

**NOTE PREPARED BY AEA AT THE REQUEST OF THE ENVIRONMENTAL SERVICES
ASSOCIATION: REVIEW OF RESEARCH PAPER ON HEALTH EFFECTS OF INCINERATORS
BY S CANDELA**

“Valutazione degli effetti sulla salute nella popolazione oggetto di indagine. AZIONE 1: Studi epidemiologici sulla popolazione residente. Studio di coorte sulla popolazione residente. Mortalità e incidenza dei tumori nei soggetti residenti intorno agli inceneritori per rifiuti solidi urbani in Emilia-Romagna”

[“Evaluation of health effects in the population under investigation. ACTION 1: Epidemiological studies on the resident population. Cohort study on the resident population: mortality and cancer incidence in residents around municipal solid waste incinerators in Emilia-Romagna”]

S Candela, November 2011, available via www.moniter.it

Background

The study was carried out by an organisation called “ARPA Monitor” which is supported by the Agenzia Regionale Prevenzione e Ambiente dell’Emilia-Romagna (ARPA Emilia-Romagna – the Regional Environmental Protection Agency of Emilia-Romagna). “Monitor” is an acronym for “*Monitoraggio degli inceneritori nel territorio dell’Emilia-Romagna*” (“*Monitoring incinerators in the territory of Emilia-Romagna*”). There is no indication that the study has been subject to peer review. A further study in the same series has been carried out into congenital malformations; this study has not yet been reviewed in detail.

Description

The study investigated mortality and incidence of cancer in a 4 km radius surrounding six waste incinerators in Emilia-Romagna. Exposure took place over the period 1991 to 1999 (in the case of Modena, from 1982 to 1999) – that is, prior to the implementation of the Waste Incineration Directive. The study covered a population of approximately 200,000 people. Dispersion modelling was used to classify exposure to emissions from the incinerators, and estimated exposure was adjusted for exposure to other sources using emissions of oxides of nitrogen as an indicator. The study took account of socio-economic factors using a geographical approach.

Findings

No increase in mortality from non-cancer causes in populations exposed to higher levels of emissions from the waste incineration facilities was observed. The study investigated a large number of potential associations between exposure to emissions from waste incineration facilities. An association was observed between levels of exposure and the incidence of colorectal cancer and lymphoma in women; non-Hodgkin's lymphoma; liver cancer; and pancreatic cancer in men. For the majority of outcomes investigated, no significant association was observed. For example, in the larger cohorts studied, 73 potential correlations were investigated, of which four revealed a significant positive association and two revealed a significant negative association at the 95% confidence level.

Conclusions of this review

As with other studies of this nature, the authors confirm that it is not possible to assess whether these observations reflect a causal relationship with exposure to emissions from the waste incinerators.

It is concluded that the study provides a useful analysis of cancer incidence in a significant population group linked to exposure to a previous generation of waste to energy facilities. The positive associations observed are of potential concern and could provide useful guidance for future studies. However, they are not of immediate concern with regard to current generation of waste to energy facilities operating in the UK, as they reflect operation under conditions when emissions of substances such as dioxins and furans were approximately 150 times higher than would currently be permitted in the UK. It is misleading to suggest that the facilities addressed by this study were covered by the same legislation as that currently applicable in the UK.