

# **THE SUPPLY OF HEALTH HUMAN RESOURCES IN POLAND AND IN PŁOCK REGION**

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## Abstract:

Access to medical staff differs across Europe and the particular countries. Poland is a country that has the smallest number of physicians in whole European Union. This country struggles with healthcare provider shortages, but another problem is an uneven distribution of workers. It means that shortages are often more profound in rural areas. This problem affecting the nation's healthcare system will be presented on the example of a region of Płock. The aim of the study is to analyse the availability of medical staff in a region of Płock in the years 2007-2015. Particular attention is paid to the number of health personnel per 10.000 inhabitants in the city of Płock. The analysis regards the physicians, nurses and midwives. The problem of availability of medical staff in Płock region is shown on the background of the average for the Mazovia province and the whole country. The research material is based on the statistical data extracted from Central Statistical Office of Poland.

## **Introduction**

One of the important elements determining the level of social development of the region and the quality of life of its inhabitants is the availability of medical services. Adequate access to medical services in the region, justified by the needs of its residents, is one of the most important issues facing modern health policy. Ensuring equality in access to health services should be the primary goal of the health care system, which should provide an adequate regulatory framework.

The availability of medical services, both primary and specialized medical care, is primarily affected by the amount of human resources (medical staff) available for the health care system. Human resources, when pertaining to health care, can be defined as the different kinds of clinical and non-clinical staff responsible for public and individual health intervention (World Health Organization, 2000). The widespread access to medical staff affects many important aspects of life of the population - the level of public health, mortality, and the living standard of the population. The higher is the number of doctors, the shorter is the waiting time for a consultation or treatment. A sufficient number of nurses, in turn provides full and adequate care in hospitals. Lack of these resources near residence may be the reason for the decline in the number of medical services provided to the inhabitants of the region which in turn results in unsatisfied health needs (Kludacz & Piekut, 2013). A particular problem for health care system can be territorial inequalities in the placement of health facilities and medical staff, as well as the inequalities in access to these resources by various social groups.

The aim of the study is to analyze the availability of medical services in the region of Płock, especially the presentation of the state of human resources in the years 2007-2015. The studied region includes the city of Płock and the poviats of Płock. Particular attention has been paid to the number of medical staff (physicians, nurses and midwives). The analysis was conducted in terms of the number of medical personnel per 10 000 inhabitants (saturation index). The problem of availability of medical services in the Płock region is presented against the background of Mazovia province and the country. The data collected by the Central Statistical Office of Poland for 2007 -2015 were used for the analysis.

Indicator of the number of medical staff per 10.000 populations was calculated by the following formula:

$$I_N = \frac{NM_t}{NI_t} * 10,000$$

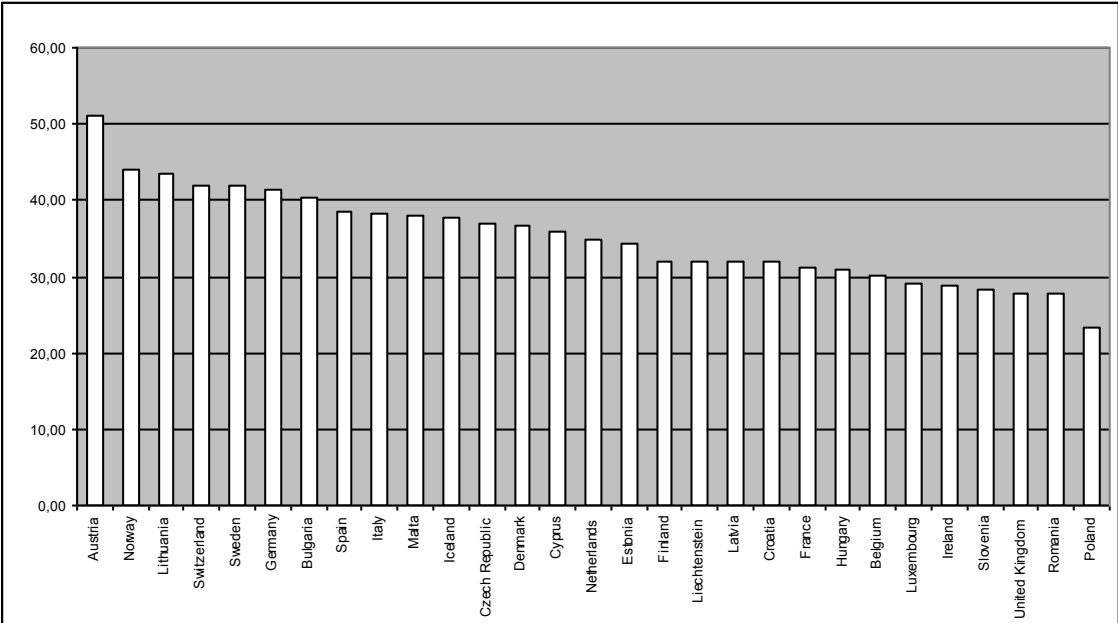
NM<sub>t</sub>- number of medical staff in the year t; NI<sub>t</sub> - number of inhabitants in the year t

It should be noted that in Poland, the medical staff includes people working directly with the patient. Each person is counted only once, by primary place of employment. It doesn't include workers who don't practice in their profession (e.g. working in the administration or in the research).

**1. Access to medical staff in Polish healthcare system**

In recent years there has been growing concern in a number of European countries about shortages of healthcare professionals and the impact which this will have on the provision of healthcare (Kludacz & Piekut, 2013). According to The World Health Organization, in the global scale there is shortfall of about 4.3 million doctors and nurses. Deficit of medical personnel is estimated at about 15 percent. (Crisp & Chen, 2014). The main problem of Europe is quite significant disparities between particular countries. (Figure 1).

**Figure 1:** Physicians per 10,000 population, selected European countries, 2015



Comment: Because of lack of data, the mean for Finland, Denmark and Sweden refers to 2014, and for Czech Republic to 2013

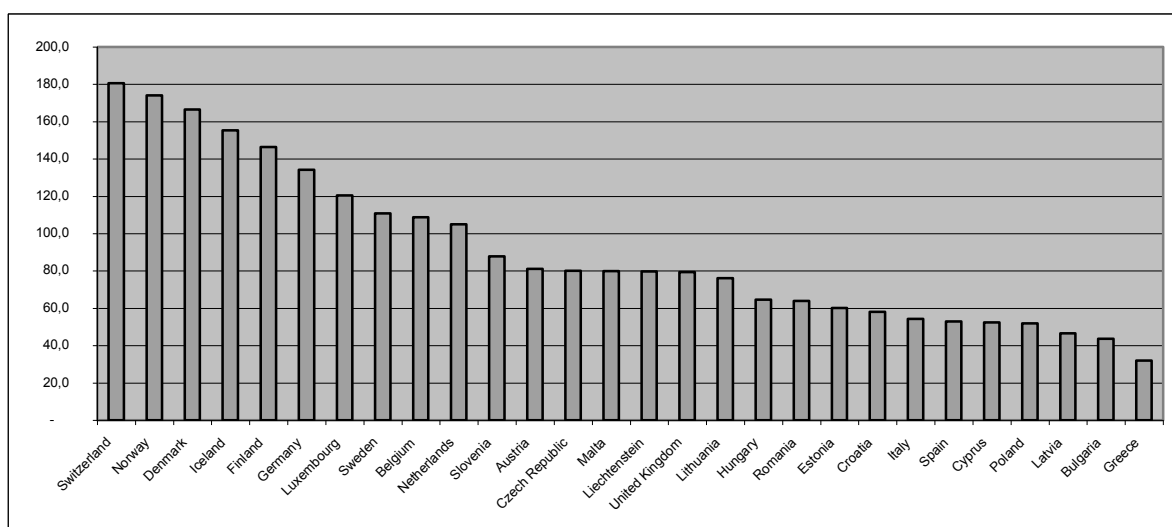
Source: own work on the base of Eurostat database (2015)

In 2015 the most physicians per 10,000 population work in Austria (51), Norway (44) and Lithuania (43.4). The country with the lowest number of physicians per capita in Europe is Poland. The indicator of the number of physicians per 10,000 population is lower than the European average by 12. In 2011, there were also only 23.3 doctors per 10,000 population. For comparison in most developed countries, the index was much higher.

A shortage of physicians is not the only problem of the Polish health care system. Another one is the aging of society and the growing number of physicians nearing retirement age. It is worth noting, that due to demographic changes, in the coming years, there may be a serious problem with decreasing number of doctors. In 2015, in Poland, as many as 30 percent of physicians were 65 years of age or older and another 28 percent were between 55-64 years. Ten years ago the age structure of physicians was more favourable. In one moment a large part of physicians may go into retirement and they won't be replaced by the young doctors. Moreover, the situation is forecasted to become even worse, as the supply of new doctors is constrained by small admission limits at medical universities and increasing willingness of young physicians to seek employment in Western Europe. According to the Polish Chamber of Physicians and Dentists, the average age of a doctor with specialization is gradually rising and reached 54.5 years in 2016, and the annual inflow of new specialists relatively constant. (Pupka- Lipinski & Lipinski, 2017).

The situation with the number of nurses working in Poland is not better (Figure 2). In 2015, there were 52 nurses per 10,000 inhabitants, which is lower than the European average by 39. It means that Poland is again almost on the last place in Europe. A little bit worse situation is only in Latvia (46 nurses per 10,000 population), Bulgaria (43 nurses per 10,000 population) and the worst situation is in Greece (32 nurses per 10,000 population). The most number of nurses per 10,000 population works in Switzerland (180), Norway (174), Denmark (166), Iceland (155) and Finland (146).

**Figure 2:** Nurses per 10,000 population, selected European countries, 2015



Comment: Because of lack of data, the mean for Finland, Denmark and Slovenia refers to 2014

Source: own work on the base of Eurostat database (2015)

Unbalanced distribution of health personnel between and within countries is a worldwide, longstanding and serious problem. All countries, rich and poor, report a higher proportion of health personnel in urban and wealthier areas (Dussault & Franceschini, 2006). The problem of an uneven distribution of workers in the Polish healthcare system will be presented on the example of a region of Plock.

## 2. Access to human resources in a region of Płock

The main research problem at this stage was to examine the number of physicians, dentists, nurses and midwives in the Płock region, and to compare this figure to the situation in Poland and in the Mazowieckie voivodeship. Data on medical staff in a Płock region are presented in Table 1.

**Table 1:** *Number of physicians, dentists, nurses and midwives in Płock region in 2007-2015*

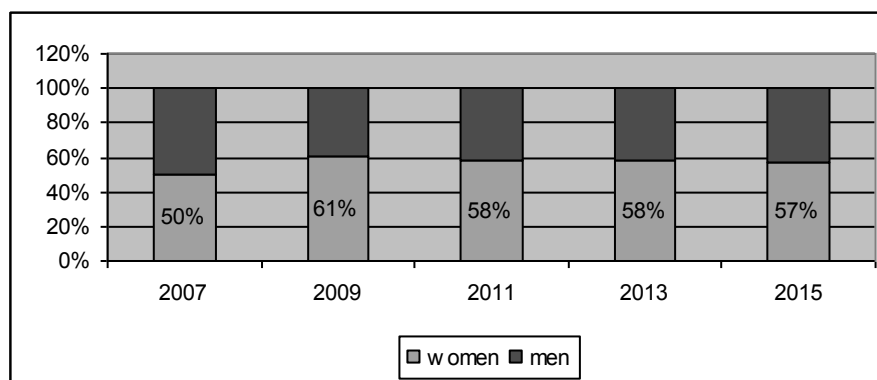
|                                | 2007 | 2009 | 2011 | 2013 | 2015 |
|--------------------------------|------|------|------|------|------|
| Practising physicians          |      |      |      |      |      |
| City of Płock                  | 466  | 461  | 486  | 485  | 507  |
| Poviat of Płock                | 37   | 33   | 32   | 44   | 46   |
| - men                          |      |      |      | 25   | 24   |
| - women                        |      |      |      | 19   | 22   |
| Region of Płock                | 503  | 494  | 518  | 529  | 553  |
| Practising dentists            |      |      |      |      |      |
| City of Płock                  | 44   | 45   | 42   | 41   | 29   |
| Region of Płock                | 61   | 63   | 50   | 48   | 42   |
| Practising nurses and midwives |      |      |      |      |      |
| City of Płock                  | 1171 | 1239 | 1146 | 1197 | 1206 |
| Region of Płock                | 1267 | 1336 | 1236 | 1314 | 1339 |

*Source: author on the base of data of the Central Statistical Office*

In 2015, according to records kept by the Central Statistical Office of Poland, a total of 553 licensed physicians, 42 dentists, 1339 nurses and midwives were employed in the medical centers located in a Płock region and definitely most of them were employed in the city of Płock. It is worth emphasizing that as many as 839 (43%) of the medical staff worked in another non-primary place of employment, of which 641 were physicians. The highest number of medical staff is employed in the Provincial Hospital in Płock - 1164 at the end of 2015, of which 2250 were physicians and 645 nurses. Compared to 2007, the practicing physicians, nurses and midwives experienced an increase in the number of persons entitled to practise medicine only the number of practising dentists has decreased.

In 2007 in the region of Płock the number of men and women physicians was roughly equal, while in the years 2009 - 2015 most physicians were women. In 2015, women were 57% of physicians in the region of Płock (Figure 3).

**Figure 3:** *The share of physicians in Płock region in the years 2007- 2015, by gender*



*Source: author on the base of data of the Central Statistical Office*

Figure 3 illustrates that share of women in the total number of physicians in Plockis region is higher (between 57-61 percent) almost in the whole analysed period. The feminization index reaches the highest value in 2009 – 61 percent.

On the other hand, according to statistical data for 2013 and 2015, there is more men than women physicians working in the rural areas of the Plock region. According to some literature women are less prone to accept rural posts and are underrepresented in rural areas in general (Doescher, & Ellsbury et al. 2000). Comparisons between male and female physicians have shown that women tend to prefer urban locations, where they have access to salaried work in institutional settings (Bowman, & Gross, 1986).

It is worth paying attention to almost 10 percent increase in number of physicians in the analyzed period. Five years ago hospitals in Plock was short of specialists in anesthesia, rehabilitation, pediatrics, neonatology, neurology, rheumatology, interna, psychiatry. Now the situation is better but still there is not enough of many specialists e.g. oncologists and anesthesiologists. As a result of the lack of specialists there are queues for consultations and medical services. For example the patients have to wait eight months for a visit to the neurologist, seven to the cardiologist, four to the endocrinologist. The problem with acces to other healthcare professionals is also visible. Their number has decreased in analyzed period - dentists (by 31%), nurses and midwives (by 5,5%).

### 3. Healthcare personnel in a Plock region in comparison to a situation in Mazovia Province and Poland

The ratio of the number of medical staff per 10,000 inhabitants was used to carry out a comparative analysis, and to compare the situation in the Plock region with the situation in Mazovia province and in the country. The calculated indicators for individual medical professionals are presented in Table 2.

**Table 2:** *Number of health professionals per 10,000 population in the period of 2007-2015*

|                                      | 2007 | 2009 | 2011 | 2013 | 2015 |
|--------------------------------------|------|------|------|------|------|
| <b>Practising phisicians</b>         |      |      |      |      |      |
| City of Plock                        | 37   | 36   | 39   | 39   | 42   |
| Region of Plock                      | 22   | 21   | 22   | 23   | 24   |
| Mazovia Province                     | 23   | 23   | 23   | 26   | 27   |
| Poland                               | 22   | 22   | 22   | 22   | 23   |
| <b>Practising dentists</b>           |      |      |      |      |      |
| City of Plock                        | 3,3  | 3,6  | 3,3  | 3,3  | 2,3  |
| Region of Plock                      | 2,7  | 2,7  | 2,1  | 2    | 1,8  |
| Mazovia Province                     | 2,6  | 2,6  | 2,6  | 2,5  | 2,6  |
| Poland                               | 3,5  | 3,2  | 3,2  | 3,2  | 3,3  |
| <b>Pracising nurses and midwives</b> |      |      |      |      |      |
| City of Plock                        | 93   | 99   | 92   | 97   | 99   |
| Region of Plock                      | 54,6 | 57,7 | 52,5 | 56   | 57,5 |
| Mazovia Province                     | 55   | 55   | 56   | 59   | 59   |
| Poland                               | 53   | 54   | 54   | 58   | 57   |

*Source: author on the base of data of the Central Statistical Office*

In 2007, the number of physicians per 10 thousand population in a Płock region was 22. It has not change for four years, but then has increased to 24 in 2015. This indicator is slightly lower than the average for Mazovia province (27 doctors per 10,000 inhabitants), and slightly higher than the national average (23 doctors per 10,000 inhabitants). In 2015, the highest number of physicians per 10,000 inhabitants was recorded in the Mazovia and Lodz provinces - 27. In the second place was Podlaskie province - 25. The lowest number of physicians per 10,000 inhabitants was registered in Wielkopolska province - 15. The situation in the Płock region is therefore close to the national average. Much better situation is in the city of Płock with almost 42 physicians per 10,000 inhabitants. It means that the largest concentration of medical physicians is observed in the urban areas.

In the years 2007-2009, there were about 2.7 dentists per 10,000 inhabitants, both in the Płock region as well as in Mazovia province. In 2015, in the Płock region, the number of dentists decreased by as much as 31 percent, which led to a decrease in the analyzed index to level 1.8. It is much less than the average for the city of Płock (2.3), Mazovia province (2.6) and Poland (3.3). In Płock region in 2015, the number of nurses and midwives per 10,000 population varied from 12 in the rural regions of the powiat to 99 in the city of Płock. The average for the whole region was 57.5. This gap in favour of richer city is significant. The number of nurses and midwives per 10,000 inhabitants for the whole region of Płock doesn't diverge from the national average and the average for the Mazovia province. In 2015, the average for the Mazovia province was 59 and for the country - 57.

The data showed that Health and social services in city of Płock are characterized by a rich array of health services and human resources in comparison to outlying areas. The medical workforce tends to be concentrated in urban areas (reflecting the distribution of health care infrastructure) because the hospitals and main medical facilities are located in the city and they employ numerous physicians and medical professionals to provide comprehensive medical services to patients. A city of Płock is more attractive to health care professionals for its comparative social, cultural and professional advantages. On the other hand working rural areas is often connected with the low status. It further contributes to health professionals' preference for settling in the big towns, where positions are perceived as more prestigious (Zaidi, 1986). Also inadequate remuneration and working conditions result in promoting rural-to-urban migration (Ferrinho, & Van Lerberghe2000). The health professionals working in urban areas have also better possibility to seek career advancement there, and to work in the private sector. The obstacle for health professionals to accept positions in rural areas is also lack of equipment and appropriate facilities.

Another factor affecting the distribution of health personnel is a specialized care and a model of medical education. The specialists opt for urban practices in greater proportion because they need the access to the infrastructures they need to conduct their practice and to the pool of potential clients. On the other hand the graduates from medical schools who selected a primary care specialty, such as family medicine are more likely to practise in rural areas. (Rosenblatt,Whitcomb et al. 1992). Most rural medical facilities in Płock region operate with mainly a primary physician who is trained in a broad range of medical services.

#### **4. Discussion**

Among the most important factors affecting the availability of medical staff in health care are the level of financial health expenditure, demographic and epidemiological factors, globalization leading to staff migration, technological progress and the level of development

of medical science (Crisp, & Chen, 2014). The shortage of human resources in Polish healthcare sector is mainly a result, on the one hand, of the natural losses associated with retiring older generations and migration of healthcare professionals to Western Europe (Pupka- Lipinski & Lipinski M. 2017). This shortage leads to decrease in quantity and quality of healthcare services, increased healthcare cost, decline in service coverage to rural areas and accessible only to those who can pay or afford it (Sinha, & Sigamani, 2016). As a result of the low availability of medical staff, there are constantly growing queues for specialists and corruption in health care. Preventing these negative phenomena requires knowledge of the appropriate human resource management principles at central level.

The one of the problems with medical staff shortages in Poland are the open labor markets in the EU, which results in the partial outflow of medical staff employed in the Polish health care system to work outside of the country. Since Poland's accession to the EU, the Polish Chamber of Physicians and Dentists has issued over 10,000 certificates which are necessary to work as a doctor in another EU country. According to the survey of the Polish Chamber of Physicians and Dentists, today 37% of young physicians is considering moving abroad (Pupka- Lipinski & Lipinski M. 2017). Migration of doctors is a problem of many less developed countries. The physicians and nurses are in demand worldwide, and they are often able and eager to move, to improve their salary and broaden their experience (Mullan, 2005). Target countries of emigration for Polish medical staff in Europe are: United Kingdom, Ireland, Germany, Sweden, Norway and Denmark (Kludacz & Piekut, 2014). The migration of nurses from Poland has also particular importance, especially given the increasingly ageing population in European societies, which will entail an increased demand for nursing and care services. According to the questionnaire surveys conducted in Poland nearly one in three respondents intended to leave Poland to work as a nurse. The main destinations for migration for Polish nurses are Germany, England and Norway (Szpakowski, & Zajac, 2016). In view of the low level of human resources in the Polish health care system, the migration of Polish health professionals will probably have crucial implications for the quality of healthcare services in the coming years. There are many reasons of increasing migration of Polish physicians and nurses, such as: financial matters (low salaries), underfunding of the healthcare system in general, difficulty in obtaining specialization, disorganization of the system, bureaucracy at work and lack of respect for medical professionals and their work. However, some studies stress that the main and strongest factor responsible for a decision made by medical staff to seek work abroad is a professional dissatisfaction and especially a low salary (Lesniowska, 2005). Among other important factors affecting professional satisfaction for medical staff are: inadequate working conditions, e.g. understaffing, poor premises, and a lack of basic equipment (GUS, 2013).

## **Conclusion**

Healthcare is one of the most important social issues due to the aging of the population, the growing expectations of the people of the countries and regions regarding the availability of medical services and healthcare professionals. Maintaining the healthcare workforce is fundamental to improve the quality of services and patients' satisfaction. Access to good-quality health services is crucial for the improvement of health outcomes.

One of the symptoms of the crisis in the Polish health system is the low availability of medical staff. The information presented on the health care professionals employed in the region of Plock and in the city of Plock confirms the changes that have been observed in the

whole health sector in Poland. The analysis of the availability of medical staff in Poland and in the Plock region leads to many conclusions:

- In Poland is observed one of the lowest indicators of the number of physicians and nurses per 10000 inhabitants compared to other European countries. The Polish health system lacks both general practitioners and specialist doctors;
- The future of medical staff may be a major problem. At present over 30% of physicians in Poland are over 65.
- A major problem in developing countries, like Poland is the migration of health workers to more affluent regions, resulting in citizens in rural areas experiencing difficulties receiving adequate medical care.
- Unbalanced distribution of health personnel between urban and rural areas is also a problem of Plock region, where more than 90% of the health personnel are concentrated in the capital of region – the city of Plock. Physicians and nurses are reluctant to relocate to the villages that offer poor communications with the rest of the region and the country

The main problem of Plock region is an imbalanced distribution of health personnel that can contribute to great disparities in health outcomes between the rural and urban population. Accessing good-quality health care services can be incredibly arduous for people residing in rural areas. For many reasons, medical personnel and resources may not be available or accessible for such residents (Kabene, & Orchard, et al. 2006). Urban areas are more attractive to health care professionals for their comparative social, cultural and professional advantages (Van Lerberghe & Conceicaõ, et al., 2002). Large cities offer more opportunities for career and educational advancement, better employment prospects for health professionals and their family, lifestyle-related services and amenities, and better access to education opportunities for their children (Zurn & Dal Poz, et al. 2004), (Dussault, & Franceschini, 2006).

For the purpose of dealing with problems of medical staff shortages in Poland and the regions it is necessary to establish formal structure responsible for planning of human resources for health. The institutions responsible for situation in Polish healthcare system (Ministry of Health) should start cooperation with professional association of medical staff (e.g. the National Chamber of Physicians and Dentists), data collection institutions, medical universities and health service providers to develop strategies for planning of medical staff that are based on demand of the population (Domagala, 2013). The interesting idea could be to develop and apply the national health care information system (Soltes, Balloni, Gavurová, & Pavličková, 2013). This system could support the cooperation between various institutions and identify the hospital needs and demand regarding also human resources. The other changes could be related to the improvement of the education and training system for medical staff, the strengthening of private and public sector co-operation, the changes in the funding system, the adaptation of the education and vocational training system to the needs of the labour market, improvement of employment conditions for medical staff and facilitating the return of medical staff from professional emigration. (Kludacz, 2015)



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