assistance has been emphasised repeatedly.^{3,4} It has been suggested, however, that in wartime the traditional epidemiologists can do little.⁵ The ability to collect data in a time of conflict is severely limited by lack of access, danger, and the destruction of infrastructures. The present study shows, however, that support for epidemiologists in wartime is worthwhile and that useful data, both for detecting outbreaks of infectious disease and for informing humanitarian aid, can be obtained.

We thank all the doctors in Bosnia-Herzegovina who have continued to collect data and plan for the public health despite

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Does the type of sewage drainage affect health?

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In a Kent coastal town (population about 3000) some houses have cesspool sewage drainage instead of the usual mains drainage. Following public concern about health hazards of cesspool drainage, the water company was asked to provide mains drainage to all houses. It said it would consider doing so if there was evidence that the lack of mains drainage posed a serious public health problem. After discussion between the environmental health department of the local council and the department of public health medicine of the health authority, it was decided to conduct a cohort study to determine whether the cesspool drainage of household sewage is associated with increased consultations with general practitioners for gastrointestinal and other symptoms.

Methods and results

As calculated with the Stat Calc function of EpiInfo software,¹ a sample of about 2000 patients was selected at random from two general practices in the town. From their medical records the address and information on the number and nature of all consultations during 1991 were recorded by a research worker using a questionnaire. An environmental health officer allocated drainage type on the basis of the address. The research worker was not aware of the type of drainage and the environmental health officer was not aware of the clinical information. Information was gathered retrospectively for a period of one year before the intention to conduct the study had become public knowledge.

All data were entered on to a confidential database. Analysis was carried out with EpiInfo and SPSS for Windows software.²

Of the 1863 medical records analysed, 31 could not be coded for type of drainage. Of the 1832 remaining, (932 in one practice and 900 in the other), 734 (40.1%) had cesspool drainage and 1097 (59.9%) had mains drainage.

The cesspool drainage group had an older population (mean age 43.2 years) than the mains drainage group (mean age 43.2 v 38.9 years; Mann Whitney U test, $P=0.0009$). There was no statistically significant difference between the two sex distributions.

The proportion of people who visited their general practitioner during 1991 was not significantly different—63% of the cesspool group and 62% of

the mains drainage group (Yates corrected χ^2 test, $P=0.96$), nor was the mean number of consultations (2.47 and 2.25 respectively; t test, $P=0.11$, 95% confidence interval -0.50 to 0.49).

Relative risk of consulting the general practitioner was not significant for diarrhoea, nausea, vomiting, abdominal pain, jaundice, fever, headache, or anorexia, but for malaise the relative risk was significant (2.01; 1.14 to 3.57). The number of times patients visited their doctors did not differ significantly between the cesspool and mains drainage groups (table).

Comment

Although no recent studies have specifically investigated the relation between sewage drainage and health, there is evidence of environmental factors being responsible for ill health.^{3,5} Because of political pressure and public sensitivity, total objectivity was necessary for this study. This was achieved by using a questionnaire for collecting information, using a double blinded technique, and adopting a method which analysed events that occurred before the debate became public.

People who lived in houses with cesspool drainage did not visit their general practitioner more often than people who lived in houses with mains drainage. The relative risk for certain symptoms was higher for only one symptom, malaise. Age might have been a confounding variable as older people are more likely to visit their doctor, but no association was detected, which backs up the conclusion that—except for malaise—there is no association between cesspool drainage and health problems that require general practice consultation. These results, though encouraging, do not exclude the possibility of an association between drainage and health problems for which medical advice is not sought.

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Number (percentage) of times patients with different types of drainage visited their general practitioners

No of visits to general practitioner	Cesspool drainage (n=735)	Mains drainage (n=1097)
0	271 (37)	410 (37)
1	102 (14)	132 (12)
2	73 (10)	136 (12)
3	87 (12)	126 (11)
4	57 (8)	112 (10)
5	34 (5)	62 (6)
6	40 (5)	54 (5)
7	20 (3)	17 (2)
8	13 (2)	19 (2)
>9	38 (5)	29 (3)
Total	735 (100)	1097 (100)