Screening, early detection, education, and trends for melanoma: Current status (2007-2013) and future directions

Part I. Epidemiology, high-risk groups, clinical strategies, and diagnostic technology

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1. Reading of the CME Information (delineated below)
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3. Achievement of a 70% or higher on the online Case-based Post Test
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Learning Objectives:
After completing this learning activity, participants should be able to describe current trends in melanoma incidence/mortality, risk factors for melanoma severity, and the tools for determining each patient's risk of melanoma.

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While most cancers have shown both decreased incidence and mortality over the past several decades, the incidence of melanoma has continued to grow, and mortality has only recently stabilized in the United States and in many other countries. Certain populations, such as men >60 years of age and lower socioeconomic status groups, face a greater burden from disease. For any given stage and across all ages, men have shown worse melanoma survival than women, and low socioeconomic status groups have increased levels of mortality. Novel risk factors can help identify populations at greatest risk for melanoma and can aid in targeted early detection. Risk assessment tools have been created to identify high-risk patients based on various factors, and these tools can reduce the number of patients needed to screen for melanoma detection. Diagnostic techniques, such as dermatoscopy and total body photography, and new technologies, such as multispectral imaging, may increase the accuracy and reliability of early melanoma detection. (J Am Acad Dermatol 2014;71:599.e1-12.)

Since the most recent review article (2007) regarding the screening and early detection of melanoma,[1] there have been numerous studies of significance to dermatology, clinical medicine, and public health. In particular, screening and education studies in the United States and Germany have been strongly associated with reductions in melanoma mortality. These findings are significant, because melanoma remains the only preventable cancer for which the mortality rate has not declined.

In part I of this continuing medical education article, we highlight updates in melanoma epidemiology, the identification of high-risk groups, clinical strategies for earlier detection, and novel diagnostic technologies. Part II focuses on the latest international and domestic data regarding the efficacy of skin screening, implications for a potential US melanoma screening initiative, the need for increased public and health professional education efforts, and future directions to enhance early melanoma detection.

We reviewed PubMed, Embase, CINAHL, and Cochrane databases using the following search terms: melanoma, incidence, mortality, early detection, screening, thickness, race, dermoscopy/dermatoscopy, education, population-based, self-examination, and skin examination. We identified additional studies by reviewing the reference lists of all studies included herein. Every effort was made to use only the most recently published studies (ie, 2007-2013); in a few cases, key studies before 2007 were included. In some cases, actual studies were conducted before 2007 but reported in the period between 2007 and 2013.

Abbreviations used:

CSLM:	confocal scanning laser microscopy
MC1R:	melanocortin-1 receptor
PD:	Parkinson disease
SEER:	Surveillance Epidemiology and End Results
SES:	socioeconomic status

INCIDENCE AND MORTALITY TRENDS IN THE UNITED STATES AND INTERNATIONALLY

Key points

- **In the United States, incidence rates of melanoma have continued to increase while mortality rates have only recently stabilized**
- **The steepest rise in incidence rates has been in men >60 years of age and in lower socioeconomic areas**
- **For any given stage and across all ages, men have poorer melanoma survival than women**
- **Internationally, various countries have seen similar increases in melanoma incidence and mortality**

Incidence

The incidence of melanoma is increasing at a faster rate than any other preventable cancer in the United States.[2] According to data from the Connecticut Tumor Registry between 1950 and 2007, incidence rates rose more than 17-fold in men (1.9 to 33.5 per 100,000) and more than 9-fold in women (2.6 to 25.3 per 100,000).[3] The latest projections predict that there will be >76,000

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