), and poor working conditions (Golinowska, Sowa, Topór-Mądry 2006). Although in the 1990s the difference in average life expectancy between men and women began to decrease, it remained very high compared to other European countries due to the high frequency of mortality of men aged 45-54 (Goryński, Wojtyniak 2008).

- Significant differences in average life expectancy are observed between regions (*województwa*) and between rural and urban areas (Golinowska et al. 2011). The province-related differences in life expectancy also apply to the rate of improvement of people's health in different regions of the country. In each of the regions the state of health is improving, but in the West and North of the country the rate of positive changes in life expectancy is higher than in the other regions. At the same time, life expectancy differences between regions are greater for men than for women, but - on average - women in urban areas enjoy a longer life than men living in rural areas. In turn, slightly more favourable health indicators are recorded for women in rural areas.

Figure 1. The average life expectancy, 1980-2009

Source: European health for all database (HFA-DB), World Health Organization Regional Office for Europe, updated in May 2012, retrieved June 5th, 2012

Positive changes in average life expectancy also occurred in the elderly population, over 65 years of age. In this age group, the indicator of life expectancy continues to increase, albeit at a slower rate than for the general population. Overall, in 1990-2009, the average life expectancy for elderly men increased by 2.32 years and by 2.99 years for elderly women.

Figure 2. Average life expectancy at 65, 1980-2009

Source: European health for all database (HFA-DB), World Health Organization Regional Office for Europe, version of May 2012, retrieved June 5th, 2012

The rate of improvement for the indicators of average life expectancy began to decline after 2004 both for women and men.

A longer life, however, does not necessarily mean life in good health. International organizations are attempting to estimate the average number of years of life spent in good health, meaning without suffering from disability or chronic diseases, using demographic, epidemiological, and survey research data (the indicator proposed by the WHO is the Disability Adjusted Life Years / Expectancy [DALY / DALE] and the indicator proposed by the European Commission and Eurostat is Healthy Life Years [HLYs]). These indicators are still being improved due to the sensitivity of the statistical methods of collecting survey data and they are not fully comparable with each other or in terms of subsequent years, however they do present an approximation of effective health and quality of living (not only length) of the populations of European countries.

Table 1. The average life expectancy in good health (HLYs) in Poland and the EU, 2009

	At birth				At the age of 65			
	Years of life spent in good health (HLYs)		Share in relation to the average life expectancy (LE)		Years of life spent in good health (HLYs)		Share in relation to the average life expectancy (LE)	
	men	women	Men	women	men	women	men	women
EU-27	61.3	62.0	79.9	75.1	8.4	8.4	48.6	40.2
Poland	58.3	62.5	81.5	78.0	6.9	7.7	46.6	40.1

Source: Eurostat⁴

Eurostat data shows significant differences between average life expectancy and life expectancy in good health, but the differences are greater for the elderly than for the general population. Although the estimates presented indicate that the share of life expectancy of the Polish population in good health within general life expectancy is above average for the enlarged European Union (especially women), the elderly (65+ years old) spend only 40% of their lives in good health. These results, especially for men, are well below the European average. It is worth noting that health differences are significant across all of Europe; the best health is enjoyed by people in Scandinavian countries, and the worst by people in Central and Eastern Europe, including, in particular, the Baltic countries (Golinowska et al. 2011).

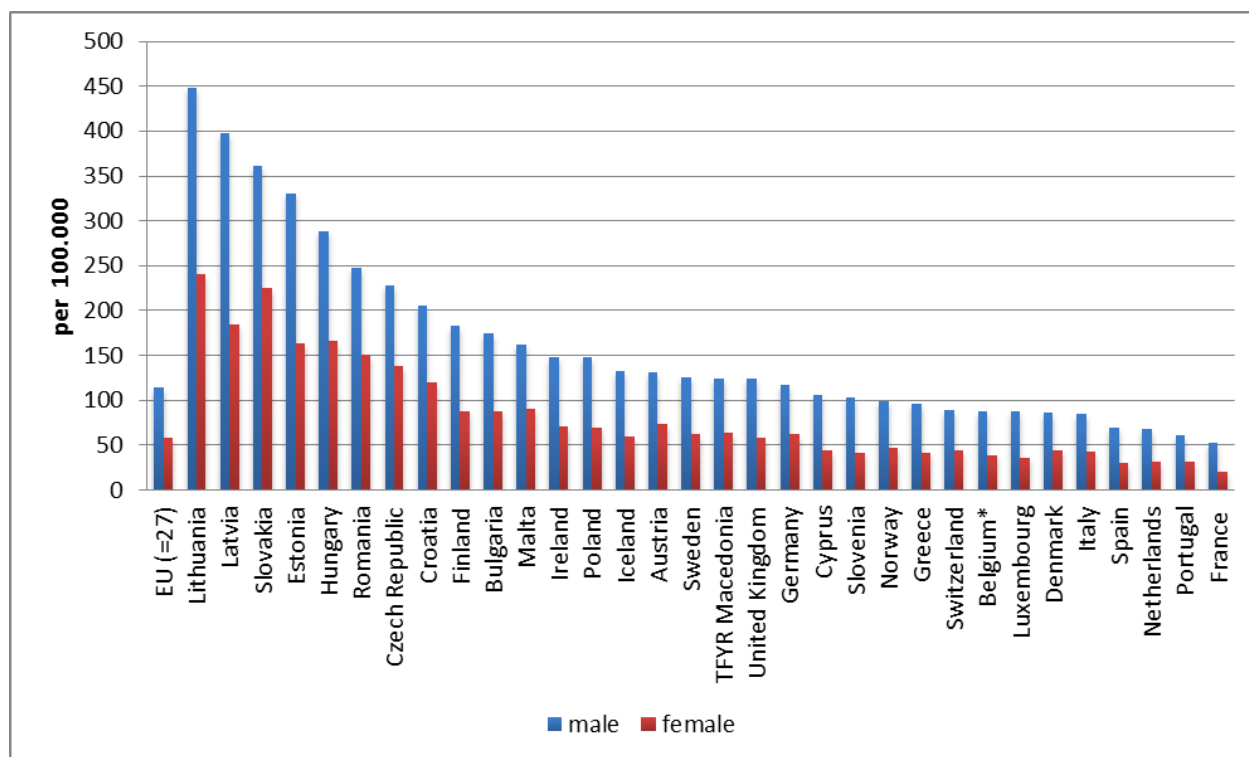
1.2. Mortality

Improving average life expectancy is associated with a decrease in mortality. This phenomenon has been observed in Poland since about 1992. Since 2002, the rate of decline in mortality rates has been decreasing, which can be explained by the high current rate of population ageing.

The improvement in the epidemiological situation over the past 20 years in Poland has been associated with a decrease in mortality from cardiovascular diseases, which have been, apart from cancer, the dominant cause of death. The chart below shows the favourable location of Poland in the ranking of European countries in terms of mortality rates for ischemic heart disease in 2008. In 1990, Poland was no different in that respect from other post-communist countries.

⁴ http://epp.eurostat.ec.europa.eu/portal/page/portal/health/public_health/data_public_health/main_tables data retrieved on 10th June 2012

Figure 3. Mortality rate for ischemic heart disease per 100 thousand population in European countries in 2008



Source: Eurostat 2011

The decline in mortality and the incidence of cardiovascular disease have been substantially impacted by the lifestyle changes among adults (Zatoński et al. 2008). In particular, the decrease in cigarette smoking and the reduction in drinking habits and diet changes (including restrictions on the consumption of animal fats in favour of vegetable fats and the consumption and increased availability of fruit and vegetables year round) have improved the overall health of the population. Legislative changes driven by European policies (a ban on smoking in public places, pricing policies, etc.) have had an affect on these changes in lifestyle. They are also the result of the more recent fashion of not smoking and leading a healthy lifestyle.

The epidemiological situation in relation to cardiovascular disease, and coronary heart disease in particular, has improved largely thanks to beneficial changes in cardiac care. In addition to increased access to medicine, the organization of diagnostics has improved significantly, along with medical intervention timing in the case of heart attacks. According to specialists (Drygas 2012), the priority programmes with special financing were especially important for the favourable health policies aimed at combating cardiovascular disease. In the years 1993 – 2001, the National Programme of Protection of the Heart and Vessels (Polish: Narodowy Program

Ochrony Serca i Naczyń - NPOS) was implemented, followed by the National Programme for the Prevention and Treatment of Cardiac and Vascular Diseases: POLKARD (Polish: Narodowy Program Profilaktyki i Leczenia Chorób Układu Sercowo-Naczyniowego POLKARD) in 2003.

The second cause of mortality in Poland (and other high- and middle-income countries) is cancer. The mortality rate from cancer is relatively high. This is influenced, on the one hand, by the dynamic ageing of the population, as cancer is more common in older populations, and on the other hand, by the limited effectiveness of medical interventions. In the case of cancer, the most unfavourable indicator for Poland is the so-called 'population mortality' indicator, which is the quotient of the number of deaths from a given disease to the number of new cases of the disease within a year. In Poland, this indicator is high in regard to cancer (over 70%⁵ - it is only higher in Romania). More importantly, the pace of improvement is slow. The relative survival rate in the case of cancer in Poland is comparatively low - the lowest in Europe⁶. In medical studies it is assumed that low survival rates also reflect the poor quality of medical care in a given field.

In Poland, overall mortality rates and those for various diseases differ significantly with regard to age, gender, and region of the country. In the case of cardiovascular disease, there is a higher mortality rate among men in the labour market active age. In contrast, women are affected by cardiovascular disease after reaching 65 years of age (White 2011). Also, men are more likely to die of cancer, and die more frequently at younger ages than women. The most common forms of cancer are lung cancer among men and breast cancer among women (Kozierkiewicz et al. 2011).

There is also a variation in mortality in the cross-section of social groups (Sowa 2011), but there is no systematic research that would allow the observation of trends here.

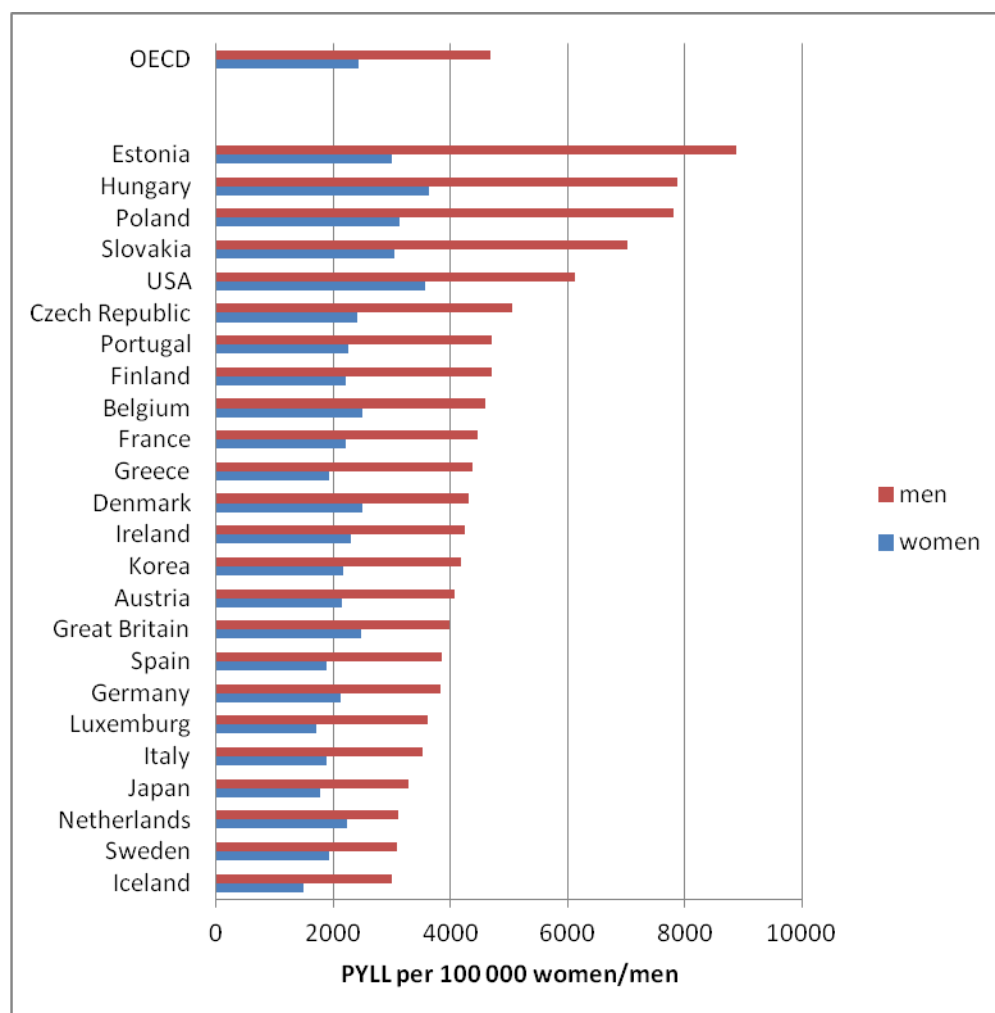
The mortality analyses have also looked at premature mortality (before the age of 70) using a specially constructed index of Potential Years of Life Lost - the PYLL. This indicator is high for Poland, well above the average for the OECD countries. OECD analyses show that high PYLL rates are often associated with high infant mortality. In Poland, infant mortality has decreased significantly over the past two decades, while the high mortality rate among people of working age (especially men) caused by cardiovascular diseases, cancer, and accidents is still an important issue.

⁵ In Western Europe it is 40-60% (Kozierkiewicz et al. 2011).

⁶ Extensive European research on cases of malignant tumours, derived from the national registers of these diseases in the years 1995 - 2003, were carried out under the EURO CARE IV project (Santa et al. 2009).

Although the PYLL index value continues to be much higher for men than for women in the OECD, in Poland, as in other countries of Central and Eastern Europe (except the Czech Republic), its value is more than twice as high for men as it is for women.

Figure 4. PYLL index value by gender in European countries, 2009 (or latest available data)



Source: OECD Health Data 2011

1.3. Chronic Diseases

Longer average life expectancy is accompanied by the occurrence of chronic diseases.⁷ Overcoming infectious diseases (except malaria in poor countries, and HIV/AIDS) is an

⁷ A comprehensive article on chronic diseases can be found in *Zeszyty Naukowe Ochrony Zdrowia* of the Jagiellonian University of 2011 (Topór – Mądry 2011).

expression of the so-called epidemiological transition, also referred to as the second epidemiological revolution. Currently, in developed countries it is not infectious diseases, but non-communicable diseases, including chronic diseases, which constitute the essential healthcare problem.

Improvements in the survival rates of those suffering from cardiovascular disease and cancer (presented above) often mean that the salvaged years of life are not of very high quality. Survivors also tend to be burdened with limited functional abilities. Analyses of that burden are made with the use of the DALY index (*disability-adjusted life year*). This index gives information about the differences in health status by combining information on premature mortality with information on the number of lost years of life in good health due to disease or disability. One DALY is equivalent to the loss of 1 year of life due to illness or disability, and in the case of the DALY for selected chronic diseases, the index should be interpreted as an indicator of total lost years of life in good health due to the occurrence of that disease.

Table 2. Burden of chronic disease measured in DALY, millions of years

Group of diseases	In middle-income countries	In the European Region	In countries with the highest income
Ischemic heart disease	28.9	16.8	7.7
Brain vascular disease	27.5	9.5	4.8
Unipolar depressive disorder	29.0	8.4	10.0
Dementia and Alzheimer's disease	~ ~	8.4	4.4
Alcohol use disorder	14.9	7.1	4.2
Cirrhosis		3.1	
Chronic obstructive pulmonary disease	16.1	3.3	3.7
Other respiratory diseases and lung cancer	~ ~	3.7	3.6
Infectious respiratory diseases	16.3		~ ~
Bone and joint diseases and osteoporosis	~ ~	3.1	
Damage to sensory organs	~ ~	3.9	4.2
Diabetes	~ ~	2.3	3.6

Source: WHO 2008

The WHO analyses indicate changes in the epidemiological pattern of different regions of the world in terms of economic development. In developed countries, the most prevalent epidemiological burden is mental disorders. These are also becoming increasingly wide-spread in European countries. It is worth noting the high burden of aging-associated diseases in Europe, a region with the highest share of elderly people in the population and the highest rate

of ageing. In European and mid-level developed countries (Poland being in the latter group), alcohol abuse continues to be a visible burden. Ischemic heart disease and stroke continue to be at the top of the DALY-measured burdens.

Osteoarticular diseases and diseases of the spine constitute the most serious threat to functional abilities (mainly mobility) in Poland. They are the underlying cause of progressive disability with age. In this group of chronic diseases, there are about 200 types of diseases, which primarily include: inflammatory rheumatic diseases and osteoarthritis of the spine and peripheral joints, and osteoporosis. Osteoporosis and its consequences, leading to permanent disability, constitute a specific medical, social, and economic problem (Czerwiński 2011).

Diabetes, which often leads to complications, is an epidemiologically burdensome chronic disease. It is estimated that in the near future, about 5% of the population will be affected by diabetes (Karnafel 2011). An increased epidemiological risk factor for Poland is posed by the obesity epidemic among children and youth. National research conducted by the Polish Child Health Centre within the OLAF project shows that 18% of boys and 14% of girls aged 7 to 18 are obese (Pilonis 2010).

A serious threat to the quality of life of the population is posed by mental disorders and diseases associated with cognitive limitation - dementing illness.

Psychiatric disorders in Poland are not sufficiently monitored and evaluated. Information is available on the admissions to public mental health care institutions in the health sector, collected by the Institute of Psychiatry and Neurology in Warsaw⁸. These data indicate that the level of admissions by outpatient mental health care clinics has an increasing trend, with a predominance of first-time admissions. It is estimated that about 4% of the population seek advice on mental health in public hospitals and clinics (Wciórka, Wciórka 2006). There is no information on admissions into non-public institutions, and judging from the rapid development of such facilities, the demand for advice on mental health is significant. The results of public opinion surveys also point to such conclusions. Respondents in research held on a regular basis (every few years) by CBOS⁹ draw attention to concerns about their mental health. Although most Poles have always been afraid of cancer, heart attack, and AIDS, during the period 1996-2008,

⁸ The Institute of Psychiatry and Neurology develops its statistical yearbooks including information on psychiatric and neurological institutions of health care.

⁹ CBOS (1996, 1999, 2005 and 2008); in the studies of those years the survey question was: what diseases do Poles fear the most?

the share of anxiety due to the possibility of mental illness had a tendency to increase. Among the primary causes of mental health concerns, the CBOS survey respondents identified work-related problems, unemployment, difficulty keeping a job, bad treatment at work, and stress related to high work intensity. Another reason is the concern over the occurrence of crises in the family, followed by concerns about the emergence of addiction and poverty. Quantitatively less significant responses also pointed out the stresses of modern life: living in a hurry, constant competition, poor interpersonal relations, and uncertainty about the future (CBOS 2008).

Earlier information and analyses indicated that the major mental health problem in Poland was mental disorders associated with alcohol abuse and addiction to alcohol. There are several indications in modern research (eg, the European SHARE study mentioned above and European Working Conditions Surveys EWCS) that currently, mental health problems are associated not only with substance abuse (particularly alcohol), but also increasingly include depression¹⁰, the occurrence of which is greater in Poland than the average in other EU countries. Depression occurs especially in the group of people in the labour market inactive age¹¹. It is difficult to provide a clear answer as to why there is such a high occurrence of depression in this group. It is the highest level in the European countries surveyed. Some guidelines are provided by the results of national surveys (e.g. the CBOS research survey quoted), which draw attention to anxieties associated with lack of employment and income from work (and the period of the life cycle at the age of 45 - 50 is the beginning of the phase in which one usually leaves the labour market), with the 'empty nest' phase at home, or with limitations of access to doctors when health needs are greater. Antonia Ostrowska (2012) also associates it with changes in the political system and the difficulties of adapting to market economy mechanisms. *"This does not mean, of course, that Poles living in the previous socio-political system were free from the anxiety and stress of everyday life. However, in contrast to the dangers of the past period (which were less conscious and yet more predictable, easier to grasp and structure) contemporary risks do not lend themselves to rationalisation quite as easily. In doing so, they disturb the everyday sense of security, threatening health."*

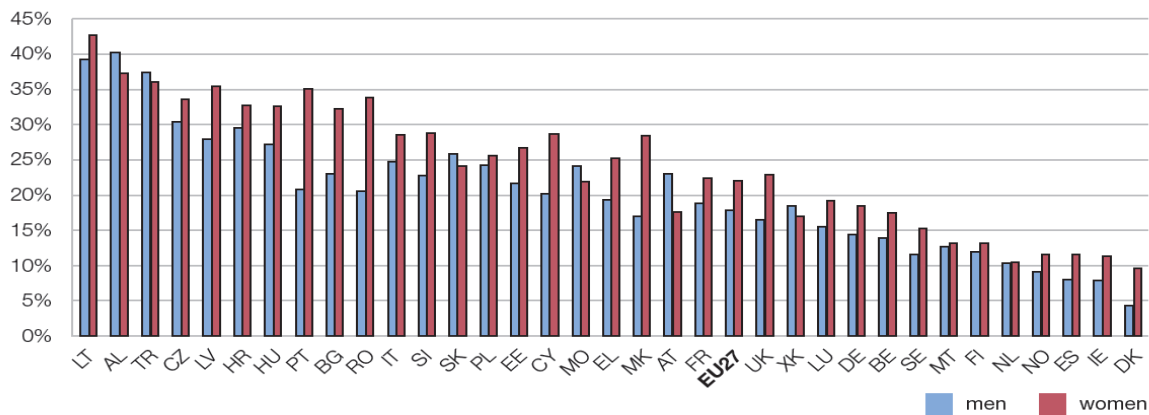
There are also many indications that the sources of modern day high stress levels are the difficult conditions and relations at work, which have an impact in terms of high mental health costs (e.g. Hryniewicz, 2007). This has been confirmed by the results of the European Working

¹⁰ European studies on the assessment of mental health utilize the WHO -5 index, based on the following three characteristics: (1) positive mood (good spirits, relaxation), (2) vitality (being active and waking up fresh and rested), and (3) general interests (being interested in things). Answers are placed on a scale of 0 to 25. A score below 13 indicates the existence of mental health problems and requires a test for depression.

¹¹ The population in the SHARE study are people over 50 years of age.

Conditions Surveys (EWCS - Eurofound 2012), which point to the high mental health risk at work. In general, in European countries that risk is higher among workers with low skills and those engaged in agriculture, and in cross-gender terms, it affects women more than men. The graph presented below shows that Polish workers assess the risk as higher than the average in the EU-27.

Figure 5. Percentage of employees declaring a mental health hazard in the workplace



Source: Eurofound 2012, based on the European Working Conditions Surveys (EWCS)

However, that has not been confirmed by the epidemiological studies conducted on the basis of general admissions to mental health facilities. In comparative terms, those do not confirm the scale of the threat indicated in European research surveys. That being said, admissions to mental health facilities have doubled in Poland over the past twenty years. Yet we know that the information on admissions is incomplete; there is missing information about the non-public part of the psychological and psychiatric care. Concern over the poorer state of mental health as reported by medical specialists in psychiatry led to the development and adoption in 2008 of the National Mental Health Programme (Polish: Narodowy Program Ochrony Zdrowia Psychicznego). Its implementation in the period of the general financial crisis, however, faces serious financial barriers.

With population aging, the risk of dementing illnesses rises. The results of meta-analysis show that the risk of dementia doubles with increasing life expectancy. Upon reaching 65 years of age, the dementia risk factor doubles every 5 years, reaching - with the age of 85 - 20% to 25%

in European countries.¹² Dementia has several forms. One of them is Alzheimer's disease, which accounts for 50% to 75% of cases among the types of dementia (Prince, Jackson 2009). It is a disease with a high epidemiological burden, leading to disability and dependency in old age.

2. Disability

The assessment of the scale of disability as a phenomenon depends on the definition used in statistical surveys. The list below presents examples of indicators derived from European studies (EU-SILC, SHARE, and EHIS) and the OECD database, showing the various definitions and the corresponding index levels for Poland, and the average for the group of countries surveyed. When disability is considered a long-term illness, especially a chronic one, it is reported by as many as half of the Polish population (GUS/EHIS 2011). An equally high rate of disability applies to people aged 55-64, when disability is defined as decreased activity lasting longer than 6 months. Self-assessment of health status in the population gives a scale of 1/3, and self-assessment of activity limitations at ages 24-64 - 16% of the population. When disability is defined as limited functionality, European statistics for Poland give it a rate of 23%, with a tendency to increase. The reduction in independent functioning (ADL and IADL) in the population aged 50 and over is 16 -17%, and is significantly higher than the average for the European countries. When analyzing the share of people with disabilities and chronic diseases in the population based on sample surveys, one should be aware of the possible emergence of differences arising from the different scope and target group of the individual studies and their representativeness for the entire population.

¹² According to European Studies (EURODEM) of the 1990s that had a meta-analysis character (Lobo et al. 2000). Later, while pointing out the difficulty of diagnosis and recordkeeping of dementing disorders, the studies signaled the increased frequency of such disorders with age and the limited scope of prevention.

Table 3. Occurrence indexes for disability and long-term illness

Occurrence of disability or long-term (chronic) diseases	Poland	Average for the given group of countries
Share of population with long-term problems or chronic illnesses lasting at least 6 months. EHIS / GUS * study	43% (problems) 55% (diseases) (2009)	31% (problems) (2008) EU-27
Share of population indicating their health level as being less than good in the general population. EHIS / GUS study	34% (2009)	33% (2008) EU-27
Percentage of people with chronic illnesses or long-term health problems in the general population. EU-SILC survey	32.0% (2007)	30.7% (2007) EU-27
Percentage of people with limitations in daily activities lasting more than 6 months among people of working age: 24-64 EU-SILC survey	16.0% (2009)	17.5 (2009) EU-27
Percentage of people with reduced life activity lasting more than 6 months aged 55-64 among the people in that age group EU-SILC survey	53.4%	37.5% (2009) EU-27
Percentage of people with functional limitations aged 50+ among the people in that age group ADL IADL SHARE Study * ¹³	16.3% (2006) 16.7%	6.9% (2006) 9.1% EU 12 countries
Percentage of population aged 20-64 receiving disability benefits. OECD data (OECD 2009)	7.0 (2007)	5.8 (2007) 28 countries

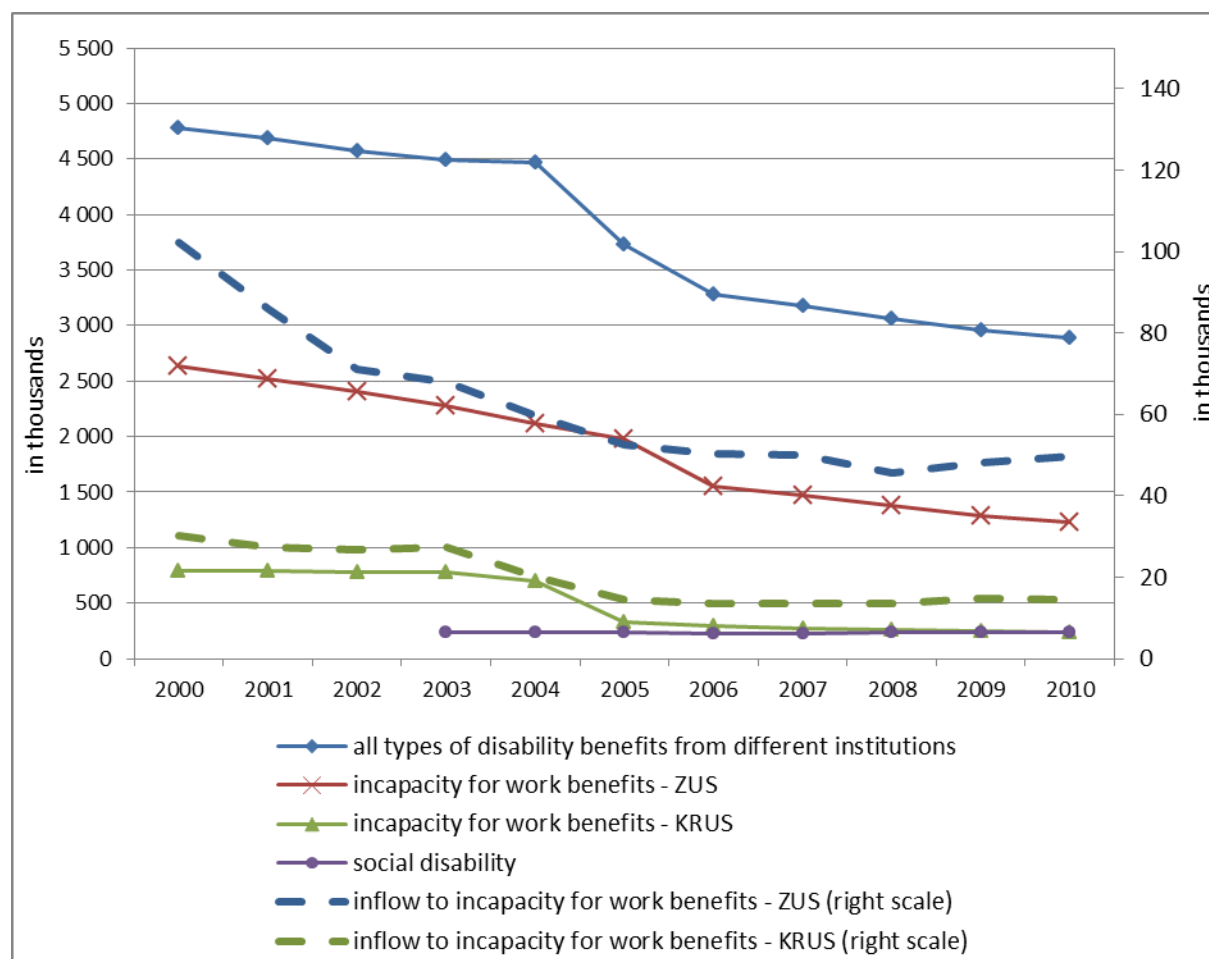
Source: summarized from - Golinowska 2012

¹³ For example, EHIS studies are representative, and the questions were directed to the entire population over 16 years of age. The SHARE studies, as mentioned above (footnote 8), are performed in the population over 50 years of age. The experts responsible for the implementation of SHARE in Poland (M. Myk and R. Topór-Mądry) indicate the problem of representativeness of data due to the larger share of the rural population in the sample, which is characterized by a significant burden of chronic diseases (the authors met the experts on 17th and 18th May 2012)

Based on the data it appears that, with one exception, every disability index in Poland is higher than the average in the EU countries, and especially in the OECD countries. Particularly large differences concern the population over 50 years of age.

At the same time, in Poland we are seeing a falling trend in the occurrence of legal disability, i.e. disability assessed on the basis of a disability certificate and / or incapacity to work due to disability certificate. The graph below shows the decline in medical certificates issued stating the existence of disability or incapacity to work, and / or entitlement to disability benefits. The downward trend is related to the so-called certificate reform of the late 1990s, which increased the accountability of medical examiners for the accuracy of their opinions, and also with a statistical change (2004 - 2006) involving assigning the recipients of disability benefits of retirement age to the retiree group.

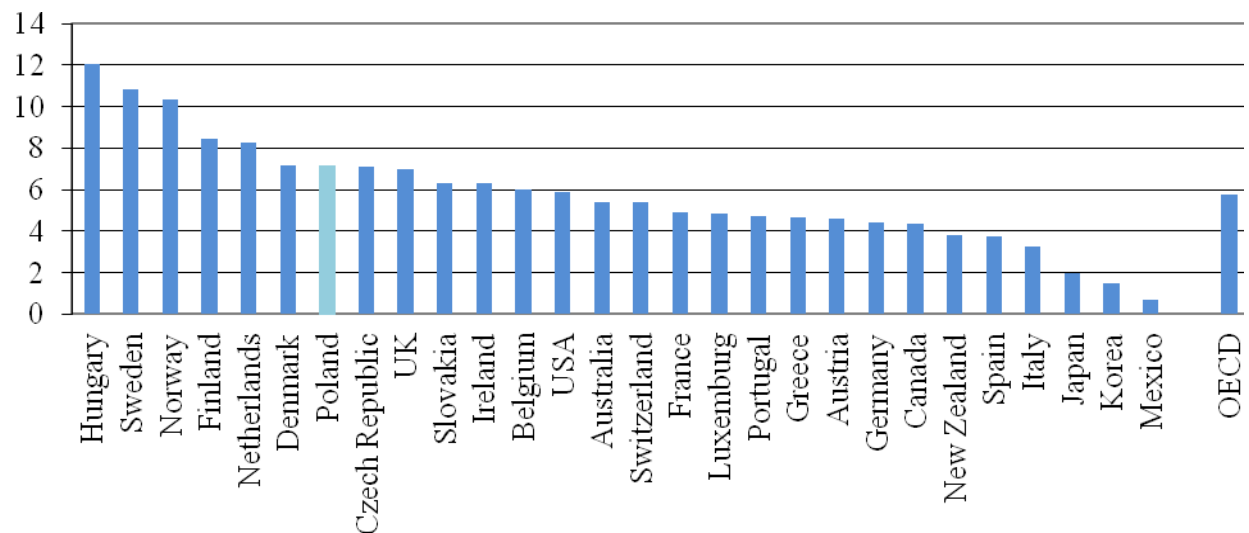
Figure 6. The number of recipients of disability benefits in a given year, for all institutions granting disability benefits



Source: GUS 2011

Despite the downward trend, the rates of legal disability in Poland are relatively high. The comparisons between countries show that such rates are also higher than the average for the OECD countries (see figure below).

Figure 7. Share of recipients of disability benefits in the population aged 20-64 in OECD countries, 2007 (or latest available data)

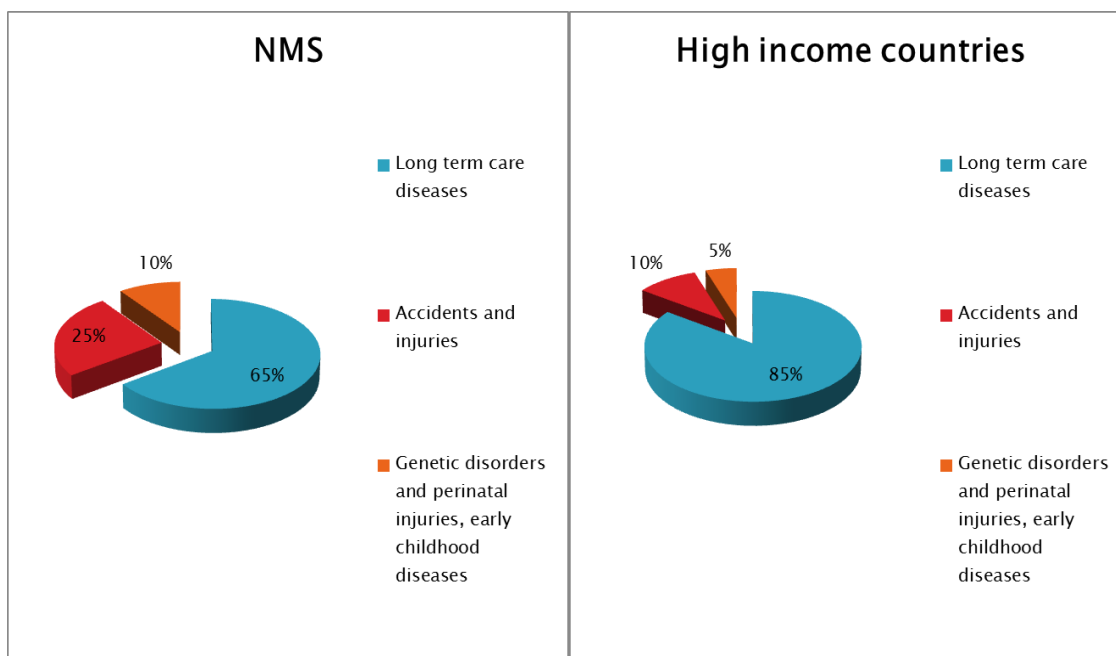


Source: OECD 2010

3. Determinants of Disability

Disability is not always a simple consequence of ill health. This follows from the fact that different paths in a person's life cycle can lead to disability. We can distinguish three such paths, or disability causes:

- first path: disability since birth caused by genetic damage and diseases of the foetus
- second path: disability as a result of accidents or injuries;
- third path: disability as a result of long-term disease(s).

Figure 8. Structure of disability causes in different groups of countries

Source: own estimations based on collected data referred in this study

In the high-income EU countries, disability is caused by long-term diseases in over 80%¹⁴ of cases: in Poland it is lower at a little more than 60%. As a result, the share of accidents and injuries as well as genetic diseases, early childhood diseases, and perinatal injuries, is lower in these countries. In Poland, the share of the latter two causes is much higher; respectively: accidents and injuries cause about 25% of disabilities, and genetic diseases, perinatal damage, and early childhood diseases are the cause of 10% of disabilities.

3.1. Disability Determined by Genetic Diseases, Perinatal Injuries, and Early Childhood Diseases

Population studies on the effects of reproductive health and the health quality of infants and their future health conditions are limited. There is indeed some evidence that factors such as the older age of mother during the first birth and low birth weight can be adverse to the child's future health and disability, but there is a lack of population studies clearly proving that relationship. A certain percentage of disability since birth is caused by perinatal disorders, followed by diseases of infancy and early childhood (up to two years of age). A significant number is caused by congenital malformations, which are the main cause of intellectual disability (on a scale of about

¹⁴ In the U.S., up to 90% of disability is the result of the consequences of various diseases (disease) according to the Council of Disability Awareness (CDA 2010 - Consumer Disability Awareness Study).

60%). Increasingly, there is also evidence of environmental¹⁵ causes of ill health and medical neglect of young children, both of which may lead to disability. Among them is inadequate nutrition and/or malnutrition, very poor housing, lack of developmental stimulation, social isolation, and mental illness.

Congenital disorders must be registered. Registry data from 2002-2003 were developed and compared with the European EUROCAT register (Latos-Bieleńska, Materna-Kiryluk 2010). The information shows that in Poland, children are quite often children born with serious birth defects¹⁶, significantly more often than in other countries. There are no known causes of this unfavourable situation. Meanwhile, having a baby with a serious congenital disorder or malformation often dramatically interferes with the functioning of the family. Moreover, such persons require many years of extensive and costly medical care, and most often also social care. Parents are not always able to provide adequate care for these children.

The Polish new-born screening programme has been in operation since 1994 (originally initiated in 1964). Research under this programme is aimed at the early detection of genetically determined congenital metabolic diseases, even before the onset of clinical symptoms, thus allowing for the implementation of appropriate treatment. Currently there are screening tests performed for congenital hypothyroidism, phenylketonuria, and cystic fibrosis (in selected provinces since 2006, and throughout the country since 2010)¹⁷. Early diagnosis of these diseases allows doctors to begin treatment in early childhood, preventing irreversible damage to the central nervous system.

Thanks to the grassroots initiative of medical and social organizations (The Great Orchestra of Christmas Charity – GOCC [Polish: Wielka Orkiestra Świątecznej Pomocy, WOŚP]), screening tests have been carried out on new-borns for hearing defects since 2002. In addition, parents are also advised to perform tests for congenital hip dysplasia at the orthopaedic doctor's office, for which they receive a referral.

Screening tests are expensive, and their continuation (much less the expansion of the programmes) it is not always certain, especially due to financial constraints, which are an

¹⁵ In 2007, a special WHO report (WHO 2007) was developed by D. Dalbokova, M. Krzyżanowski and S. Lloyd (eds.) on children's environmental health in Europe, albeit with an emphasis on the natural environment, but it also took into account several elements of the social environment.

¹⁶ Significantly higher rates for every 10 thousand births concern urethra defects (8 out of 10 thousand births in Poland, and on average 2.6 for the countries surveyed in the EUROCAT), Down syndrome (respectively: 15 and 9 out of 10 thousand births). Related indicators are applicable to Ireland.

¹⁷ The Institute of Mother and Child in Warsaw is the coordinator of the screening programme:
www.przesiew.imid.med.pl

important factor during the global financial crisis. A reduction in universal testing is being considered in favour of more focused tests associated with the risk of disease, although it is not always possible to clearly identify such risks.

All in all, it could be estimated that the programs and activities related to reproductive health and childcare are mainly focused on reducing infant mortality. However, reducing the frequency of chronic diseases and diseases leading to child disability¹⁸ is not a priority of Polish health policy. Enforcement of the law that obliges pregnant women to report to the doctor's office as soon as possible is inadequate and access to specialist healthcare is limited. Access to the three-stage system of perinatal care is also limited.

3.2. Disability Determined by Accidents and Injuries

The statistics of the consequences of accidents, disasters, violence, and conflict leading to injuries focus on those that end in death. As a result, little is known about the consequences of accidents and various hazardous events that lead to disability. Estimates made in the analyses by organizations such as WHO, ILO, the World Bank and OECD show that among the causes of injuries, the dominant ones are traffic accidents (40%), followed by accidents at work (20%), and accidents at home and other types of trauma (falls from heights, beatings, etc.). Traffic accidents most often happen to young people, including children. Accidents at work occur most frequently in the construction sector and industry, and most frequently affect men. A significant number of accidents and injuries occur at home. Among these, in turn, a vital group is constituted by falls, which are suffered by the elderly relatively frequently. In European countries, 60% of cases of injuries among people over 60 years of age take place at home (WHO Europe 2009).

In Poland, all accidents and resulting injuries are caused by group of factors which play a considerable role in the shaping of disability (not only mortality due to so-called external causes), which is higher than in other European countries.

3.2.1. Traffic Accidents

International and European statistics on road accidents derived from police sources show significant variation between countries. Generally, European countries are characterized by lower levels of accidents as compared with other continents and regions of the world, but within Europe itself there are large intra-regional differences in that respect. The countries of Central and Eastern Europe (including Poland) have high rates of road fatalities per 100,000 of

¹⁸ These activities were recorded in the National Health Programme for the years 2007 - 2015; operational objective 7 - To improve health care for the mother, the infant, and the young child, and point 6 - To reduce the incidence of chronic diseases and diseases leading to disability among children www.pzh.gov.pl

population - higher than the average in Old Europe; for example, in Lithuania and Ukraine it is about 22, it is about 15 in Poland, and in the Netherlands, Sweden, and Norway it is about 5 (UN European Commission for Europe 2010). Accident rates for accidents that do not end in death, which are recorded by Eurostat on a much larger scale (sometimes more than twenty times more often) on the basis of hospital admissions, provide, despite insufficient standardization and incomplete records, a general idea of a phenomenon that is not quite as clear-cut. The data shows that those injured in road accidents who had to undergo medical treatment (and rehabilitation) are relatively numerous both in the prosperous countries such as Germany, Austria, or Italy, and in the less wealthy ones: Slovenia and the Czech Republic. In the statistics, Poland's rate is slightly higher than the average for the EU-27 (EU Injury Database 2009). Analyses of the health effects of road accidents as measured by the DALY index show that they are one of the most significant factors affecting the disease and disability burden, especially in countries with middle and lower incomes.

Table 4. Burden of the consequences of road accidents, measured in DALY, in groups of countries grouped in terms of income level

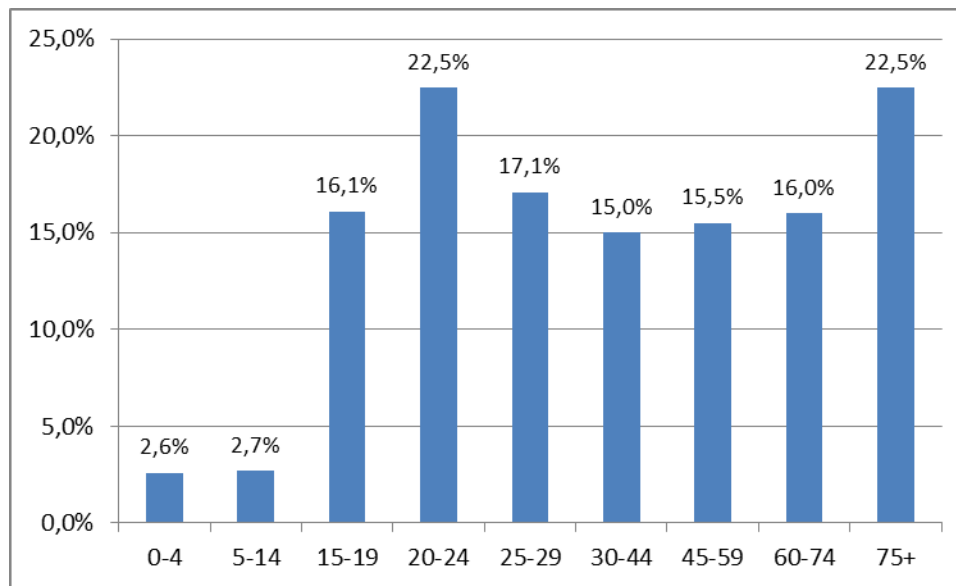
Groups of countries	DALY for the effects of road traffic accidents – millions of years	Share of total DALY
High income	3.1	2.6%
In the European region	3.7	2.4%
Middle income	21.4	3.7%

Note: in the WHO classification, Poland is in the group of middle-income countries, and within that group in the sub-group of countries with higher income

Source: Data are presented on the basis of WHO data from 2011

The structure of the causes of accidents in Poland is similar to the average in the European region, but the level of accident frequency and the level of related injuries is higher. Road traffic accidents come in first place. There are several causes for the high level of road accidents in Poland: a dynamic increase in the number of vehicles on the road, failure to comply with safe driving standards (speeding, driving after drinking alcohol), and inadequate road infrastructure. Generally speaking, in Europe the main victims of accidents are children, adolescents, and young adults; both pedestrians and those driving vehicles, although pedestrians in the countries of Central and Eastern Europe are injured more frequently than drivers and passengers (WHO 2009). In Poland, the elderly as a group frequently suffer from traffic accidents.

Figure 9. Rate of traffic accidents per 100,000 population in Poland, by age



Source: Police records and the data of the Motor Transport Institute, 2007

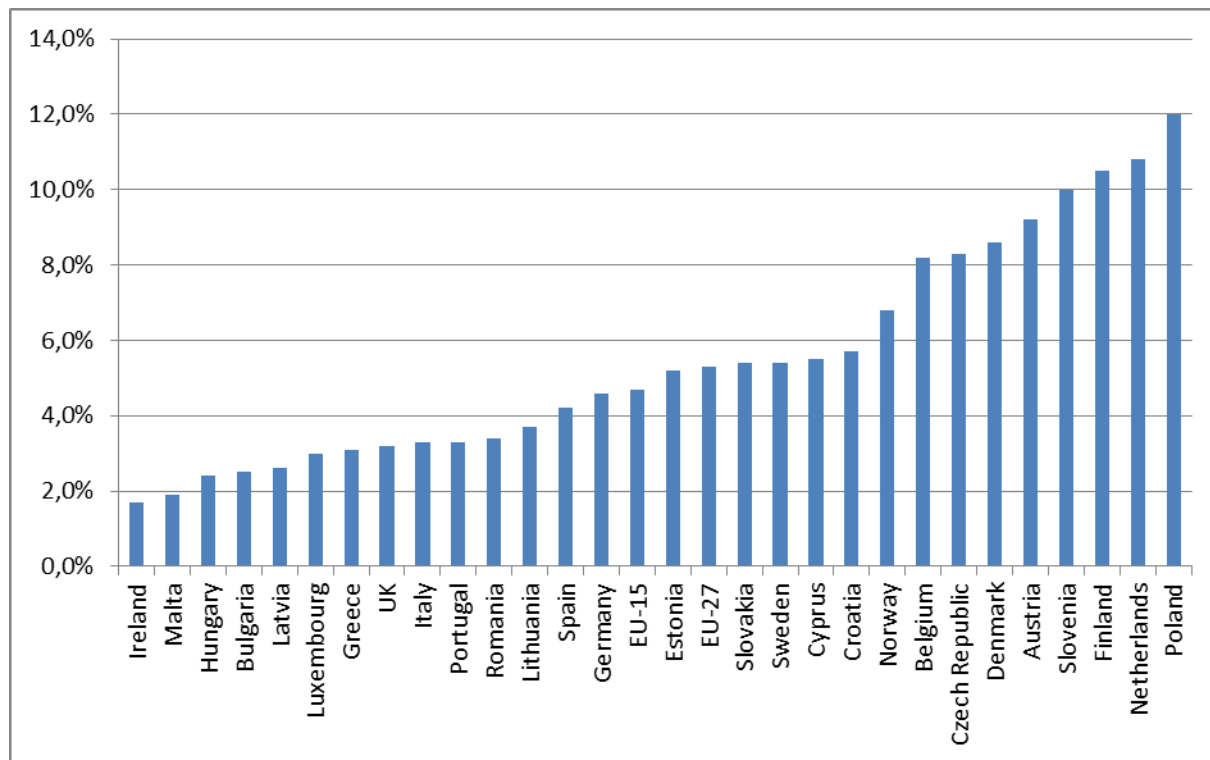
The government-implemented programme for road traffic safety, GAMBIT (which has been in its second edition since 2005), is not effective enough to decisively change the trend.

3.2.2. Accidents at Work

In recent years we have not seen a reduction in the number of accidents at work. The monitoring of accidents at work indicates some increase since 2006 (CIOP [Central Institute for Labour Protection] 2012, GUS 2010), but in 1990 to 2005, the trend was rather favourable.

European survey data (LFS 2007) show that Polish workers report the occurrence of serious health problems associated with work relatively most often, which is reflected by the sick leave statistics. Presented below is a chart from the European Labour Force Survey.

Figure 10. Share of workers reporting health problems caused by work and resulting in sick leave



Source: Eurostat - LFS 2007

Other European comparative studies (European Working Conditions Survey - EWCS 2010) indicate that a significant percentage of those employed in Poland, about 1/3, feel that their work is associated with health risks, while the average rate for EU-27 is about 25%.

In the final years of the decade, the increased number of accidents, especially in mining, manufacturing, construction, and transport, contributed to the growing rate of accidents, i.e. the number of people injured per 1,000 employees outside agriculture. The main group among those injured were men with a short length of service (up to 3 years) (GUS 2010). The increasing concentration of accidents in these industries goes hand in hand with the improvement of working conditions in others, as shown in the analysis of work in hazardous health conditions (GUS 2012).

The Central Institute for Labour Protection (CIOP) organized public campaigns to reduce health and accidents risks (most recently in manufacturing), taking into account the fact that the unsafe behaviour of employees is the main cause of accidents (GUS 2010).

All in all, all the accidents and the resulting injuries are a group of factors with a considerable share in the shaping of disability (not only mortality due to so-called external causes), which is greater than in other European countries.

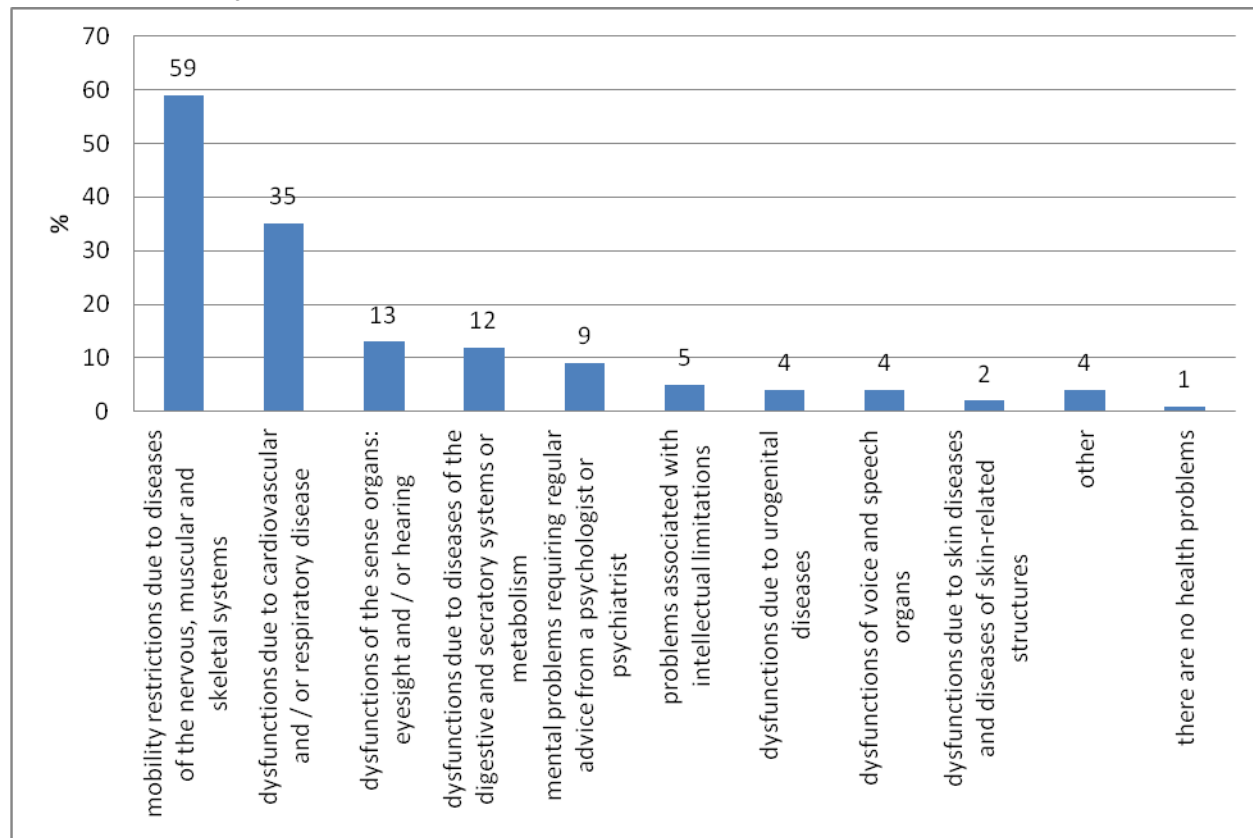
3.3. Disability Determined by Chronic Diseases

According to numerous epidemiological studies performed on patients with a disability, in 65% to about 80% of cases, depending on the country level, disabilities are the result of chronic diseases (WHO 2011). Osteoarticular diseases are in first place, followed by diseases of the spine, hearing disorders and visual impairment, heart disease and hypertension, diabetes, asthma and respiratory diseases, and finally, dementia.

From our own research conducted in 2011 within a project dedicated to the medical assessment of people's inability to work and certification of disability¹⁹, which included the issue of diseases that contributed to and accompanied disability, it is clear that among people with a medical certificate (so called legal disability) there was a predominance of bone and joint diseases, and diseases of the nervous system, followed by those of the circulatory and respiratory system. Mental problems affected only 9% of those with a certificate. The data are presented in the chart below. These were long-term diseases. In the case of intellectual disability and sensory impairment, the health and performance limitations occurred almost universally in early life and, at the time of the studies, lasted for more than 10 years. In the case of the diseases of the osteoarticular, cardiovascular, respiratory, digestive, excretory systems and mental disorders, 50% of the respondents also suffered from them for more than 10 years.

¹⁹ An empirical study named AŻON (Aktywność życiowa osób niepełnosprawnych [Functional activity of people with disabilities]) was carried out in 2011 within the project "Medical Assessment on Disability and Inability to Work. Social, Medical, Institutional, and Financial Aspects", funded by PFRON [National Disabled Persons Rehabilitation Fund], and presented in an IPISS [Institute of Labour and Social Studies] publication entitled: "Instytucjonalne, zdrowotne i społeczne determinanty niepełnosprawności" [*Institutional, Health, and Social Determinants of Disability*].

Figure 10. The main health problems of the people with a certificate of incapacity to work and / or disability in 2011



Source: results of the AŻON study (Golinowska, Sowa 2012)

The results of the AŻON study correspond, to some extent, with the results of analyses performed by the Social Insurance Institution (ZUS) on diseases encountered in first-time medical assessments concerning applicants for disability benefits for inability to work, previously employed outside of agriculture (ZUS 2010). Cancer and cardiovascular diseases are in the first position, in equal proportions at 23%, with cancer twice as likely among women, and cardiovascular disease among men. Position number three, but with a similar range of 20%, is occupied by osteoarticular diseases and muscle diseases, as well as those resulting from injuries. Also, in the ZUS' research, mental disorders are only in the fourth position, at about 11%, and occur more frequently among women than men - 15% and 9%, respectively. In the studies concerning applicants for disability benefits for incapacity to work in agriculture, as reported by KRUS [Agriculture Social Institution] (Wilmowska, Łagiewnicka 2011), the structure of the major diseases is similar, but not identical. The top position is occupied by osteoarticular diseases and muscle diseases, which constitute $\frac{1}{4}$ of the applications, followed closely by cardiovascular diseases (23%), cancer (13%), and mental and behavioural disorders (11%).

Diseases that limit patients' daily activities are reported to the two social security institutions, ZUS and KRUS. Among these, mobility limitations constitute the biggest problem (including weight lifting, pulling, bending, climbing stairs, taking a longer walk). The greater the restrictions on mobility, the more a functionally disabled person is incapable of using the appropriate facilities (lift, adapted transport, help with household chores, etc.). Also, people with mental disorders suffer from functional limitations. The AŻON study has confirmed that in the cases of functional disability, having a family and receiving help from its members is one of the most basic, essential goods.

Conclusions

The overview of health status and disability in Poland was made based on the available reporting data (derived from national reports and records), collected and aggregated by international organizations and Eurostat, as well as on the basis of survey results, mostly European: EU - SILC, SHARE, EHIS, LFS, EWCS, etc. Despite great efforts, the resulting image has a number of gaps that could hinder deeper comparative analyses, especially concerning the identification of inequalities in health and disability. Nevertheless, the resulting image provides information about the basic tendencies over the last twenty years in health and disability in Poland as compared with other countries.

The overview of Poles' health status and disability indicates that the health situation is difficult, despite a significant reduction in mortality from cardiovascular disease and ischemic heart disease in the 1990s. The importance of many chronic diseases is increasing, and their occurrence is more frequent in older age. This leads to an increase in functional disability, which has already been signalled by some European surveys (EHIS, SHARE).

The results of European surveys on the prevalence of functional disability can be ignored in Poland, because the information on the so-called legal disability (based on certificates of entitlement to benefits) presents a trend that is quite different (see Figure 5). Meanwhile, the declining rates in disability benefits recipients are a result of institutional constraints (the so-called certificate reform started in the late 1990s and reinforced by the influence of the economic crisis towards the end of last decade) and changes in official statistics (classifying recipients of disability benefits of retirement age as retirees). Legal disability indicators do not reflect the

phenomenon of functional disability, which is the result of actual limitations of vital functions caused by disease and injury.

Demographic forecasts showing the growing share of the elderly in the population mean a higher burden of chronic diseases and disability in the future. Some of these projections (Eurostat 2010) show extremely high results for Poland [as presented in the paper by Luc Bonneux et al. (2011)]. Those projections may be taken as a warning (even if inflated due to the uncertain results of the SHARE survey on which it was based), and at the same time as an indication of the most serious challenges to Polish health policy.

The epidemiological changes, consisting in the increased frequency of chronic diseases, require a different structure of health care than the one which evolved as the result of the fight against infectious diseases. Prevention and treatment of chronic diseases requires long-term and comprehensive medical interventions coordinated by different specialists with access to appropriate medicines and medical equipment.

Population ageing and epidemiological changes represent a major challenge to social policy. The occurrence of chronic diseases requires social support for patients. The periods of disease occurrence/exacerbation limit one's ability to work, and long treatments consume more and more resources, particularly drugs, which sometimes must be taken for the rest of a patient's life. Since chronic diseases are accompanied by disability, which is often the consequence of diseases of old age, it appears there are also additional needs in the area of long-term care, including both medical and social services. The model of family care for the elderly, which is still dominant in Poland, is approaching the limits of its possibilities. There are also institutional arrangements needed with professionally trained and paid staff.

In formal long-term care, the recommended solutions tend to be home and day care rather than stationary care. However, this also requires the professionalization of personnel, and appropriate, individualized, and at the same time sectorally-integrated (health sector and social sector) organizational solutions at the local level.

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