

# Workplace Health Threats and their Effects in Podlasie Region

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## Abstract

Workplace health threats bring with them the risk of occupational diseases and work accidents [1-4]. The aim of this study was to describe the main health threats emerging from working conditions in the Podlasie region and to compare these outcomes with the overall situation in Poland.

This paper describes the analysis of the structure of occupational diseases and accidents in Podlasie. The analysis was performed based on the data gathered by the Main Statistical Office (GUS), National Labour Inspectorate (PIP) and Regional Labour Inspectorate in Białystok (OIP), Podlasie Voivodship Labour Medicine Centre (PWOMP) and Voivodship Sanitary Inspectorate in Białystok (WSSE). Furthermore, a review of legal acts and literature has been performed.

The results indicate that the main group of occupational diseases in Podlasie is contagious and parasitic diseases, among them borreliosis (over 70%). In Poland the main problem is long-term glottis disease, emerging from repeated speaking of teachers. It was the result of lack of medical and educational prophylaxis concerning voice emission. The highest number of occupational accidents in 2005 in Podlasie region was observed in trade – similar to Poland overall. Observed occupational accidents were related with workers with the shortest work experience (less than 1 year) – about 30% of victims.

The following conclusions were drawn based on the above-mentioned results:

1. The biggest problem in Podlasie is the presence of contagious and parasitic diseases; the high borreliosis incidences which belong to this group are related to farmers and foresters.
2. The main cause of occupational diseases in Podlasie region was workers' misbehaviour.

Trade workers were the main group of occupational accident victims in Podlasie. Most often the least experienced workers were injured.

**Keywords:** health, occupational disease, work accident

## Introduction

Workplace environmental conditions are one of the factors influencing human health. Each company has a legal responsibility for health threat descriptions. The influence of unbeneficial work conditions on health is reflected by statistical data

on occupational diseases and occupational accidents. It has to be emphasized that workers' health determines the potential of each country and its development possibilities [3-9].

The aim of this study was to describe the main threats emerging from work conditions in Podlasie and to generalize it compared to the situation in Poland.

## Material and Methods

Our paper describes the analysis of occupational accidents and occupational diseases in Podlasie. The base of the analysis was data from the Main Statistical Office (GUS), National Labour Inspectorate (PIP), Regional Labour Inspectorate in Białystok (OIP), Podlasie Voivodship Labour Medicine Centre (PWOMP), National Sanitary Inspectorate (PIS) and Voivodship Sanitary Inspectorate in Białystok (WSSE).

## Results

### Threats Caused by Harmful Health Factors of Workplace and Occupational Diseases in the Podlasie – a Comparison with the General Situation in Poland

In 2005 PIS received 6,700 reports of occupational disease diagnosis. As a result of the analysis of workers' occupational risks PIS has edited 3,246 decisions on occupational disease diagnosis, and as a result of administrative precedings there were 3,230 cases of occupational diseases. During the same year in Podlasie there were 183 cases of occupational diseases. Based on PIS data we can say that during the last few years in Poland we can observe a decreasing tendency in total number of occupational diseases. In comparison with 2004 the increase of occupational diseases was observed in regions: Mazowsze, Opolskie, Zachodniopomorskie and Podlasie. The highest increase in the number of occupational diseases (by 51 cases – 27.9%) was observed in Podlasie, and it was related to infectious and parasitic diseases and voice apparatus diseases [12].

According to data from the Labour Medicine Institute in Łódź in 2005 there were 3,249 cases of occupational diseases in Poland, mainly the results of longitudinal exposure to threatening factors [10]. The yearly occupational diseases incidence rate in Poland was 34.8 per 100,000 workers, in Podlasie region 87.3. It was the highest incidence rate among Polish regions. The highest incidence in Poland in 2005 was related to chronic voice apparatus diseases caused by exceeded voice effort – 681 cases (that is 21% of all occupational diseases). In Podlasie the highest incidence was related to infectious and parasite diseases – 140 cases (that is 76% of all occupational diseases; including borreliosis – 129 cases). The second group of occupational diseases in Poland is pneumoconiosis – 672 cases (20.7% of all occupational diseases in 2005). According to these data, in Podlasie pneumoconiosis was not a big problem, because in 2005 there was only one case of this disease (because of the lack of heavy industry). In Podlasie the second of occupational diseases were chronic voice apparatus diseases. In 2005 it was 29 cases, or 16% of all occupational diseases. In Poland the third place are infectious and parasitic diseases and their effects – 615 cases (almost 19% among all occupational diseases). The third place in Podlasie was bronchus asthma – 3 cases [12, 13].

Other occupational diseases registered in Poland are: deafness caused by noise (338 cases, 10.4% of all occupational diseases), and dermatitis (163 and 5%, respectively) [13]. In Podlasie there were also registered two cases of allergic catarrh and skin allergodermia, and one case of acute and chronic poisoning caused by chemical substances, pneumoconiosis and deafness caused by noise.

### The Scale and Structure of Occupational Risks in Podlasie

The risks in Podlasie are examined by PIS. In 2005 there were 4,532 companies employing 123,198 people. The control was performed in 2,088 companies, employing 87,903 workers [13].

According to PIS data in Podlasie, in 2005 in health threatening conditions 39,014 people were working that is almost 44.38% of all employed people. The Inspectorate states that in conditions of the highest accepted noise and vibrations concentration (NDN), and also in conditions of the highest accepted dust and toxic compounds concentration (NDS), 2,351 people were (2.67% of all workers) employed by 92 companies of Podlasie. Besides, according to PIS in 88 companies there were exceeded norms of noise, dusting norms in 4 companies, chemical compounds norms in 3 companies and vibration norms in 1 company [13].

As a result of PIS controls in Podlasie it was observed that in 409 companies 17,533 workers were exposed to nonbeneficial biological conditions [13].

### The Structure of Occupational Diseases in Podlasie

As well as in Poland, in Podlasie the structure of occupational diseases is unbalanced. The highest number of occupational diseases was observed in Białystok powiat – 46 cases (an increase by 11 in comparison to 2004) and Augustów powiat – 24 cases (an increase by 20 cases in comparison to 2004). The lowest number of occupational diseases was observed in Grajewo powiat and Mońki powiat – 4 cases in each powiat. In comparison to 2004, the number of occupational diseases has increased from 63 to 183 (that is by over 34%) [13].

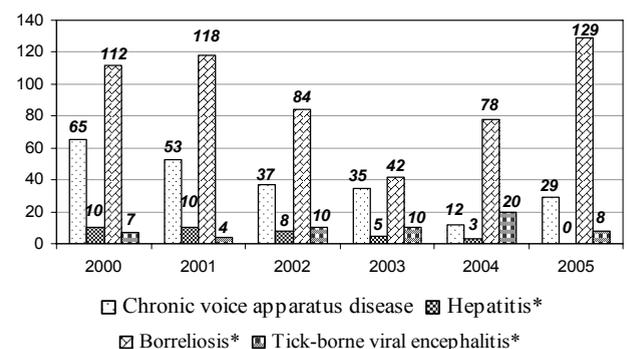


Fig. 1. The most often observed occupational diseases in Podlasie in the years 2000-05.

In 2005 in Podlasie there were 183 decisions on occupational disease diagnosis and 76 negative decisions on the lack of effects confirming occupational disease. Fig. 1 presents the most often observed occupational diseases in 2000-05 in Podlasie [13].

The most often observed occupational disease for over five years is borreliosis, which belongs to infectious and parasitic diseases. In 2000-01 the number of new incidences was about 112-118. Since 2002 we have observed a decrease of the number of cases from 84 to 42 in 2003. The number of cases in 2005 has increased to 129 [13].

The second problem in Podlasie is voice apparatus disease. From 2000 to 2004 we observed a decrease in the number of cases from 65 to 12, and in 2005 an increase to 29 cases. The next occupational disease in Podlasie is tick-borne viral encephalitis. In 2000-05 the incidence was quite low; in 2000: 7 cases, in 2001 4 cases, in 2002 10 cases, in 2003 10 cases, and in 2004 20 cases [13].

It has to be emphasized that hepatitis is also an occupational disease (hepatitis B). In Poland this disease is a serious problem, especially to medical personnel. In the years 2000-01 in Podlasie there were 10 cases of hepatitis, and since 2002 we can observe the decrease. In 2005 there were no new cases of hepatitis [13]. Voice apparatus diseases concern mainly teachers. It is the result of lack of medical and educational prophylaxis concerning voice emissions [14, 15].

The most often observed occupational disease in men were infectious and parasitic diseases – mostly borreliosis (78 cases), tick-borne viral encephalitis (5 cases), and chronic voice apparatus disease – 6 cases. A similar tendency was observed in women. The most often observed diseases in women were borreliosis (51 cases) and chronic voice apparatus disease (23 cases) [13].

In Podlasie in 2005 occupational diseases were observed in agriculture, hunting, and forestry – in total 53 cases of occupational diseases, education – 29, industry – 5, healthcare and other services – 6 cases [16].

#### A Comparison of the Frequency and Structure of Occupational Accidents in 2005 in Poland and Podlasie

According to GUS data from 2005, most of occupational accident victims in Poland were working in companies employing up to 249 people (52.8%), including in the companies employing from 50 to 249 people – 32.9%. In cases of healthcare facilities most victims (72.7%) were working in companies employing more than 250 workers [17].

In 2005 in Poland there were 84,402 occupational accidents. The largest number were not serious accidents – 98.3%, serious accidents – 1.12%, and fatal accidents 0.56%. In Podlasie the rate of occupational accidents according to their seriousness is similar to Poland's. Less serious accidents 97.6%, serious accidents 1.74%, fatal accidents – 0.61% [17].

The lowest number of accidents was observed in the regions Mazowsze (5.85), Małopolskie (6.34), Świętokrzyskie (6.53) and Podkarpackie (6.98). The number of victims per 1,000 workers was the highest in regions Warmińsko-Mazurskie (11.21), Dolnośląskie (10.70), Lubuskie (10.64), Zachodniopomorskie (9.52) and Opolskie (9.65). Podlasie was in the 9<sup>th</sup> place in 2005 at 8.30 [17].

The yearly number of fatalities in Poland was 0.044 per 1,000 workers, and in Podlasie 0.051. Higher numbers in 2005 were observed in 5 regions: Pomorskie, Zachodniopomorskie, Lubuskie, Opolskie and Mazowsze. The lowest numbers were observed in regions Dolnośląskie and Łódzkie (0.028) and Małopolskie (0.030) and Lubelskie (0.031) [17].

Among the causes of accidents were technical problems, organizational and human problems. The most common cause of accidents in Poland in 2005 were worker misbehaviour (50.5% of causes), organizational problems (11.8%) (including improper work organization (6.0%) and post organization (5.8%)), improper quality of materials (11.6%), and lack or improper use of materials (8.9%) and improper arbitrary workers' behaviour (8.0%) [17].

#### Occupational Accidents in Podlasie Region

In Podlasie in 2005 there were 2,122 occupational accidents, including 13 fatal accidents, and 37 serious accidents. Eleven accidents were collective, and 31 people were injured during those accidents. In 2005 in the region there were 13 fatal accidents, including 9 people killed in road accidents, 2 – emergency cases, 1 – a fall at a building site, 1 – injuries caused by falling chipboard. Among the victims three groups can be observed: trade workers, mechanical engineers (275 victims), victuals and tobacco production workers (240 victims), healthcare and social workers (225 victims) [16].

Most often the accidents were observed in Podlasie in workmen – 507 victims (23.8%), drivers and operators – 201 (9.5%), trade and service workers – 163 (7.7%), building site workers - 161 (7.6%), office workers – 134 (6.3%) and the specialist of biological sciences and healthcare – 113 victims (5.3%) [16].

Taking the age of victims into account in Podlasie, it has to be emphasized that the highest number of occupational accidents (635) was in the group of workers aged 45-54 years (29.9%), and among workers aged 18-24 years we observed 234 victims, who were 11% of all victims. Most workers were contracted for an unspecified time - 1495 people (70.4%). Among workers contracted for a specified time there were 595 victims (28.1%). A few victims also were trainees in 2005 – 6 (0.3%) and self-employed – 3 (0.1%) [16].

The most numerous group of people who were accident victims in Podlasie in 2005 were workers with a year or less experience – 27.8% of the total (590 people). The second group was people with experience of 16 years and

more – 20.5% (436 people). The other groups were: 6-10 years of experience – 17.7%, 2-3 years of experience – 14.4%, 11-15 years – 11.1%, 4-5 years – 8.3% [16].

### The Cost of Occupational Accidents in Podlasie

Besides negative health effects – both of occupational diseases and accidents – the cost of effects are also an important problem. Besides suffering, we can observe the cost for insurance system, companies and all of society. The cost of occupational diseases is related to lost work time, lower productivity, the need of health and social services and compensations payment. According to Regional OIP the cost of one accident in 2005 was 32,952 PLN. This amount was divided into employer (30.4% of total cost), Social Insurance System (59.7%) and National Health Fund (9.9%) [16, 18].

### Discussion

According to data from PIP, the territorial structure of health threats in Poland has not changed for years. The indicator of workers' health threat is measured by the number of people working in threatening conditions per 1,000 workers. In Poland this indicator was 119.6 and according to GUS, it was the lowest value for a dozen or so years. GUS data show that the worst work conditions are present in the Śląsk region. Where the indicator per 1,000 workers is 197.7 – almost every fifth person is at risk of health status worsening as a result of harmful factor exposure. The unbeneficial situation is also observed in regions: Zachodniopomorskie (indicator is 157.6), Warmińsko-Mazurskie (152.3), Opolskie (143.9), Lubuskie (135.5) and Dolnośląskie (131.8) [10].

The regions with the least harmful work conditions are Mazowsze (indicator was 62.0 – that means that every 16<sup>th</sup> person is at health risk), and Łódzkie (indicator 77.6). The situation of workers from Podlasie, compared to the situation nationwide is quite good. The indicator of working in threatening conditions is 78.0 (per 1000 of workers) in Podlasie, so every 13<sup>th</sup> person was working in health threatening conditions [11].

The analysis of threats structure at work in Poland, according to GUS data from 2005, shows that the highest number of workers at risk were exposed to noise (over 50%), fibrosis-causing dust (over 13%) and other industrial dust (5.8%), chemical substances (5.5%) and improper lighting (5.4%) [10].

### Conclusions

Workers' health status is believed to be an element of quality of social life. The analysis of the situation in the structure of occupational diseases and accidents show unbeneficial work conditions of region inhabitants and it should be the base of workplace health promotion strategy development in our region.

Based on above-mentioned results we can draw the following conclusions:

1. The biggest problems of improper work conditions in Podlasie are infectious and parasitic diseases.
2. High borreliosis incidence rate is observed mostly among farmers and foresters.
3. The main cause of occupational accidents in Podlasie is worker misbehaviour.
4. In Podlasie region the largest group of victims was trade workers. Most accidents take place where workmen with the shortest occupational experience were employed.

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