

Letter

Night shift work and breast cancer - Authors' reply

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We reported little or no increase in breast cancer incidence associated with night shift work, either in three large UK prospective studies or in a meta-analysis that combined results from the three UK studies with those from seven previously published prospective studies (two in China, two in Sweden, one in the Netherlands, and the two Nurses' Heath Studies in the USA).¹ Taking all the 10 studies together, the combined relative risks were 0.99 for any night shift work and 1.01 for 20 or more years night shift work, compared with no night shift work. Restriction of our meta-analysis to findings from prospective studies, queried by Stevens and Hansen (correspondence), is important when trying to detect or refute moderate hazards, because it avoids the moderate biases that can result from retrospective methodology.

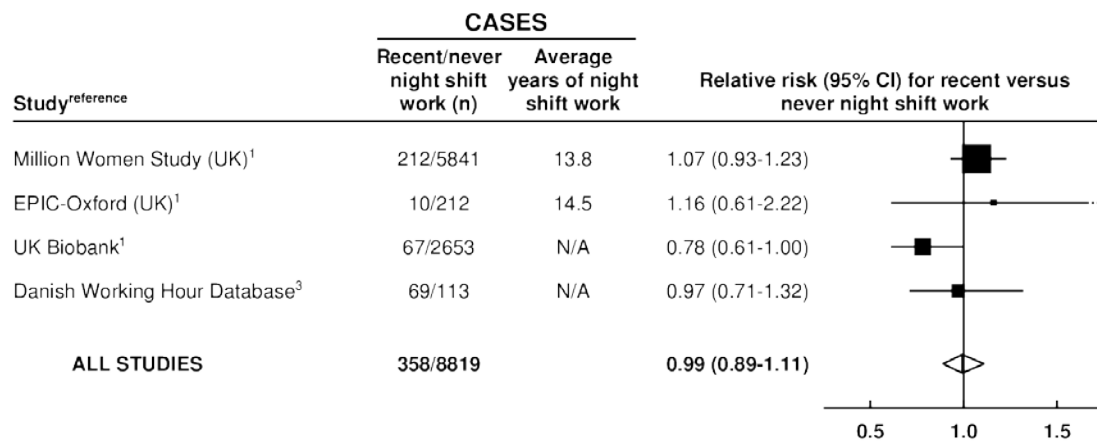
Studies investigating human breast cancer risk associated with night shift work are not investigating directly the effects of changes in circadian rhythm, as Erren et al point out (correspondence). Our aim was specifically to examine the hypothesis that night-shift work, and particularly long-term night-shift work, increased breast cancer risk. Since publication of our findings¹ follow-up has been extended to 3.5 years in the Million Women Study and to 4.1 years in EPIC-Oxford. The updated meta-analyses of findings from the 10 prospective studies now yield relative risks of 0.99 (95%CI 0.95-1.04) for any night shift work and 1.00 (95% CI 0.92-1.09) for 20 or more years night shift work, still consistent with little or no relation between night shift work and incident breast cancer.

The suggestion by Schernhammer and Stevens (correspondence) that an increase in breast cancer risk might wane after cessation of night shift work was not mentioned in the 2007 review by the International Agency for Research on Cancer.² Nevertheless, the accompanying figure shows a meta-analysis of the currently available prospective evidence on breast cancer risk associated with recent night shift work. In the Million Women Study¹ and EPIC-Oxford¹ the average duration of night shift work in the recent workers was almost 15 years, and there was no significant heterogeneity in risk by time since ceasing night shift work; corresponding information was not available for UK Biobank¹ or the study from Denmark.³ Taken together, the results from the three UK studies and the Danish study yield a combined relative risk of 0.99 for night shift work in the previous 10 years versus none, with 95% confidence intervals from 0.89 to 1.11, suggesting that recent night shift work also has little, if any, effect on breast cancer incidence.

In summary, the totality of the published worldwide evidence continues to show little or no increase in breast cancer risk associated with night shift work, including long duration night work.

References

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Study-specific relative risks (RRs) are represented by squares (95% confidence intervals [CIs] as lines). Results were combined using inverse-variance-weighted averages of log RRs in each study, yielding a RR and its 95% CI plotted as a diamond. Recent includes night shift work ≤10 years ago in the Million Women Study, EPIC-Oxford and UK Biobank and in the past 1-5 years in the Danish study.

Figure. Meta-analysis of prospective evidence of breast cancer incidence associated with recent night shift work