Trends in melanoma tumour thickness in Norway 1980-2019

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**Introduction:** Norway ranks fifth in incidence and second in mortality of cutaneous melanoma worldwide. Tumour thickness at diagnosis is the cornerstone of melanoma classification and the most important prognostic factor for clinically localized primary melanoma. Increased incidence of thin tumours may be a result of increased awareness and changes in pathological practice. Recently digitized tumour thickness data (1980-2007) and data from the Melanoma Registry (2008-), enable investigating long-term trends in melanoma thickness.

**Aim:** To investigate trends in tumour thickness, overall and in important subgroups in a nationwide case series from 1980 to 2019.

**Methods:** Tumour thickness was categorized in T-categories: T1 (≤1.0 mm), T2 (1.0-2.0 mm), T3 (>2.0-4.0 mm), and T4 (>4.0 mm). Incidence rates were age-standardized using the European standard population. Trends and changes in incidence rate over time were analysed with annual percentage changes (APC) and average APC.

**Results:** We included 47,439 morphologically verified first primary invasive melanoma cases (52% women) diagnosed in 1980-2019. Median age at diagnosis increased from 58 years in 1980-1999 to 65 in 2008-2019. Throughout the period studied, women were diagnosed at a thinner stage than men. In men, median (interquartile range) tumour thickness decreased from 1.4 mm (0.75-3) in 1980-1999 to 1 mm (0.6-2.3) in 2008-2019, and in women from 1 mm (0.6–2) to 0.9 mm (0.5–1.8). T1 melanoma incidence increased most, and an incidence plateau was found between 1993 and 2006: APC (95% CI) was 17.02 (14.58, 19.51) in 1980-1993, 0.75 (-0.4, 1.91) in 1994-2006 and 6.08 (4.88, 7.3) in 2007-2019. No plateau was found for T2, T3 and T4 melanomas. Although less pronounced, incidence of tumours >2mm also has increased. Average APC (95% CI) of T4 melanomas was 3.04 (2.32, 3.76) for 1980-2019. Results from age-period-cohort analysis are in progress.

**Conclusions:** T1 melanomas had the largest increase in incidence over time. An increasing trend was also observed in thicker tumours, suggesting that the rise in melanoma incidence is due to not only overdiagnosis/pathological practice.

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