Opportunistic screening strategy for cutaneous melanoma does not change the incidence of nodular and thick lesions nor reduce mortality: a population-based descriptive study in the European region with the highest incidence
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The aim of the present population-based descriptive study was to evaluate the incidence and mortality trends for melanoma to gain insights on the effectiveness of opportunistic secondary prevention strategies. Data on all invasive cutaneous melanoma cases occurring between 1996 and 2011 were retrieved from the Ticino Cancer Registry, southern Switzerland. The European age-standardized incidence rates were computed by the period of diagnosis, Breslow thickness and histological types. Trends in incidence and mortality rates were measured as the annual percent change (APC). A total of 1230 patients had a diagnosis of invasive cutaneous melanoma. Cases were categorized as follows: superficial spreading melanoma (55.7%), nodular melanoma (10.0%), lentigo maligna melanoma (5.5%), melanoma not otherwise specified (25.2%) and other types (3.6%). The incidence rate of invasive melanoma rose from 17.4 per 100 000 inhabitants in 1996–2003 to 20.6 in 2004–2011, with an overall APC of + 2.1% [95% confidence interval (CI): – 0.8%, + 5.1%]. An increase in incidence was observed for superficial spreading melanoma (APC = + 2.9%; 95% CI: – 1.1%, + 7.0%) and thin melanomas (i.e. ≤ 1.00 mm) (APC = + 3.4%; 95% CI: + 0.2%, + 6.7%), whereas we detected a descriptive growing incidence of thick melanomas (APC = + 2.1%; 95% CI: – 1.4%, + 5.8%). Mortality trend analysis revealed constant rates throughout the study period (APC = – 1.0%; 95% CI: – 5.5%, + 3.7%). This population-based study confirms that in a country with the highest incidence of cutaneous melanomas, that is, Switzerland, the opportunistic screening strategy does not change the incidence of thick melanomas nor the overall mortality. This study suggests there is still a need for public health efforts in primary and secondary prevention. *Melanoma Res* 23:402–407 © 2013 Wolters Kluwer Health | Lippincott Williams & Wilkins.

**Keywords:** Breslow thickness, cancer registry, histological type, incidence trend, mortality, mortality trend, opportunistic screening

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Introduction

The incidence of melanoma has increased worldwide over several decades, with the exception of Australia, where a recent decline has been observed [1,2]. Switzerland has the highest incidence rate of cutaneous melanoma in Europe, even higher than those observed in other high-incidence countries such as Norway, Sweden, Denmark and the Netherlands [1–3]. Similar to what is observed in many European countries, the incidence of melanoma has increased in Switzerland during the past decades, whereas the mortality rate has remained unchanged [1,3]. Early detection of melanoma is promoted in Switzerland through whole-body skin examinations by health professionals and skin self-examinations, based on a pure opportunistic strategy. Since the 1990s, different primary and secondary prevention campaigns have been organized with the aim of increasing the level of awareness among healthcare professionals and the general population. According to recent results from the Swiss Health Survey, the proportion of the population that underwent a skin examination by a health professional increased from 1997 onwards, reaching 35% in 2007 (38 and 33% in women and men, respectively) [4]. It is known that an increase in the utilization of secondary prevention measures in a well-defined population can be followed by an increase in the incidence rate of a specific cancer; this pattern has been observed in Switzerland for melanoma. Considering the increased identification of cancers with better prognostic factors that is expected to occur in a secondary prevention design, a decrease in mortality should consequently be observed.

The current debate focuses on the question of whether the increased melanoma incidence rate represents a real epidemic or whether it is attributable to an increased awareness and diagnosis of lesions with favourable prognostic factors. Recent studies conducted in the Netherlands and Italy support the hypothesis of a real