

be tested. Chest radiography should be limited to employees with relevant respiratory symptoms; this would result in considerable financial saving and a reduction in avoidable radiation.

I thank the nursing staff of this department for their help and cooperation with this study.

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Litter and medical waste on bathing beaches in England and Wales

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Medical wastes have appeared on holiday beaches,¹ and gastrointestinal symptoms have been associated with the aesthetic appearance of bathing water and beaches.² In 1990 the House of Commons reported that the aesthetic quality of recreational waters is "becoming increasingly important as the public become more aware of, and sensitive to, the risks,"³ and in 1991 the World Health Organisation and the United Nations Environment Programme reported that "the aesthetic and hygienic quality of beaches deserves immediate attention."⁴ This study looked for evidence of aesthetic risks.

Methods and results

In October 1991, for Norwich Union's Coastwatch UK project, the coastline of Britain was divided into 5 kilometre blocks and surveyed during a two week period. At low tide, volunteers completed a questionnaire for each 0.5 km unit of their allocated block. Priority was given to accessible bathing beaches, and there was easy access to 69% of the coastline units surveyed. Written instructions and telephone briefings were provided, and 10 regional coordinators trained in coastline management issues were available for local advice. The volunteers recorded the presence of specified litter items in the area between high and low tides and counted the number of beverage cans, plastic packing straps and rings, containers of potentially dangerous materials such as chemicals and gas cylinders, plastic bottles, and medical waste. As the size of beach area above high tide level could vary considerably among coastline units, and because litter counts above high tide level vary with the daily population density of beach users, litter counts were restricted to this intertidal area. As part of unpublished Coastwatch Europe studies the method had been previously found reliable in Ireland. In this study, it was not possible—with staffing constraints and because the volunteers could choose which day to do their fieldwork—to validate the findings in a sample of locations before the next high tide. Internal cross-checks were undertaken and confirmed consistency of the data.

Of 7000 distributed questionnaires, 4226 (60%) were completed and returned. Principal reasons for non-response were travel difficulties, poor weather, and illness. More than 15% of the British coastline (2113 km) was surveyed. The table shows how many coastline units in England and Wales and in the south western region were found to have different items of

Litter on beaches in England and Wales summer 1991

	No (%) of units* in England and Wales (n=3317)	No (%) units in south western England (n=667)
Beverage cans	1758 (53)	313 (47)
Plastic bottles	1692 (51)	320 (48)
Paper or cardboard	1625 (49)	313 (47)
Unspecified plastics	1625 (49)	307 (46)
Plastic fishing gear	1294 (39)	240 (36)
Polystyrene foam	1095 (33)	227 (34)
Clothing items	1095 (33)	213 (32)
Glass bottles or fragments	929 (28)	147 (22)
Plastic straps or beer can holders	929 (28)	180 (27)
Mammalian faeces	464 (14)	60 (9)
Sanitary materials	464 (14)	92 (14)
Large metal objects†	365 (11)	47 (7)
Food or fish waste	365 (11)	53 (8)
Containers of potentially hazardous materials‡	332 (10)	60 (9)
Tar	265 (8)	73 (11)
Household refuse in plastic bags or piles	232 (7)	47 (7)
Household furniture	199 (6)	33 (5)
Oil or petrol	166 (5)	47 (7)
Medical waste§	133 (4)	13 (2)

*0.5 km of coastline.

†For example, abandoned vehicles, machinery, girders.

‡For example, chemicals, gas cylinders.

§Materials generated as a result of patient diagnosis, treatment, or immunisation.

litter. Percentages were generally similar in the two areas.

Of 306 items of medical waste identified on the coastline of England and Wales (one per 5.4 km of surveyed coastline), 202 were "unspecified," and there were 42 syringes, 19 asthma inhalers, seven gloves, two intravenous drip bags, one colostomy bag, and 33 miscellaneous items such as cotton buds, dressings, plasters, packaging, and specimen sample bottles. The 35 items of medical waste in the south western region of England comprised 21 unspecified items, 11 syringes, two phials, and one asthma inhaler.

Comment

An important theme of the 1990 Environmental Protection Act is "control of waste from the cradle to the grave" and local authorities are striving hard to control waste along the coastline. Nevertheless, if our personal and collective efforts for litter and pollution control are not improved, the findings reported here suggest that at least in south western England, a very popular area for summer tourists, there could be considerable consequences from adhering to the *BMJ's* recent advice that "if a beach looks filthy, don't swim in the sea."⁵

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3 House of Commons. Environment Committee. *Fourth report. Pollution of beaches*. Vol 1. London: HMSO, 1990.

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