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Note to authors of letters: Please note that all letters submitted for publication should be typed with *double spacing*. Failure to comply with this may lead to delay in publication.

Open access to spirometry with chest x-ray

Sir,
Open access chest x-rays are available to patients referred by their general practitioners in 96% of health districts (British Thoracic Society report, 1987). Many referrals are for dyspnoea or wheezing.

In 1984, an open access service to general practitioners in the Bristol and Weston health district, based at the Bristol Royal Infirmary, was set up to provide a combined chest x-ray and spirometry service with a written report. We have reviewed the first three years of this service to determine its usefulness.

The service

Patients may attend between 09.00 and 10.00 hours each weekday. They are sent directly with a request card, allowing the general practitioner to give a brief clinical history and request spirometry with or without chest x-ray. Each patient is carefully questioned by a technician and a modified Medical Research Council questionnaire completed. Measurements of one second forced expiratory volume, forced and relaxed vital capacity and peak expiratory flow are made before and after inhalation of a bronchodilator. If requested, a posterior anterior and left lateral chest x-ray are obtained. The total time for attendance is about one hour. An experienced physician reports on the spirometry and chest x-ray. A written report with suggestions for treatment or further investigations where appropriate is sent out within a week. If a major abnormality is detected, the general practitioner is contacted immediately.

Survey of service

Questionnaires were sent out to 284 general practitioners within the health district; 72 had previously used the service on one or more occasions. Forty one of the 72 (57%) returned their questionnaire. All regarded the service as useful and the reports helpful in the diagnosis

and management of their patients. Three thought that possibly more information could be given in the report about further investigations or treatment. Forty one per cent of respondents wanted automatic referral for more detailed studies if the results were inconclusive, while 17% suggested that further investigations should be made available: exercise tests (three), blood gases (one), allergy skin tests (two) and carbon monoxide transfer factor (one).

Of the 212 general practitioners who had not used the service 161 (76%) replied to their questionnaire; 59% were unaware of the service and requested further information and 25% have now referred patients. Twenty two per cent preferred direct referral for an outpatients appointment, 27% thought the hospital too inconvenient or too far away, 1% (two doctors) thought the times available were too limited and 1% thought the service provided no useful information.

Analysis of referrals

Of the 439 referrals, 108 were for spirometry and 331 for chest x-ray plus spirometry. A normal chest x-ray was reported in 128, of whom 69 had spirometric values within normal limits. Abnormalities were noted on 203 chest x-rays, of which 33% had spirometry within normal limits. Referral to the outpatients department was suggested for 60 cases; further tests, steroid therapy or a change of treatment was suggested in 71; a suspicion of malignancy was noted in nine.

Conclusions

One hundred and thirteen general practitioners have now referred patients to the open access service and have received a written report on the results for each patient. The service was found to be helpful in the diagnosis and management of patients within the community.

Spirometry is used for the assessment of lung function and it is an advantage to use an instrument where a permanent record of the spiograph is obtained. Few health centres are able to offer their pa-

tients this facility. Referral to a specialist laboratory is justified where peak flow measures do not yield unequivocal results.

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Exotic disease in a traveller? A case of leptospirosis

Sir,
With increasing tourist travel abroad, unusual diseases are presenting to UK practitioners ever more frequently. We would like to highlight yet another.

A 34 year old aircraft technician based in West Germany was on temporary duty to a service unit in Sardinia. Three days after arrival he presented sick to his general practitioner, having just completed a six hour shift working in an ambient temperature of 45°C and high humidity. He gave a history of general malaise, feeling hot and dizzy, which had gradually got worse throughout the day. His major complaint was of aching muscles in his arms and legs and of increasing discomfort. On examination he was noted to have a core temperature of 39°C and looked unwell. He was sweating freely but was not dehydrated. The muscles of his arms and legs were noted to be tender. A clinical diagnosis of heat fatigue was made, and the patient was treated with oral fluids, antipyretic agents and he was nursed in an air conditioned room. After 10 hours he remained unwell with a persistent pyrexia but no localizing signs, and he was admitted to a local hospital. Urine analysis at this stage revealed dipstick haematuria, proteinuria and bilirubinuria. His liver function tests were mildly deranged, but all other investigations were unremarkable. His renal function was not impaired. At this stage, following direct questioning, the patient

remembered that he had been bitten on the hand by a mouse which he had rescued from his pet cat.

A provisional diagnosis of leptospirosis was made and the patient was treated with intravenous ampicillin 6 g daily in divided doses. He made a good clinical recovery and returned to West Germany after 10 days. His liver function tests returned to normal over the following two months. Initial serological examination performed in Italy and subsequent examinations performed during convalescence confirmed infection with *Leptospira interrogans* (*grippityphosa* variety).

Leptospirosis transmitted by rodent bites has been previously described, and is an unusual mode of transmission.^{1,2} The mechanism is unclear as leptospires have not been found in rodent saliva, but it is probable that contamination of the fresh wound by urine occurs. It has been suggested that this may result from urine being present in the animal's fur as a result of preening, or else may occur as a result of the animal spraying urine in fright.¹

L. interrogans (*grippityphosa* variety) is endemic in small rodents in central Europe, the major host being the common vole (*Microtus arvalis*).³ In Czechoslovakia up to 12% of abattoir workers and 11% of agricultural workers have been shown to be positive for leptospiral antibodies, *L. grippityphosa* being the second commonest serovar.⁴ Epizootics occur in rodents and these may be related to outbreaks of disease in humans. Principally affected are those in contact with small animals, particularly in wet and damp conditions.⁵ This is highlighted by the synonyms for the disease, such as swamp fever, mud fever, slime fever, field fever or the German *schlammfieber*.

Clinically the disease is usually a mild one typified by sudden onset of chills and rigors, resembling influenza. Myalgia is characteristic. Jaundice and renal failure are rare, with the illness normally lasting seven to 10 days. Mortality is less than 1%.⁴

L. interrogans (*grippityphosa* variety) is diagnosed infrequently in the British Isles.^{6,7} Although our patient was diagnosed and treated abroad, he had travelled a significant distance between exposure and subsequent illness, and could easily have presented in the United Kingdom. With increasing tourist traffic to endemic areas, particularly of campers and backpackers, this disease should be included in the differential diagnosis of the febrile traveller.

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Pneumatic otoscopy and tympanometry

Sir,

There remains some controversy about the relative use of pneumatic otoscopy and tympanometry in the diagnosis of otitis media with effusion. Although tympanometry is preferable,¹ it is not generally available in general practice and pneumatic otoscopy has been recommended.² There are, however, disadvantages with pneumatic otoscopy. In particular it is a subjective examination and there can be variation in what is termed impaired mobility of the tympanic membrane. Furthermore, pneumatic otoscopy is technically more difficult to perform in children. The ear should be free from wax as good illumination is essential and the patient should refrain from head movement.

A study carried out at the Victoria Infirmary, Glasgow, comparing the findings of pneumatic otoscopy with the compliance levels of tympanometry, revealed that a mobile tympanic membrane corresponded to a high tympanometric compliance and at the levels recorded there would be less than a 5% chance of fluid occurring in the middle ear. Alternatively the compliance levels for slightly mobile and immobile eardrums were intermediate, and the presence of middle ear fluid could not therefore be reliably predicted.

Pneumatic otoscopy has been found to have a high sensitivity (84–91%) and a relatively low specificity (74–78%),³ which means that even in experienced hands it is not an ideal screening test. If

pneumatic otoscopy is used alone (with the above specificity) false positives will occur at a rate of 22–26%, leading to an over-diagnosis of middle ear effusion. This error in numbers will be greater when the population being examined is mostly normal, for example in screening. Therefore, when pneumatic otoscopy is used alone, the results should be interpreted with care.

Hand-held tympanometers are now available and with the reduction in size there has been a corresponding reduction in price. A more recent alternative to tympanometry is acoustic reflectometry using a hand-held device which measures sound reflected from the eardrum without requiring an airtight seal. Reasonable results have been obtained when this is used in combination with pneumatic otoscopy, providing the correct cut-off point is taken between normal and abnormal.^{4,5}

In conclusion, when using these methods for the detection of otitis media with effusion, the best results will be obtained from a combination of pneumatic otoscopy and tympanometry: the finding of definite mobility of the eardrum on pneumatic otoscopy suggesting normality, together with flat tympanometric readings indicating the presence of fluid.

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Characteristics of long-term benzodiazepine users

Sir,

The results presented by Simpson and colleagues on the characteristics of long-term benzodiazepine users in general practice (*January Journal*, p.22) were similar to those I found in a small unpublished audit carried out at Montpellier health centre in Bristol where I was a trainee. The inner city practice of 11 100 patients had 100 patients on computerized repeat prescriptions for benzodiazepines — 68 were