

# Age-specific and sex-specific incidence of melanoma in the Lithuania according to Lithuanian Cancer Registry

Ieva Vincerzevskiene MSc<sup>1</sup>, Vincas Urbonas MD, MSc, PhD<sup>1,2</sup>

<sup>1</sup> National Cancer Institute, Vilnius, Baublio 3b, Lithuania

<sup>2</sup> Vilnius University, Medical Faculty, Vilnius, Ciurlionio 21, Lithuania

## Introduction and Objectives

The annual incidence of melanoma in Europe differs from 3–5 cases per 100 000 in Mediterranean region to 12–35 cases per 100 000 in the north part of the Europe. The melanoma incidence increased during the last 30 - 40 years in the Europe and USA almost in all age groups.

One of the main risk factors for melanoma is UV exposure, especially in childhood<sup>1</sup>. Public health campaigns are directed to sun-protective behavior in the Lithuania as well in the rest of the Europe, but the effect on melanoma incidence is unknown. The aim of this study was to evaluate the incidence of melanoma in the Lithuania according to the age and sex.

## Materials and Methods

Analysis was based on data from the population-based Lithuanian Cancer Registry database for 1990-2012. Deidentified data for 7063 cases of skin melanoma (ICD-10 code C43) were used for evaluation. Age-adjusted rates (ASRs) by sex and age group were calculated. Adjustment for ASRs was done using the old European standard population, where a total of 18 age groups were considered, each of 5-year bands starting from 0–4 years to 85 and older. Additionally, the annual percent change (APC) was calculated for trends by means of the generalized linear model using the Joinpoint Software, Version 4.5.0.0. For each of the identified trends, we also fit a regression line to the natural logarithm of the rates using a calendar year as a regression variable. 95% confidence intervals for APC were calculated as well. Annual percent changes were considered statistically significant if  $p < 0.05$ .

## Results

Between 1990 and 2012, overall melanoma rates increased by an APC of 4.3% in men (95% CI, 4.0%-4.6%) and 2.9% in women (95% CI, 2.6%-3.1%). Increase of melanoma incidence was shown in all age groups irrespective of sex (Table 1). The lowest melanoma increase by an APC of 1.9% in men (95% CI, 1.2%-2.6%) and 0.7% in women (95% CI, 0.2%-1.3%) was in young adults age group. The highest melanoma increase by an APC of 4.9% in men (95% CI, 4.5%-5.2%) and 4.0% in women (95% CI, 4.2%-10.4%) was in old adults age group (Table 1). Data on sun protection and skin pigmentation were unavailable. Age-standardized incidence trends of melanoma according to sex are shown in Figures 1.

## Conclusions

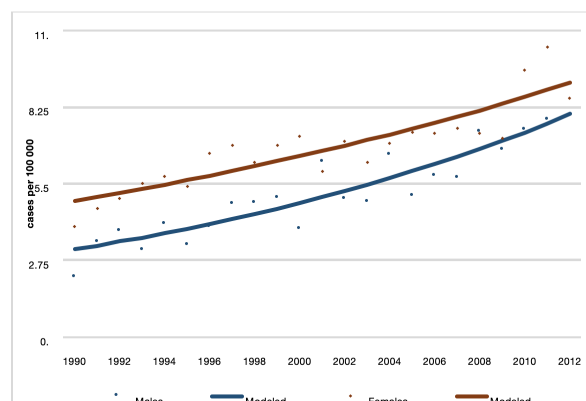
The incidence of melanoma in the Lithuania appeared to increase in all age groups especially in old adults group irrespective of sex from 1990 to 2012. These incidence trends indicate that public health efforts are not sufficient. Also these results advocate about a need to improve early detection and prevention of this deadly disease in Lithuania.

Table 1. Results of the Joinpoint Regression Analysis in melanoma incidence by sex and age groups

	1990		2012		Annual percent change	95% confidence intervals
	n (%)	ASR	n (%)	ASR		
<b>Males</b>						
<b>Total</b>	31 (100)	2.17	126 (100)	7.95	4.3*	[4.0; 4.6]
<b>Age group</b>						
Young adults (0-39)	5 (16.1)	0.26	12 (9.5)	0.89	1.9*	[1.2; 2.6]
Middle-aged adults (40-59)	8 (25.8)	0.54	35 (27.8)	2.22	4.4*	[3.8; 4.9]
Old adults (60+)	18 (58.1)	1.38	79 (62.7)	4.73	4.9*	[4.5; 5.2]
<b>Females</b>						
<b>Total</b>	82 (100)	3.99	190 (100)	8.59	2.9*	[2.6; 3.1]
<b>Age group</b>						
Young adults (0-39)	11 (13.4)	0.57	19 (10.0)	1.40	0.7*	[0.2; 1.3]
Middle-aged adults (40-59)	32 (39.0)	1.83	56 (29.5)	3.28	2.6*	[2.2; 3.0]
Old adults (60+)	39 (47.6)	1.59	115 (60.5)	3.91	4.0*	[4.2; 10.4]

ASR – age-standardized incidence rate; \* Annual percent change is statistically significant

Figure 1. Age-standardized incidence trends for melanoma by sex in Lithuania (1990-2012)



## REFERENCES:

1. Hollestein LM, van den Akker SAW, Nijsten T et al. Trends of cutaneous melanoma in The Netherlands: increasing incidence rates among all Breslow thickness categories and rising mortality rates since 1989. *Ann Oncol* 2012; 23(2): 524-530.