Comparative Benefits for Disease Prevention of Improved Interventions versus More Discriminating Models of Disease Risk

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Abstract

Geoffrey Rose described “high risk” and “general population” prevention strategies in his book, *The Strategy of Preventive Medicine*. The “high risk” disease prevention strategy focuses preventive interventions on a subset of the population that has elevated risk of the disease of interest. In contrast, a “general population” prevention strategy employs an intervention on the entire population. The general population strategy often prevents more disease, because it is not limited to a subset of the population. The general population strategy can only be used, however, if the intervention has few side effects and if the costs are not too high. If an intervention has adverse effects, it should only be used in a sub-population with high enough risks of the disease of interest that the benefits of prevention outweigh the adverse effects. Two ways to improve the performance of the high risk strategy are: (1) to improve the ratio of preventive benefit to adverse effects of the intervention; and (2) to improve the discriminatory accuracy of the disease risk model used to identify members of the population at high risk of the disease of interest. I compare the relative advantages and disadvantages of these two approaches.

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