

## Short term effects of night shift work on risk of breast cancer classified by oestrogen and HER2 receptor status

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**Objective** The objective of this study was to examine if the association between recent night shift work and breast cancer differed by tumour subtypes defined by oestrogen (ER) and human epidermal growth factor 2 (HER2) status.

**Methods** A cohort study of 155,569 female employees in the public healthcare sector in Denmark 2007 to 2012. Day-by-day information on working time was available from pay roll registers and 1245 incident cases of breast cancer were identified in national cancer registries: 136 ER-/HER2-, 797 ER+/HER2-, 187 HER2+, and 125 not classifiable due to missing receptor status.

**Results** A significantly increased rate ratio (RR) was observed for HER2+ breast cancer among women who worked  $\geq 30$  night shifts (RR 1.49, 95% confidence interval (CI) 1.04 to 2.13) and ever night shifts (RR 1.35, 95% CI 1.01 to 1.81) compared with those who did not work night shifts after adjustment for age, age at first child, parity, family history of breast or ovarian cancer, sex hormones, medications related to alcoholism, family educational level, mammography screening, and other potential confounders. However, no association was observed among women likely to be recently hired. No increased risk was observed for ER+/HER2- and ER-/HER2- receptor subtypes.

**Conclusion** We observed an increased risk of HER2+ breast cancer following recent night shift work. Other breast cancer subtypes defined by ER and HER2 status were not associated with recent night shift work.