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Stacjonarna opieka zdrowotna w realizacji potrzeb zdrowotnych populacji województwa podlaskiego w latach 2007-2012

Summary

Improvement of health and thus of the quality of life of the population as well as reduction of the differences in health status were the major goals of the National Health Program for the years 2007 – 2015. Current National Health Program for the years 2016-2020 is based on a strategic aim to prolong life in good health, improve health and the quality of life of the population as well as reduce social differences related to health condition.

In order to determine health status of the population, quantitative assessment of health issues with epidemiology rates is most commonly used. One of the most vital information on population health condition among all the positive and negative measuring factors is the analysis of the cause of death. Statistics of the cause of death allow to determine trends of mortality and analyze diseases that lead to death. Statistical data on mortality and its causes are fundamental to determine the goals of health protection for national and regional agencies.

For the evaluation of population health needs that result from health condition, the data on hospital morbidity are used. Inpatient care is one of health care forms that ought to protect specific health needs of the society caused by the severity of the disease and life threat. The data on hospitalization causes constitute a valuable source of information to determine priorities and choice of particular direction of the actions in health care system including both outpatient and inpatient care.

The aim of the work was to evaluate the need for inpatient health care service of the citizens of the Podlaskie province in 2007-2012 with special regard to health status. Detailed goals of the work included the evaluation of major causes and structure of hospitalization, evaluation of hospital morbidity rate, evaluation of mortality rate, evaluation of mortality and hospitalization trends, evaluation of the correlation between hospitalization rate and mortality rate as well as evaluation of inpatient care infrastructure.

The study included the citizens of the Podlaskie province. The evaluation of both hospitalization and mortality was supposed to refer to years 2007-2012, yet the year 2012 was excluded due to incomplete data on hospital morbidity for objective reasons. The analysis of 2007-2011 referred to the total number of 1 229 200 hospitalization cases in the Podlaskie

province and 59 009 death cases in the province. The hospitalization data used in the work were obtained through the access to public information from the National Institute of Public Health – National Institute of Hygiene in Warsaw, while the data on mortality rates were obtained from the Central Statistical Office.

The data on age, gender, place of residence and location of health care entity were obtained with respect to every hospitalized or dead person. The data on health care entity and the number of beds were obtained from the Register of Health Care Providers and bulletins of the Center of Information Systems of Health Protection. The data on human resources of health care protection in the Podlaskie province were obtained through the access to public information by Regional Medical Chamber in Bialystok.

In the advanced statistical analysis, the method of time trends of hospitalization and mortality rates as well as the value of annual percent change (APC) of hospitalization and mortality rates with joinpoint models were used. During the work, crude hospitalization rate, crude mortality rate, standardized hospitalization rate, standardized mortality rate, rate of the number of beds and the rate of the number of doctors were taken into consideration. Standard population for calculating standardized mortality and hospitalization rates for the citizens of the Podlaskie province in the analysis was constant age structure of Polish population in 2011 in 5-year-groups. Pearson's correlation was used in the evaluation of the relationship between crude hospitalization rate and crude mortality rate.

The obtained results were divided into three groups.

I. Health condition and its differences among the citizens of the Podlaskie province compared to the citizens of Poland:

1. In the years 2007-2011 crude hospitalization rate in the Podlaskie province was higher compared to Poland by approximately 14%. In the analyzed period a decrease in the value of hospitalization rate in men and women was observed in the Podlaskie province, which was opposite to Poland.
2. In the analyzed period 2007-2011 in both Podlaskie province and Polish population women were more frequently hospitalized than men. Due to standardization which eliminates the differences in age structure in the Podlaskie province higher values of the standardized hospitalization rates were observed in men compared to women.
3. In the Podlaskie province in all the analyzed age groups higher crude hospitalization rate was observed compared to Poland. In case of both the Podlaskie province and Poland the most commonly hospitalized persons were patients over 65 years of age.

4. In the youngest age group (0-19 years) men were more commonly hospitalized than women in both the Podlaskie province and Poland. Women in the age group 20-64 years and over 65 years were more frequently hospitalized than men in this age group. In Poland also women aged 20-64 and over 65 years were more frequently hospitalized than men. The analysis of the standardized hospitalization rate according to age groups indicated higher values of this rate in the Podlaskie province in men compared to women in age group 0-19 and over 65 years of age. Only women aged 20-64 years were more often hospitalized than men.
5. The highest value of crude hospitalization rate in the Podlaskie province among individuals aged 0-19 years was observed in case of respiratory tract disorders, in patients aged 20-64 – genitourinary diseases, while in persons over 65 years – circulatory disorders.
6. In the years 2007-2011 the most common causes of hospitalization in the Podlaskie province were circulatory, genitourinary, digestive and respiratory diseases as well as injuries and poisonings, and cancers, while in Poland – circulatory disorders, injuries and poisonings, cancers as well as digestive, genitourinary and respiratory diseases.
7. In the Podlaskie province men were most frequently hospitalized due to circulatory and respiratory diseases, injuries and poisonings, while in Poland – due to circulatory diseases, injuries and poisonings as well as cancers. Major cause of hospitalization of women in the Podlaskie province were genitourinary and circulatory diseases, pregnancies and puerperium while in Poland – circulatory and genitourinary diseases, pregnancy and puerperium.
8. In the years 2007-2011 mean annual crude mortality rate in the Podlaskie province was $98.7/10^4$ of people while in Poland $99.0/10^4$ of people. The values of crude and standardized mortality rate in the group of men were higher in the Podlaskie province than in Poland, which was opposite in case of women. The values of crude mortality rate were lower in the Podlaskie province than in Poland in persons aged 0-19 years and 20-64 years, while in the group over 65 years this rate was higher in the Podlaskie province than in Poland.
9. In 2007-2011 the main cause of death in the Podlaskie province and in Poland were circulatory diseases and next cancers.
10. Mortality due to circulatory diseases in men and women in the Podlaskie province was similar, while mortality in case of cancer and external causes of disease and death, men died more frequently than women. In 2007-2011 in the Podlaskie province the dominant cause of

death among persons aged 0-19 years was external causes of death, among persons aged 20-64 years - cancers, while in the individuals over 65 years – circulatory diseases.

II. Health status and its differences among the citizens of particular districts of the Podlaskie province:

1. In 2007-2011 the highest crude hospitalization rates totally were observed in the Grajewo, Bielsk and Sokolka districts.
2. Men were more frequently hospitalized in total compared to women in the districts of Grajewo, Bielsk and Hajnowka while women were more frequently hospitalized in the districts of Grajewo, Lomza and Bielsk.
3. The highest crude mortality rates in total were observed in the citizens of Hajnowka, Bielsk and Siemiatycze districts in both men and women.
4. Circulatory diseases in 2007-2011 were the first cause of death and hospitalization in the Podlaskie province. Among the citizens of Sejny and Grajewo districts in the analyzed period a significant decrease in the value of crude hospitalization rate due to circulatory diseases was observed, while no significant changes in the values of crude mortality rate of circulatory diseases were observed.
5. In 2007-2011 cancers were the second cause of death and sixth cause of hospitalization in the Podlaskie province. Among the citizens of the Podlaskie province in total, including the districts of Bialystok, Bielsk, Grajewo, Monki, Sejny, Siemiatycze, Sokolka and Suwalki as well as Bialystok city, in the analyzed period a significant reduction of hospitalization number due to cancer was observed, while no significant changes in the crude cancer mortality rate was noted.
6. Respiratory disorders in 2007-2011 were the fifth cause of death and the fourth cause of hospitalization in the Podlaskie province. Among the citizens of the Podlaskie province in total, including the districts of Bialystok, Grajewo, Kolno, Sejny, Sokolka as well as Bialystok city, in the analyzed period a significant decrease in the number of hospitalizations due to respiratory diseases was noted, while crude mortality rate due to respiratory diseases significantly decreased among the citizens of Bialystok district.
7. External causes of death in 2007-2011 were the fourth cause of death and the sixth cause of hospitalization in the Podlaskie province. Among the citizens of the Podlaskie province in total, including the districts of Bialystok, Bielsk, Grajewo, Monki, Sejny, Siemiatycze, Sokolka, Suwalki as well as Bialystok city, in the analyzed period a significant decrease in hospitalization number due to external causes of death was observed, while no

significant changes in the value of crude mortality rate due to external causes of death were noted.

II. Resources of health care system in the Podlaskie province:

1. In 2007-2011 the number of health care entities offering inpatient health services in Poland and in the Podlaskie province increased, while the number of hospital beds decreased. Bed number rate per 10 thousand persons was higher in the Podlaskie province than in Poland.
2. In 2011 the Podlaskie province and Swietokrzyskie province had 14th place in the rating of hospital number. The most beneficial situation with respect to the availability of health care entities that offer inpatient health case services was found in the cities of Bialystok and Suwalki as well as districts of Bialystok, Sokolka and Monki.
3. Both in Poland and Podlaskie province in 2007-2011 the highest number of beds was available on internal, surgical as well as gynecology and obstetrics departments.
4. In 2007-2011 in both Poland and the Podlaskie province the number of registered doctors and dentists increased. In the analyzed period in the hospitals in the Podlaskie province higher rates of the number of doctors, nurses and midwives employed upon labor contract per 10 thousand persons were observed compared to Poland.

In conclusion, it ought to be noticed that in 2007-2011 crude mortality rates in the Podlaskie province and in Poland maintained on a similar level. The difference was observed with respect to gender as the values of crude and standardized mortality rates were higher in the group of men in the Podlaskie province than in Poland, which was opposite in case of the group of women. Availability of inpatient health care measured with hospitalization rate in the Podlaskie province was higher compared to Poland.

The Podlaskie province in 2007-2011 was characterized with a higher number of hospital beds and medical personnel compared to Poland.

In two disorder groups, i.e. circulatory and respiratory diseases, in the Podlaskie province a positive correlation between mortality and hospitalization was observed. These disease groups absolutely require the access to hospital beds with no limitations. In case of other disease groups (cancers, digestive tract diseases, contagious diseases, endocrine disorders, nervous system diseases and genitourinary diseases) no correlation between mortality and hospitalization was observed, which may indicate that in those disease groups mortality is not strictly related with the necessity of hospitalization and access to hospital beds. Therefore, health care in case of those diseases may be based to a greater extent on

ambulatory structures at the cost of inpatient health care, except for the group of contagious disease group.

The analysis of health condition differentiation in the population of the Podlaskie province in 2007-2011 ought to be the foundation to plan rational protection of health needs with the use of inpatient health care in order to improve health condition and reduce discrepancies in health status of the Podlaskie province citizens.