pulmonary infarct and he was treated with anticoagulants. Two days later he suffered a cardiopulmonary arrest and despite maximum resuscitative efforts he died.

Correct answer
This is unlikely to be a natural cause of death: the sequence of events begins with a fall, which leads to an operation, immobility, and then a pulmonary embolus. The case must be reported. There was no suggestion of an osteoporotic fracture in the history.

Answers in study

<table>
<thead>
<tr>
<th>Grade</th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Senior registrar</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Registrar</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Senior house officer</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>House officer</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>42 (31%)</td>
<td>93 (69%)</td>
</tr>
</tbody>
</table>

CASE 8
A 36 year old beautician was admitted with a stab wound

Pre-employment chest radiography for health service staff: who needs it?

I Madan

Guidelines published by the subcommittee of the Joint Tuberculosis Committee of the British Thoracic Society in 1990 recommend pre-employment Heaf testing of health care workers in regular contact with patients or handling material which may contain tubercle bacilli. 1 Chest radiography is advised for those with a grade 3 or 4 Heaf reaction and for those with a grade 2 reaction who show no evidence of previous BCG immunisation. However, there are few data on the outcome of pre-employment tuberculin screening in this population to support these guidelines. This study aimed at ascertaining the proportion of prospective employees with strongly positive (grade 3 or 4) Heaf reactions and the number requiring chest radiography under the current recommendations.

Subjects, methods, and results
The guidelines were followed from 1 December 1990 to 31 November 1991 within West Lambeth Health Authority. Consecutive new employees, including students, were screened by a standard Heaf gun; the result was read after seven days. Evidence of previous BCG immunisation was recorded only if the scar was at least 4 mm in diameter and there was a history of immunisation within the past 25 years. Chest radiography was performed as recommended. In the event of a normal chest radiograph the employee was advised to report any respiratory symptoms over the next year to the occupational health department.

We screened 640 new employees, 428 with evidence of previous BCG immunisation and 212 without. Thirty seven immunised subjects and 15 subjects without evidence of immunisation failed to return for the reading of their tuberculin test. Chest radiography was performed in 212 (36·1%) subjects (95% confidence interval 32·2% to 40·0%). No cases of active tuberculosis were detected (table).

The proportions with strongly positive Heaf reactions were not significantly different in those with or without evidence of BCG immunisation ($\chi^2=2·824$, p > 0·05). In both groups the proportions of subjects of Asian (Indian subcontinent) and non-Asian origin with strongly positive reactions were not significantly different ($\chi^2=3·477$, p > 0·05 in the immunised group; $\chi^2=0·346$, p > 0·05 in the group without evidence of immunisation).

Outcome of pre-employment tuberculin screening in 588 new NHS employees according to previous BCG immunisation and ethnic origin

<table>
<thead>
<tr>
<th>Evidence of previous BCG (mean age=24)</th>
<th>No evidence of previous BCG (mean age=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Asian origin</td>
<td>Asian origin</td>
</tr>
<tr>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>1</td>
<td>81</td>
</tr>
<tr>
<td>2</td>
<td>102</td>
</tr>
<tr>
<td>3</td>
<td>87*</td>
</tr>
<tr>
<td>4</td>
<td>15*</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
</tr>
</tbody>
</table>

* Chest radiography performed.

Comment
This study suggests that a strongly positive Heaf reaction is a common finding in new employees of West Lambeth Health Authority and that its predictive value for tuberculosis infection in this population, regardless of ethnic origin, is low. A positive tuberculin skin reaction in new NHS employees was also not predictive of an abnormal chest radiograph or of clinical tuberculosis. Similarly, a retrospective case-control analysis of abnormal chest radiographs and tuberculin skin reactivity in new employees of another London health district showed no association between the two. 2 The overall incidence of tuberculosis in England and Wales has fallen substantially this century, 3 and with the exception of mortuary attendants, the incidence in NHS employees is now no greater than that in the general population. 4

Though tuberculin skin testing may be valuable in detecting tuberculosis in contact chasing clinics, a positive or strongly positive result has little discriminatory power in diagnosing active tuberculosis in new employees. The value of tuberculin testing before employment is to detect those who require immunisation. As BCG immunisation within 25 years supported by a characteristic scar confers good immunity, only those without evidence of previous immunisation need
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

Robin Philipp, Kathy Pond, Gareth Rees

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. 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


(Accepted 28 January 1993)