

Time trends of stage specific incidence rates of breast cancer over the first years of the German Mammography Screening Program

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BACKGROUND. The German Mammography Screening Program (MSP) has been introduced between 2005 and 2009 for all women between 50 and 69 years of age (figure 1). An important parameter for the evaluation of its effectiveness is the incidence of advanced malignant breast tumors in the target population. A decrease of this rate would be expected at some point after implementation of the program and could be seen as a necessary condition for a screening related reduction of breast cancer mortality several years later, as well as an indication for a benefit of MSP due to less invasive therapy regimes.

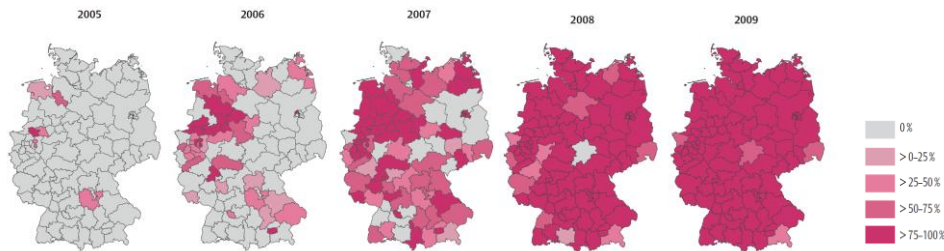
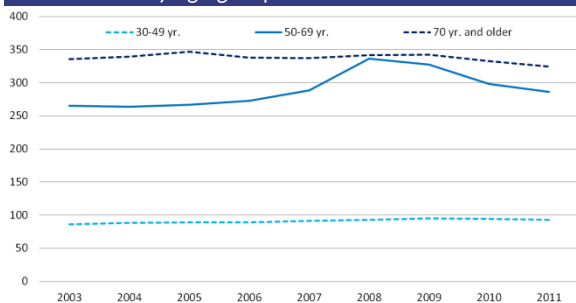


Figure 1: Regional coverage of screening units during the implementation of the German Mammography Screening Program (adapted from [1])

Figure 2. Age standardized incidence rates of invasive female breast cancer by age group

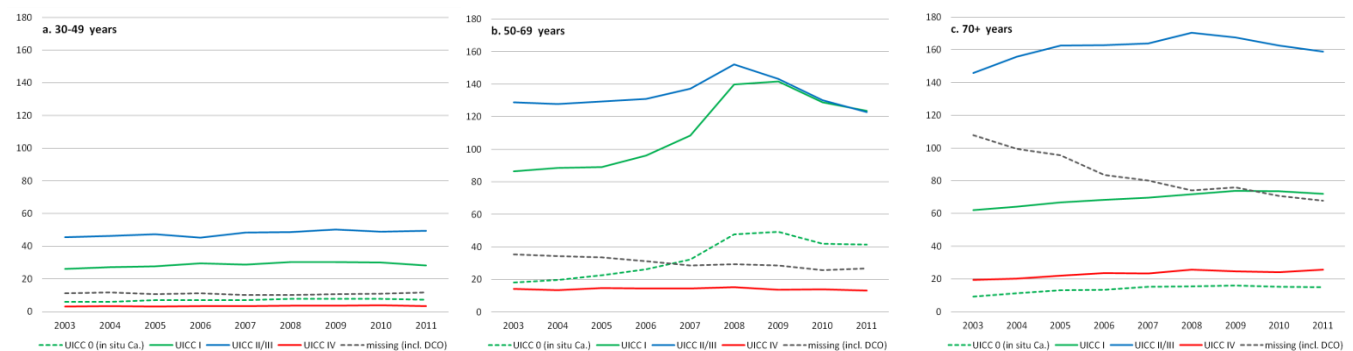


RESULTS. Following a temporary increase, the pooled incidence rate of advanced, non metastatic breast cancer (UICC II-III) in the target population decreased to slightly below pre-MSP levels. The incidence rate of early stages (UICC 0 and I) in 2011 was still about 40% higher compared to the years 2003-2004. Incidence of metastatic disease (UICC IV) remained largely unchanged throughout the observation period (fig. 3b). For the age groups below 50 and above 70 years, overall and stage-specific incidence remained fairly stable over the whole period, except for a notable increase of in situ carcinoma rates for older women (fig. 2, 3a/c). The completeness of stage information improved the time period, especially for the screening and the older age groups.

METHODS. We analyzed data from seven German population-based cancer registries covering 11 of 16 federal states and one district (55 % of the female population in Germany) for the time period 2003-2011. Three registries were excluded because statewide registration started after 2004 (Baden-Württemberg, Hesse and North Rhine-Westphalia except for the district of Muenster). From two federal states (Saarland and Rhineland-Palatinate) data for 2011 were not yet available. We calculated pooled age-standardized incidence rates according to UICC-stage for the age groups 30 to 49, 50 to 69 and 70 years and older. UICC stages II and III were combined because of changes in the TNM classification (6th to 7th edition).

CONCLUSIONS. The temporal trends of stage-specific breast cancer incidence rates through 2011 in Germany seem to follow a similar course to those observed in other countries with MSP[2]. Far more early stage tumors are detected than before implementation of MSP, while there are first indications that incidence rates of advanced breast cancer might be reduced by the program. Although the impact of MSP on incidence of advanced breast cancer should be visible before the targeted reduction in breast cancer mortality, it seems still too early for a final evaluation of this parameter, as a 'steady state' of the respective incidence rates has not been reached yet.

Figure 3 a-c. Age standardized incidence rates of invasive female breast cancer (C50) by UICC stage and age group



REFERENCES

- [1] Kooperationsgemeinschaft Mammographie: Evaluationsbericht 2008-2009, Ergebnisse des Mammografie-Screening-Programms in Deutschland. 2012
 [2] Fracheboud J, Otto S, van Dijk JA, Broeders MJ, Verbeek AL, de Koning HJ. Decreased rates of advanced breast cancer due to mammography screening in The Netherlands. *BR J Cancer.* 2004 Aug 31;91(5):861-7.

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