

broadly different from one person to another. In one individual the immune response may be intense and eliminate the parasite expeditiously, whereas another might develop tolerance and the parasite can survive and grow for years without evidence of an adequate immune reaction. This variable response constitutes a puzzle that shows, on the side of the parasite, sophisticated mechanisms of evasion, and, on the side of the host, a highly variable degree of immunity to an elaborate infectious agent.

For epileptologists, the brain lesions secondary to neurocysticercosis constitute another source of information on the mechanisms of epileptic discharges. The fact that the cysticercus often nests in an epileptogenic area and that this lesion can easily be identified and delineated by neuroimaging makes neurocysticercosis a fair model for studies on localisation and spread of epileptic discharges.<sup>6</sup>

Cysticercosis is also placed in the middle of sociocultural studies related to poverty and ignorance.<sup>7</sup> Domestic pork breeding is not simply another form of livestock; several peculiarities make the subject more complicated. Wandering pigs are a common sight in destitute communities. In contrast to other flocks, pigs can be fed human faeces, are resistant to many adverse environmental conditions, reach a large body size early in life, and are easily domesticated. All these characteristics make the domestic breeding of pork convenient for the financial sustenance of impoverished communities. Additionally, the fact that these pigs are fed human waste brings about two additional advantages: the raising of these flocks is inexpensive, and the flocks are an effective way to dispose of sewage in areas without proper sanitation. Thus, the problem of wandering pigs, which constitute the link in the life cycle of taeniasis and cysticercosis in humans is not as easy to break by simple measures such as confiscating infected meat, recommending the use of appropriate, but costly, pork food, and sheltering of animals.

The most cost effective perspective for eradication of cysticercosis, as with many other diseases, is by education and public awareness of the real source of infection.<sup>1</sup> In endemic areas, when people are asked about the source of cysticercosis the immediate answer is that the disease is acquired by eating pork meat infected

with cysticerci; it is unusual to hear that the real source of cysticercosis for humans and for pigs is the ingestion of food contaminated with human faeces from *T solium* carriers; strict vegetarians might also be infected by this route. The ingestion of undercooked pork infected with cysticerci is the exclusive path to the development of intestinal taenia, which closes the life cycle of the parasite. This misinformation poses obstacles for cost effective preventive measures.

Eradication of cysticercosis, and its most feared manifestation, neurocysticercosis, is an attainable goal. In the 19th century cysticercosis was endemic in Germany, but the disease faded early in the 20th century when the life cycle of the parasite became known.<sup>8</sup> Public education and sanitary measures were the essential factors for its disappearance, which was accomplished long before the advent of modern medical diagnostic neuroimaging and effective cysticidal. Although the clinical picture has greatly improved recently the current figures for neurocysticercosis as the most frequent parasitic disease of the brain provide clear evidence that large groups of people are deprived of the most basic assets of social development.

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Competing interests: None declared.

- 1 Sotelo J, Willms K. Parasitic disease. In: Goadsby PJ, McArthur J, eds. *Diseases of the nervous system: clinical neuroscience and therapeutic principles*. 3rd ed. Cambridge: Cambridge University Press, 2002:1745-53.
- 2 Vázquez V, Sotelo J. The course of seizures after treatment for cerebral cysticercosis. *N Engl J Med* 1992;327:696-701.
- 3 Proaño JV, Madrazo I, Avelar F, Lopez-Felix B, Diaz G, Grijalva I. Medical treatment for neurocysticercosis characterized by giant subarachnoid cysts. *N Engl J Med* 2001;345:879-85.
- 4 Salgado P, Rojas R, Sotelo J. Cysticercosis: clinical classification based on imaging studies. *Arch Intern Med* 1997;157:1991-97.
- 5 Nicoletti A, Bartoloni A, Reggio A, Bartalesi F, Roselli M, Sofia V, et al. Epilepsy, cysticercosis, and toxocarosis: a population-based case-control study in rural Bolivia. *Neurology* 2002;58:1256-61.
- 6 Leite JP, Terra-Bustamante VC, Fernandes RMF, Santos AC, Chimelli L, Sakamoto AC, et al. Calcified neurocysticercotic lesions and postsurgical seizure control in temporal lobe epilepsy. *Neurology* 2000;55:1485-91.
- 7 Prasad KN, Chawla S, Jain D, Pandey CM, Pal L, Pradhan S, et al. Human and porcine *Taenia solium* infection in rural north India. *Trans R Soc Trop Med Hyg* 2002;96:515-6.
- 8 Nieto D. Historical notes on cysticercosis. In: Flisser A, Willms K, Lacleite JP, Larralde C, Ridaura C, Beltran F, eds. *Cysticercosis: present state of knowledge and perspectives*. New York: Academic Press, 1982:1-7.

## Moving beyond single and dual diagnosis in general practice

*Many patients have multiple morbidities, and their needs have to be addressed*

The awkward phrase "multiple morbidity" describes the common predicament of the many patients who have more than one health problem. Such patients are disproportionately represented among populations that are socioeconomically deprived and elderly.<sup>1</sup> A socioeconomic gradient exists in the incidence and prevalence of almost all major categories of disease, meaning that individuals and families who are socioeconomically disadvantaged are at risk of a

compounding multiplicity of health and social problems.<sup>2</sup> This multiple morbidity, coupled with the fact that the population of the United Kingdom is ageing,<sup>3</sup> poses challenges to the delivery of effective health care that have received almost no official attention.

Examples from mental health show that provision of service in this field has been slow to move from single diagnosis to dual diagnosis.<sup>4</sup> Dual diagnosis applies to patients who have a mental health problem and

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problematic substance or alcohol use. A recent report on dual diagnosis from the Department of Health highlighted the role that primary care had in ensuring adequate care pathways for patients with mental health problems, drug problems, and related physical problems such as infection with hepatitis B or C virus or HIV.<sup>2</sup> The report highlighting the issue of dual diagnosis did not use the term “multiple morbidity” to describe these patients. We believe, however, that such a term accurately describes the multitude of health need. It is our purpose to highlight this need so that effective policy measures can be taken to ensure adequate service provision for this complex group of patients.

### Effect of specialisation

In the United Kingdom, hospital based clinical practice has become increasingly specialised.<sup>5</sup> It is now usual for a single patient to receive care from several specialists, where previously they would have received care from a single general doctor. For example, a patient could be under the care of a nephrologist for renal disease, a cardiologist for coronary heart disease, and a respiratory doctor for chronic pulmonary disease. The extraordinary advances in medical knowledge and the overwhelming volume of relevant scientific literature mean that specialisation may be a requirement for optimal management of some diseases. However, the trend towards more specialisation in secondary care tends to disadvantage people with multiple morbidity. The effective management of such patients depends heavily on general practice.

The changes in general practice have the potential to support or undermine the care of patients with multiple morbidity. Most general practitioners now either work as independent contractors to or are salaried employees of primary care organisations. In England and Wales primary care organisations are anticipated to hold at least 75% of the NHS budget to pay for their patients' use of hospital, primary care, and community services; and prescribing costs.<sup>6</sup> Additionally they are able to hold social care budgets under the delegated authority of local authorities.<sup>7</sup> Poor health is inextricably linked to low income or unemployment, poor housing, and inadequate social support. A unified budget for health and social care could enable a more effective approach to these wider structural causes of health inequalities.

But it is not just poor collaboration between primary care services and social services that threatens the effective management of people with multiple morbidity. The boundary between primary and secondary acute care sectors has placed bureaucratic and fiscal obstacles in the way of the coordinated care of patients with multiple problems.<sup>8,9</sup> Current best practice for commissioning of secondary care services by primary care organisations seeks to analyse pathways for care for patients.<sup>10</sup> As a result, some innovative primary care organisations have sought to avoid the problem of the barriers to primary care or secondary care by general practitioners taking on an extended role in an area of special clinical interest. However, at present such a referral pathway to a general practitioner with a special clinical interest is for a single condition, and therefore a patient with multiple problems will still require multiple referrals.

Effective projects for the general practitioners with a special clinical interest will need to find ways not only

of reducing the number of referrals across the interface between primary care trusts and acute trusts but also of reducing the total number of referrals needed in primary care. Ways need to be found in which general practitioners can be supported by a range of specialist experts to provide effective care for patients with complex and overlapping health problems.<sup>11</sup>

Similarly, medical students need education, which equips them to meet the challenges posed by such care. Again, this can best be achieved in a generalist setting. One consequence of the increasing specialisation of hospital based doctors is that in the United Kingdom, medical students are increasingly taught by superspecialists with expert knowledge in a narrowly defined focus on a disease. Although such teaching will bring an immense depth of knowledge to that disease, it runs the risk of overlooking the complexities of clinical management of multiple morbidity. Although the proportion of primary care based undergraduate teaching has increased, in some medical schools such teaching still forms only 4% of the total.<sup>12</sup>

### Effect of cost containment

Another threat to the role of primary care in addressing problems of multiple morbidities is the unresolved tension between high quality care and the statutory responsibility on primary care organisations to contain costs.<sup>5</sup> On the one hand it is preferable, for example, for older people with multiple needs to receive health care in their own communities from “generalist general practitioners.” On the other hand, the intention behind such care has been to achieve cost savings, which have in turn undermined both the volume and the quality of care delivered. One approach to cost containment is to “cherry pick” patients whose costs are high and select them out of receiving health care from the primary care organisations.<sup>1</sup> Interestingly, when fundholding was a part of primary care commissioning, homeless people with multiple morbidity were less likely to be registered with a fundholding practice.<sup>13</sup>

The evidence to inform the care of patients with multiple problems compares poorly with the evidence supporting single interventions for single diseases. It is unlikely we will ever have randomised controlled trials to guide optimal treatment—for example, for people with paranoid schizophrenia, liver damage related to chronic hepatitis C, and epilepsy, who are living alone in a damp flat. Similarly, while randomised trials usually measure the effects of one, or occasionally two or three, interventions, it is usual for patients' with multiple morbidity to be taking eight or more drugs. Polypharmacy was rightly highlighted as an important issue in the national service framework for older people, and clearly this is not just an issue for general practitioners. As general practitioners it is our job to manage all of a patient's health problems, by drawing on help from specialists where we can and by using whatever research evidence exists to guide practice.

Patients with more than one health problem constitute a large proportion of the workload in primary care. Multiple morbidity is a major component of health inequalities, particularly in an ageing population, and can be seen in part as a direct consequence of the wider societal determinants of ill health. Health care that is both driven and evaluated increasingly by protocols derived from studies of single

disease conditions seems likely to disadvantage systematically those with complex and overlapping health problems. An urgent need exists to know more about the optimal treatment of multiple morbidity. How should the care of different diseases be prioritised in situations where treatments are incompatible or the burden of treatment becomes too great? If government and policy makers are serious about tackling health inequalities, a more coherent approach to the problems posed by multiple morbidity is required.

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Competing interests: None declared.

- 1 Sheffield Health Authority. *Sheffield health and illness prevalence survey (SHAIPS2)*. Sheffield: Sheffield PCT Informatics Service, 2000. www.sheffield-ha.nhs.uk/shaips (accessed 23 Dec 2002).
- 2 Watt G. The inverse care law today. *Lancet* 2002;360:252-4.
- 3 Department of Health. *National service framework for older people*. London: DoH, 2001. www.doh.gov.uk/nsf/frameup/contents\_html (accessed 23 Dec 2002).
- 4 Department of Health. *Mental health policy implementation guide: dual diagnosis good practice guide*. London: Stationery Office, 2002.
- 5 Loeffler IJ, Turnberg L. Are generalists still needed in a specialised world? *BMJ* 2000;320:436-40.
- 6 NHS Executive. *Primary care trusts*. Leeds: NHSE, 2002. www.doh.gov.uk/pricare/pcts.htm (accessed 13 Nov 2002).
- 7 House of Commons. *Health and Social Care Bill*. London: Stationery Office, 2000.
- 8 Parker G. 10 years of the "new" community care: good in parts? *Health Soc Care Commun* 2002;10:1-5.
- 9 Florentino L, Phillips D, Walker A. Leaving paediatrics: the experience of service transition for young disabled people and their families. *Health and Social Care in the Community* 1998;6:260-70.
- 10 Davies J. Primary care trusts, local and large. *Health Services Journal* 2002;112:22-5.
- 11 Ayanian JZ, Landrum MB, Guadagnoli E and Gaccione P. Specialty of ambulatory care physicians and mortality among elderly patients after myocardial infarction. *N Engl J Med* 2002;347:1678-86.
- 12 Society for Academic Primary Care Working Group. *New century, new challenges: a report from the heads of departments of general practice and primary care on the medical schools of the UK*. <http://www.sapc.ac.uk/mackenzie2.pdf> (accessed 12 Nov 2002).
- 13 Wood N, Wilkinson C, Kumar A. Do the homeless get a fair deal from general practitioners? *Social Health* 1997;117:292-7.

## BMJ family highlights

*A new monthly section will bring you the best from the publishing group's journals*

The trouble with families is that as they get larger and more diverse their members tend to lose touch with one another. Some are so busy they have no time for conversation. The BMJ Publishing Group is not exempt, with most readers probably unaware of what is afoot in its 27 constituent journals, let alone departments such as BMJ Books and BMJ Knowledge, which produces *Clinical Evidence* (www.clinicalevidence.com).

Last year we began linking the editors of the specialist journals. Each accepted paper is assessed to see if it contains a valuable message for readers of other titles. Nearly a third of all published papers throughout the group seem to be relevant to a different readership—and about a third of these are subsequently confirmed by editors as worth syndicating, which is republishing in part or occasionally in full.

Nobody should be surprised. It is common for authors to submit their research to journals with the highest perceived impact rather than those whose readers might be most likely to benefit. In the United Kingdom, as elsewhere, funding of academic departments is heavily dependent on research assessment tools, which put great weight on the bean counting of citation indices and impact factors. This often corrupts the simple communication model whereby writers need to send a message to readers whose feedback may enhance their work. In a small way syndication corrects

this dysfunction by capturing the material for other readers—where the paper appeared first matters less. As a consequence readers of *Archives of Disease in Childhood* have been made aware of important lessons published in the *British Journal of Ophthalmology*. Papers hitherto confined to the readership of *Gut* may find their way to the *Journal of Epidemiology and Community Health*.

Starting this week, the *BMJ* will publish a monthly family page, drawing attention to the most important papers published in journals of the publishing group. We aim to make *BMJ* readers aware of a wealth of information that they might not otherwise discover. Those who are sufficiently intrigued will be able to click through to the full article via [bmj.com](http://bmj.com). *BMJ Journals* will hopefully become better known and talked about. In particular, we believe that much potentially important material is published in smaller circulation journals such as *Quality and Safety in Health Care* and *Tobacco Control*. Who knows, you may find yourself activating a hitherto latent fascination with, say, clinical pathology or gastroenterology?

Harvey Marcovitch *syndications editor, BMJ Journals*  
Kamran Abbasi *deputy editor, BMJ*

Competing interests: HM and KA are both employed by the BMJ Publishing Group, and although neither will benefit personally, the journals and the publishing group might.

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