centre. Most doctors are unaware of the criteria used by the regional medical officer in deciding which patients are to be called for examination. The completed forms are apparently hand written and variable in content. This report is an important marker as it influences the decision whether to send for the patient. A poor report increases the chances of a patient's case being assessed independently. The present RM2 forms often frustrate the general practitioners who are asked to complete them and the regional medical officer involved in their analysis.

The greatest demands on the issuing of medical certificates are likely to take place in those practices which already have a high workload.[9] The government may consider that any major change in assessing people for sickness benefit is potentially more expensive than the present system. As in many other areas of health care good quality and cheap services may not be harmonious bedfellows.

We are at present undergoing a review of resources as applied to the health service. Is the present system cost effective? Family doctors are unaware of the cost of the present system and receive virtually no education about how to assess patients in relation to their occupation. We lack knowledge of how benefit schemes are managed and administered. Certification does not appear to be a highly valued activity by general practitioners themselves and is not appreciated by patients and civil servants. The time has come to review present arrangements.

General practitioners often express anxiety when they seem likely to lose part of the service they offer to patients. Any suggestion that specialists should move into primary care assessment is met with a vigorous opposition by generalists. Would general practice be diminished if we were excluded from assessing our patients' inability to work? Some general practitioners might see this activity as a major responsibility which could not be divorced from the rest of our contractual obligations.

I suggest that assessing patients for claims on sickness benefit is for the most part removed from the working obligations of the general practitioner. I also suggest that the patient takes the main responsibility for registering sickness. The employer may wish to make arrangements for assessment, but in the event of state benefits being claimed over a set period of time a full assessment is performed by an independent panel. This initiative could considerably modify the nature of general practice consultations for many doctors who could offer a better service to their patients as a result of the changes.

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Zoonoses — a suitable case for research?

ANIMAL transmitted disease has occupied the headlines perhaps too often for comfort recently. Politicians have suffered, and public concern about the problem has been increased by poor quality information in the media and from self appointed 'experts'.

Zoonoses are 'infectious diseases naturally transmissible between vertebrates and man'.[1] At least 150 are recognized worldwide,[2] and about 40 can cause problems for people in certain occupations.[3] They are recognized as a major economic and health problem by government health departments, employers and the World Health Organization.[4] The diseases range from common tropical helminthiases, such as ankylostomiasis, to rare viral conditions of high mortality, such as Lassa fever. In the United Kingdom current concern focuses on gastrointestinal illnesses — salmonellosis, listeriosis and campylobacteriosis — and their effect on elderly or pregnant patients, and on leisure related illnesses including leptospirosis icterohaemorraghiae (in canoeists and cavers) and cryptosporidiosis (in children visiting farms). Disease spread by domestic animals such as toxocariasis from dogs, and toxoplasmosis from cats is also of concern.[5,6]

The incidence of zoonotic disease in the UK is unknown but the numbers of confirmed cases of 'common' zoonoses are shown in Table 1. The numbers are small, but the usual caveats associated with underreporting apply.

People in certain occupations are known to be at increased risk — veterinarians[7] from various infections including ringworm, orf and Q fever; dairy workers[8,9] from *Leptospira hardjo* and cryptosporidia infection; and food handlers[10,11] from salmonellosis and infection by other gastrointestinal organisms. Forestry workers[12] often show evidence of past *Borrelia burgdorferi* infection, but little evidence of overt Lyme disease. There are anecdotal reports of high rates of tick bites in foresters and park rangers in areas of substantial deer population, but no evidence of increased illness at present. Gamekeepers, agricultural workers, field course teachers and playing field maintenance staff all report regular contamination with animal faeces, products and carcases, and their representative bodies are requesting research into the problems of occupationally related illness. Visitors to country areas may be at extra risk in national parks where a high wild animal population exists.[13]

Pregnant women involved with lambing, often as part of a husband and wife sheep farming team which is common in many hill areas of the UK, are known to be at risk of miscarriage from *Chlamydia psittaci* infection in lambing ewes.[14-16] In a press release the Health and Safety Executive strongly advised pregnant women to avoid close contact with sheep particularly during lambing,[17] advice which can cause considerable difficulty for many small farmers.

Participation in water sports can result in exposure to various infections including leptospirosis, gastrointestinal distur-

Table 1. Confirmed cases of 'common' zoonoses in the UK.

	Number of cases							
	1981	1982	1983	1984	1985	1986	1987	1988
Brucellosis	–	–	12	14	13	18	12	21
Campylobacteriosis	12 449	12 878	17 327	21 122	23 705	24 952	27 465	28 971
Cryptosporidiosis	–	–	61	877	1900	3694	3359	2852
Leptospirosis	30	31	81	53	72	45	57	52
Listeriosis	–	–	115	115	149	137	259	291
Q fever	183	146	191	160	124	146	159	144
Salmonellosis	10 539	11 987	14 240	14 025	11 765	14 800	17 552	23 821
Toxocariasis	2	12	23	37	45	60	84	54

My thanks to Dr S Palmer at the CDSC Welsh Unit for these figures.

bance[18-20] and probably cryptosporidiosis. Several reports of *Cryptosporidium enteritis* from contact with lambs[21-23] are associated with educational or recreational visits to farms, or with drinking water from areas shown to be contaminated with the protozoa.[24,25] The British Canoe Union has for some time advised its members of the potential risks of Weil's disease and the relevant preventive techniques while the Amateur Rowing Association has recently had an article on this disease in its journal.[26] Snorkel swimmers may also be exposed to zoonotic organisms.[27]

There is little doubt that the public perceive many health risks, but it is unlikely that they are aware that contact with animals may have potential hazards. Domestic animal owners are remarkably resistant to suggestions that their pets may harbour disease, and unsubstantiated claims of an 'emergency' situation with regard to toxocara eggs do not help to improve the situation.[6]

Doctors' 'index of suspicion' for zoonosis may well have been too low in the past, and it is possible that many cases were missed owing to lack of investigation. Misdiagnosis can also be a problem. One case of Lyme disease, initially labelled as myalgic encephalomyelitis led to over a year off work for the patient, and nearly to retirement owing to ill health (personal communication). Without the careful investigation of a suspicious infectious disease consultant, the patient would probably still be suffering from severe debility, with the risk of long term neurological complications from borrelia infection.

Much zoonotic disease is mild with only short term discomfort and little if any lost work time. In addition, many farm workers are loath to seek medical help, despite long term 'suboptimal' health and thus much zoonotic disease is not identified. When patients are investigated the existence of antibodies may not indicate anything other than past infection,[13] and even where a major cluster of cases occurs, such as the recent report of Q fever in inner city Birmingham,[28] the cause may be obscure, with no apparent occupational or environmental cause.

Despite these problems, there is evidence of increased interest among the profession and legislative advisers. The Royal College of General Practitioners recently presented evidence to the Industrial Injuries Advisory Council on occupational zoonoses suggesting that a wide variety of zoonoses are seen by general practitioners, albeit occasionally. The Society of Occupational Medicine and the Faculty of Occupational Medicine have also presented evidence of increased recognition of such disease. Conversations with occupational health and general practitioner colleagues confirm that the index of suspicion for zoonoses is rising, partly as a result of requests for information from union representatives and employees.

Despite the large bibliography on zoonoses, there is no recent large scale study on incidence and outcome that is relevant to the UK. It may be that zoonoses in temperate climates cause little morbidity or mortality, but this is not known. A research initiative is needed, preferably in varied geographical, demographic, occupational and recreational situations in order to determine the extent of this problem. Multidisciplinary involvement including doctors, employers, recreational groups, trades unions, geographers and veterinarians would be essential to cover all aspects of this complex problem. A joint meeting of the Royal Institute of Public Health and Hygiene and Royal Agricultural Society of England in October 1989 discussed early initiatives. The stumbling block will be money, and much ingenuity will be needed to persuade potential contributors. Recreational groups are ill equipped to raise funds, and employers will need convincing of the economic effects of preventing zoonoses before parting with cash on a long term basis. However, if the enthusiasm is there, it may be that commitment will follow.

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