

Research Seminar Series

Dalla Lana School of Public Health

Thursday October 8, 2009, 11:00am

Confounding and exposure misclassification in occupational cancer epidemiology

Dr. Aaron Blair, PhD

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Seminar Description:

Confounding and exposure misclassification are issues that concern epidemiologists because of their potential to bias results of studies and complicate interpretations. In occupational epidemiology both are routinely raised to argue that an observed result is either a false positive or a false negative finding. Although it is important to consider the potential for limitations of epidemiologic investigations, judgment regarding their importance should be based on their actual likelihood of occurrence. Clear examples of substantial confounding are rare in occupational epidemiology. In fact, even for studies of occupational exposures and lung cancer, tobacco-adjusted relative risks rarely differ appreciably from the unadjusted estimates. This is surprising because it seems the perfect situation for confounding to occur. Yet, despite the lack of evidence that confounding is a common problem, nearly every epidemiologic paper includes a lengthy discussion on uncontrolled or residual confounding. On the other hand, exposure misclassification probably occurs in all studies. The only question is, how much? The direction and magnitude of nondifferential exposure misclassification (the type most likely to occur in cohort studies) on estimates of relative risks can be largely predicted given knowledge on the degree of misclassification, i.e., relatively small amounts of misclassification can bias relative risks substantially towards the null. The literature, however, is full of discussions implying that misclassification of exposure is an explanation for a positive finding. These comments are not to suggest that all potential limitations for epidemiologic studies should not be considered and evaluated. We do believe, however, that the likelihood of occurrence and the direction and magnitude of the effect should be more carefully and realistically considered when making judgments about study design or data interpretation.

Guest Speaker Biography:

Dr. Blair is an Emeritus Investigator in the Occupational and Environmental Epidemiology Branch of the Division of Cancer Epidemiology and Genetics, National Cancer Institute. He was Chief of this group for over 25 years until he stepped down in September, 2004. He is currently serving as the Interim Director of the new Occupational Cancer Research Centre in Toronto. His research has focused on cancer risks from agricultural exposures, industrial chemicals, physical inactivity, occupational exposures among women, methodologic issues in occupational epidemiology, and molecular epidemiology. He has over 300 publications. He has evaluated environmental, occupational, and biologic risk factors for non-Hodgkin's Lymphoma, leukemia, and multiple myeloma.



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