

research-article

Cancer in Banana Plantation Workers in Costa Rica

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BACKGROUND: Costa Rica has population and disease registries with potential value for epidemiological research. Pesticides have been intensively used on **banana** plantations, for example dibromochloropropane (DBCP). This study was planned to examine the quality of the **cancer** and civil registries and the feasibility of record linkages, and to explore **cancer** patterns among a highly exposed group.

METHODS: A retrospective cohort study was carried out. Workers on the payrolls of **banana** companies, as reported to the Social Security System at any time between 1972 and 1979, were followed up in the **cancer** registry between 1981 and 1992: 29 565 men and 4892 women for 407 468 person-years. The observed cases of **cancer** were compared to the expected values, derived from the national incidence rates.

RESULTS: We identified 368 **cancer** cases, 292 among men (standardized incidence ratio [SIR] = 76, 95% confidence interval [CI] 67–84) and 76 among women (SIR = 116, 95% CI : 90–142). Among men increased SIR were observed for melanoma (SIR = 197, 95% CI: 94–362) and penile **cancer** (SIR = 149, 95% CI : 55–324); among women for cervix **cancer** (SIR = 182, 95% CI: 122–241) and leukaemia (SIR = 274, 95% CI: 86–639). Risk estimates for lung **cancer** were elevated among male workers with the longest time of employment.

CONCLUSIONS: Follow-up was difficult due to deficient identification variables in the **cancer** registry and to easier identification of the living compared to the deceased in the civil registry at the end of the observation period. The various systematic errors in this study are likely to produce an underestimation of the relative risk estimates. This study contributes to improvements of the registries and increases the potential for **cancer** epidemiology in Costa Rica and other developing countries.

Keywords cohort study, registries, **cancer**, pesticides, DBCP, developing country, **banana** workers, agriculture

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