

Industrial Injuries Advisory Council – Information note

IIAC Commissioned Reviews 2010 - Cancer risk in Painters

November 2010

1. In 2009, following an open competition, a contract to review the epidemiological literature in relation to health effects of working as a painter was awarded to the Institute of Occupation and Environmental Medicine (IOEM) at the University of Birmingham. The purpose of review was to carry out “a systematic review of the evidence relating to occupational cancers in commercial painters” to help the IIAC formulate a view on the potential for prescription under the Industrial Injuries Scheme. The Council corresponded with and advised researchers from the IOEM, both in relation to their bibliographic search and the framework and criteria for prescription.
2. The review focussed in particular on whether the epidemiological data indicated a significantly increased risk of any specific form of cancer in commercial painters and, if so, whether this risk was more than doubled. Furthermore, the reviewers examined the literature to see if any doubling of risk could be connected to any particular exposure specifically associated with employment as a painter. They also considered whether any associations were due to confounding factors, how any exposures associated with an increased risk compared with British commercial painters and whether any associations were biologically plausible.
3. The reviewers collated the evidence in relation to lung cancer, bladder cancer, leukaemia and other cancers. For lung cancer and bladder cancer the key findings from each study were summarised and the findings and the reviewers’ comments on the associations are summarised in the Table (for full details see: www.iiac.org.uk/reports).
4. Here the Council summarises the main findings in brief and comments on the potential for prescription.

Key findings

5. For painters the evidence was as follows:
 - a. For lung cancer there was evidence of an increased risk in the cohort and nested case-control studies (summary RR (95%CI) 1.25 (1.18 to 1.32) and also from the case-control studies (1.28 (1.13 to 1.45)).
 - b. For bladder cancer there was evidence of an increased risk in the cohort and nested case-control studies (summary RR (95%CI) 1.10 (1.06 to 1.15) and also from the case-control studies (1.37 (1.23 to 1.52)).

- c. For leukaemia there was no evidence of an increased risk in the cohort and nested case-control studies (summary RR (95%CI) 0.92 (0.79 to 1.07). The evidence from case-control studies was deemed insufficient for conclusions to be drawn.
6. From cohort studies of paint manufacturers, there was no evidence of a raised risk of lung cancer, bladder cancer or leukaemia.
7. The reviewers helpfully carried out a quantitative synthesis of the evidence base and found no evidence of a doubling of the risk for lung cancer, bladder cancer or leukaemia.
8. For cancers other than lung cancer, bladder cancer and leukaemia there was insufficient evidence on which to draw robust conclusions.

Council's comments and conclusions

9. The reviewers were set the task of identifying circumstances in which the risks of cancer were more than doubled in commercial painters relative to a suitable comparator population. The benchmark of a doubling of risks is not arbitrary: as explained in various IIAC reports, it is used to gauge attribution to occupation on the balance of probabilities, in circumstances where a disease lacks diagnostic features specific to occupation.
10. No such evidence was found either for commercial painters or for paint manufacturers. The Council judges that the evidence base for prescription explored by this review is insufficiently compelling to warrant recommendation of prescription in relation to any cancer in painters or paint manufacturers.
11. Nothing in this information note and the related review should be construed as indicating that the work of painters or paint manufacturers is hazard free. Indeed there is some consistent evidence of increased risks of lung cancer and bladder cancer, but at a level of risk that is below that required for prescription (i.e. less than a doubling). Therefore, from the perspective of the Industrial Injuries Scheme and the evidence before the Council, the case for prescription of any particular cancer for work as a painter or paint manufacturer is not supported at present.

Table – Summary of evidence relating to cancer in painters and paint manufacturers

Study type	Site/type of cancer	Number of risk estimates included	Summary Relative Risks	95% confidence interval around summary relative risk / Summary of risk
Cohort and nested case control studies of painters	Lung	12	1.25	1.18 to 1.32
Cohort and nested case control studies of painters	Bladder	7	1.10	1.06 to 1.15
Cohort and nested case control studies of painters	Leukaemia	8	0.92	0.79 to 1.07
Cohort studies of paint manufacturers	Lung	3	1.01	0.87 to 1.18
Cohort studies of paint manufacturers	Bladder	1	0.98	0.56 to 1.59
Cohort studies of paint manufacturers	Leukaemia	2	0.97	0.61 to 1.45
Routinely collected data for occupational painters	All			“the strongest evidence has been supplied for excess risks of lung cancer” (RR< 2)
Case-control studies	Lung	21	1.28	1.13 to 1.45
Case-control studies	Bladder	45	1.37	1.23 to 1.52
Case-control studies	Leukaemia	4		“given the absence of any discernible excesses for this disease in cohort studies, we attach little importance to these findings”
Case-control studies	Other cancers	10		“confident interpretation is not possible”