

# Analysis of Statistical Changes in Melanoma Malignum Cases Amount (C43 ICD-10) in Lower Silesia Region of Poland in Years 2006-2012

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## **ABSTRACT:**

Melanoma malignum incidence is on rise practically worldwide. In order to estimate yearly incidence and relevant current trends in Lower Silesia's population, data on registered medical interventions because of melanoma malignum (C43-C43.9 according to ICD-10) in the years 2006-2012 were analysed, which were made available due to courtesy of the public healthcare insurance provider Narodowy Fundusz Zdrowia (NFZ). The study revealed increasing trend in melanoma malignum of skin yearly incidence, which encompassed all ICD-10 subcategories with exception of lip and overlapping malignant melanoma. Total amount of yearly registered cases jumped from 4101 in year 2006 to 5807 in year 2012.

Keywords: Melanoma Malignum; Dermatology; Oncology; Health Statistics; Public Health

## **INTRODUCTION**

The melanoma malignum incidence is on the rise practically worldwide and at the same time there are promising modern therapies available, especially immunotherapy [1], including so-called therapeutic cancer vaccines [2]. Unfortunately, the melanoma malignum is difficult to diagnose, as sometimes the primary lesion is untraceable while the metastases are present already [3]; the lesions can also look in many different ways, so the clinical doctors often call it "the great imitator" - sometimes the non-neoplasm changes can raise serious suspicions of melanoma malignum while in fact being of different origin or even iatrogenic artefacts [4]. The rise in patients' awareness triggers overtreating of harmless but suspicious-looking skin lesions [5]. Epidemiological studies associate malignant melanoma of skin with exposure to sun, especially in case of susceptible populations, for presence of suspiciously looking lesions every 3-4 months and in case of old age people additional skin examination shall obligatorily be performed by a physician at least once every year [7]. The efforts can give a tremendous pay-off as early surgical removal of cutaneous melanoma not only improve prognosis but give almost 90% chance of cure [8].

The aim of the study was to define changes in melanoma malignum yearly incidence in the Lower Silesia region of Poland - in order to approximate relevant health risks and to evaluate indirectly screening and education efforts of local public health authorities.

## **MATERIAL AND METHODS**

Data on registered medical interventions because of melanoma malignum (C43-C43.9 according to ICD-10) in the years 2006-2012, made available due to courtesy of the public healthcare insurance provider Narodowy Fundusz Zdrowia in Lower Silesia region of Poland (NFZ), were analysed in order to estimate yearly melanoma malignum incidence and relevant current trends in the Lower Silesia's population. The data were analysed with Microsoft Office Excel 2007 software. The data structure did not allow the analysis spectrum to be broadened; particularly unavailable were data pertaining patients' age, sex and occupation.

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#### **RESULTS AND DISCUSSION**

The major population characteristics, including age structure, of the Lower Silesia region of Poland did not change in the years 2006-2012 although marked population ageing effect was observed [9]. In the year 2014 the region had 2,9 million inhabitants, 48 % of them males [10]. In the years 2006-2012 there were reported 34027 cases of malignant melanoma (C43-C43.9 according to ICD-10) fitting into different classes.

In the analyzed period in the Lower Silesia region there were reported 12328 cases as general category "malignant melanoma" (C43 according to ICD-10); there was rapid and continuous increase in yearly incidence and in the year 2012 it reached 176,3% o the year 2006 value - as it is demonstrated in Figure 1.



**Figure1.** Yearly Amounts of Cases of Malignant Melanoma of Skin Reported as General Category Only, with the Exception of Malignant Melanoma of Skin of Genital Organs (C43 According to ICD-10) Registered in the Lower Silesia Region of Poland in The Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

The total amount of malignant melanoma of lip (C43.0 according to ICD-10) cases was 330 in the whole analysed period and there was rapid and continuous decrease so yearly incidence in the year 2012 was limited to 24,0% of the year 2007 value - as it is shown in Figure 2.



**Figure2.** Yearly Amounts of Cases of Malignant Melanoma of Lip (C43.0 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

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There were total 442 cases of malignant melanoma of eyelid, including canthus (C43.1 according to ICD-10) in the years 2006-2012 in the Lower Silesia region; the yearly incidence was alternating from year to year, without any significant trend - as it is demonstrated in Figure 3.



**Figure3.** Yearly Amounts of Cases of Melanoma of Eyelid, Including Canthus (C43.1 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Cases of malignant melanoma of ear and external auricular canal (C43.2 according to ICD-10) were uncommon in the analysed period and there were total 213 of them reported in the years 2006-2012; however there was dynamic increase in incidence in the years 2006-2009 with subsequent stabilisation so in the end of the period cases amount was 163,6% of that recorded in the beginning - as it is depicted in Figure 4.



**Figure4.** Yearly Amounts of Cases of Malignant Melanoma of Ear and External Auricular Canal (C43.2 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

In the analyzed period there were in the Lower Silesia region of Poland 1306 registered cases of malignant melanoma located in the parts of face other than lip, eylid, ear and external auricular canal, and of unspecified parts of face (C43.3 according to ICD-10); yearly amounts of cases alternated - as it is visualized in Figure 5.

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**Figure5.** Yearly Amounts of Cases of Malignant Melanoma of Parts of Face Other than Lip, Eyelid, Ear and External Auricular Canal, and of Unspecified Parts of Face (C43.3 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

The cases of malignant melanoma of scalp and neck (C43.4 according to ICD-10) were comparatively common, with 622 cases in the whole analysed period; the yearly amounts of cases alternated, with increasing trend after the initial fall in the year 2007 - as it is shown in Figure 6.



**Figure6.** Yearly Amounts of Cases of Malignant Melanoma of Scalp And Neck (C43.4 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Malignant melanoma located on the trunk, including: anal margin and skin, perianal skin and skin of breasts (C43.5 according to ICD-10) was common compared to different locations, with total 6401 cases in the analysed period. In the years 2006-2009 there was increasing trend, in the later years the yearly amount of cases alternated; in the year 2012 it was 134,7% of the value in the year 2006, as it is demonstrated in the Figure 7.

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**Figure7.** Yearly Amounts of Cases of Malignant Melanoma of Trunk, Including: Anal Margin and Skin, Perianal Skin and Skin of Breasts (C43.5 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

In the years 2006-2012 in the Lower Silesia region of Poland there were registered total 2776 new cases of malignant melanoma of upper limb, including shoulder (C43.6 according to ICD-10). According to the data shown in Figure 8, the yearly amount of cases alternated from year to year; in the year 2011 the amount was 87,0% of the value from the year 2006, but in the year 2012 - it was 132,1%, respectively.



**Figure8.** Yearly Amounts of Cases of Malignant Melanoma of Upper Limb, Including Shoulder (C43.6 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Malignant melanoma of lower limb, including hip (C43.7 according to ICD-10) was quite common in the Lower Silesia region of Poland in the analysed years, with the total registered amount of 4948 cases. The yearly amounts of cases initially dropped, reaching the lowest value in the year 2008, but later there was rapid increase: in the year 2012 the amount of cases reached 126,4% of the value from the year 2006 - as it is visualised in Figure 8.

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**Figure8.** Yearly Amounts of Cases of Malignant Melanoma of Lower Limb, Including Hip (C43.7 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Cases of malignant melanoma of skin (C43.8 according to ICD-10) were not very common in the Lower Silesia region of Poland population, with total amount of registered cases of 804. As it is visualised in Figure 9, there was a significant decrease of the yearly amount of cases after the year 2007; the amount of cases in the year 2012 was 78,4% of the initial value.



**Figure9.** Yearly Amounts of Cases of Overlapping Malignant Melanoma of Skin (C43.8 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Cases of unspecified malignant melanoma of skin (C43.9 according to ICD-10) were registered often in the Lower Silesia region of Poland, with the total amount of 3857 cases in the analysed years. The yearly amount of cases changed irregularly from year to year, the amount registered in the year 2012 was 126,9% of the value from the year 2006 - as it is shown in Figure 10. Robert Suslo et al. "Analysis of Statistical Changes in Melanoma Malignum Cases Amount (C43 ICD-10) in Lower Silesia Region of Poland in Years 2006-2012"



**Figure10.** Yearly Amounts of Cases of Unspecified Malignant Melanoma of Skin (C43.9 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006-2012; Source: Data Made Available by Courtesy of the NFZ.

Differences in the yearly incidence of various forms of melanoma malignum of the skin (C43-C43.9 according to ICD-10) in the Lower Silesia population of Poland between the year 2006 and 2012 are summarised in Figure 11. The total amount of yearly registered cases jumped from 4101 in the year 2006 to 5807 in the year 2012, which translates into 141,6% of the initial value. It is striking that there was increase recorded in most categories - with the exception of rare location on the lip and the overlapping malignant melanoma (C43.0 and C43.8 according to ICD-10, respectively). The most numerous and at the same time the most commonly reported categories were: malignant melanoma of skin reported as general category only; malignant melanoma of trunk, lower limb including hip, unspecified malignant melanoma of skin and of upper limb including shoulder (C43, C43.5, C43.7, C43.9 and C43.6 according to ICD-10, respectively).



**Figure11.** Yearly Amounts of Cases of Malignant Melanoma of Skin (C43-C43.9 According to ICD-10) Registered in the Lower Silesia Region of Poland in the Years 2006 and 2012; Source: Data Made Available by Courtesy of the NFZ.

#### CONCLUSIONS

The study revealed the increasing trend in melanoma malignum of the skin yearly incidence in the Lower Silesia region of Poland in the years 2006-2012, which encompassed all ICD-10

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subcategories with the only exception of lip and overlapping malignant melanomas. The increasing trend in melanoma malignum of the skin incidence is consistent both with studies carried out earlier in Poland and the worldwide reported trend. It is important information for the Polish public health authorities as it means the need to increase educational and preventive efforts to increase the screening for skin lesions suspicious of malignancy - in order to diagnose melanoma malignum at the earliest possible stage when chances for successful treatment are the biggest. Useful information for screening is that the most commonly reported specific locations of melanoma malignum lesions include: trunk, lower limb including hip and upper limb including shoulder.

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