

Cancer trends by small area ecological study of distance from contaminated intertidal sediment

1. Irish Sea

- Irish Sea Wales most cancer sites incidence 1974-89; sex and 5-yr age groups
- Irish Sea Ireland "All malignancy" incidence 1994-1996 by 5-yr age groups

2. Ward level mortality: All malignancy, breast, prostate, lung cancer mortality 1995-2000

- Somerset (Hinkley Point)
- Severn Estuary (Oldbury, Berkeley)
- Cardiff (Amersham)
- Essex (Bradwell)

3. Child Leukemia

- Seascale (Gardner)
- Hinkley Point (Ewings)
- Wales (Busby)
- Estuaries (Alexander and Cartwright *et al.*)

RESULTS

Sharp increase in risk very close to coast associated with contaminated intertidal sediment in mud banks and estuaries. In Wales particularly high for childhood leukaemia and brain tumours. Not present on West Coast of Ireland.

MAGNITUDE

More than 3000 extra deaths from cancer in Wales from 1974-89

SUGGESTED EXPLANATION

Trend is similar to trend in airborne sodium chloride penetration and plutonium (Eakins *et al.*). Pu also found in sheep droppings (Eakins, Lally), autopsy specimens (Popplewell), children's teeth (Mitchell, Priest). Inhalation of Pu particles and other radioactive material concentrating in low tidal energy areas is the exposure cause of the effect. Sternglass has recently found similar trend in US for Sr-90 in teeth.