special articles

Psychiatric Bulletin (2008), **32**, 303–306. doi: 10.1192/pb.bp.107.018432

NIRUJ AGRAWAL, SIMON FLEMINGER, HOWARD RING AND SHOUMITRO DEB

Neuropsychiatry in the UK: planning the service provision for the 21st century†

Some believe that Cartesian dualism of mind and body in the 19th century and the rise of psychoanalysis by the turn of the 20th century was what led to the separation of neurology and psychiatry. More recently, conceptualisations of the mind/brain paradigm have helped rediscover the relationship between the mind and the brain, bringing renewed synergy between neurology and psychiatry (Cunningham *et al*, 2006). However, division is still apparent in current service planning and provision in the UK for individuals whose presentation lies in the no-man's-land between these two historical domains.

Increasing recognition of the complex interface between neurology and psychiatry (Lishman, 1998) is reflected in recent calls to integrate neurological and psychiatric practice and training (Eisenberg, 2002; Mitchell & Agrawal, 2005). Despite improvements in the care of individuals with mental illness in the community, supported by the National Service Framework and its emphasis on comprehensive mental health services (Department of Health, 1999), current provision of neuropsychiatry services remains patchy and grossly inadequate (Agrawal *et al*, 2008, this issue). A series of recent National Health Service (NHS) reforms with progressive separation of purchaser and provider function and the advent of local commissioning seems to have had a detrimental effect on development of specialist services like neuropsychiatry. The majority of neuropsychiatry services in the UK have existed for more than a decade and a significant minority have been forced to downsize in recent years (Agrawal *et al*, 2008, this issue). This has occurred at a time when psychiatric and neuroscience services have seen unprecedented growth in the NHS.

There is a growing awareness that unrecognised and untreated neuropsychiatric problems cause distress to individuals with various chronic neurological conditions, affecting their quality of life and placing excessive burdens on their carers. These unmet needs have been highlighted in a plethora of national documents from various sources (NHS Health Advisory Service, 1997; British Society of Rehabilitation Medicine, 2003; Royal College of Physicians, 2004), including National Institute for Health and Clinical Excellence (NICE) guidelines for neurological conditions. The *National Service Framework for Long-Term Conditions* (Department of Health, 2005) has also stressed person-centred care planning and puts emphasis on holistic, integrated and interdisciplinary care. It had been argued that it would finally go some way towards raising awareness of the most significant unmet (neuropsychiatric) needs in the NHS (Agrawal & Mitchell, 2005). However, such an effect has been limited at best. More emphasis is required on planning and developing patient-centred multidisciplinary care to meet neuropsychiatric needs.

Neuropsychiatry service planning and delivery was the focus of a meeting organised by the Special Interest Group in Neuropsychiatry at the Royal College of Psychiatrists. A wide range of stakeholders attended, including representatives from the Department of Health. There was a consensus that while the predominant focus of commissioning of mental health services in recent years was on accessible community psychiatric services, commissioning of specialist mental health services like neuropsychiatry had suffered. This paper summarises the outcome of this meeting and subsequent deliberations of the working group.

Neuropsychiatric needs in the population

There is no comprehensive population-based epidemiological study of incidence and prevalence of neuropsychiatric illnesses. Estimating neuropsychiatric needs in the population has been complicated by difficulties in case definition and case ascertainment. Neuropsychiatry consists of wide-ranging symptoms and syndromes, many of which are not adequately classified by the current classificatory systems, making it a difficult area to study. Nevertheless, there is an emerging wealth of data from two separate streams, which indirectly highlight the extent of need.

First, there have been a number of scientifically robust studies looking into the prevalence of neuropsychiatric problems in various neurological populations. It has been shown that neurology patients have high levels of neuropsychiatric problems. Data from Scandinavia (Fink *et al*, 2003) suggest that prevalence of current mental disorders in new neurological patients is

†See original paper, pp. 288–291, this issue.



special articles

55.1% (64.6% in out-patients and 38.6% in in-patients); the lifetime prevalence was over two-thirds. These figures have been replicated in a number of different populations, with different methodology. In Edinburgh, general neurology out-patients were shown to have a prevalence of 47% for anxiety and depressive disorders and an additional 30% had other symptoms not explained by an organic disease (Carson *et al*, 2000). Bridges & Goldberg (1984) estimated the prevalence of psychiatric illnesses in neurological in-patients at 39%. A recent and robust replication puts the prevalence of neuropsychiatric illnesses in a tertiary care neurology in-patient unit in South West London as 55% (Jefferies *et al*, 2007). These studies have shown that neurologists have a low rate of recognition for neuropsychiatric illnesses and referral rates for such individuals are even lower. It has been argued that this is at least partly caused by lack of specialised and accessible services.

The second stream of epidemiological data comes from studies looking into the prevalence of neuropsychiatric problems in various neurological disorders. The prevalence of diagnosable psychiatric problems in community patients a year after a head injury was 18%; this increases significantly (to about 40%) if the focus includes all the neurobehavioural problems (Deb *et al*, 1999). Taking the incidence and prevalence of head injuries into account, this alone would indicate potential neuropsychiatric problems in up to 80 per 100 000 population. Most of the major neurological illnesses, including epilepsy (with significant psychopathology in 30–40% of individuals), Parkinson's disease (with significant psychopathology in 40% of individuals), multiple sclerosis, stroke, Huntington's disease, etc., similarly have been shown to have high neuropsychiatric comorbidity (Chemerinski & Robinson, 2000; Marsh, 2000; Feinstein, 2007). It has been argued that such comorbidity requires specialist assessment and treatment from a team which is well integrated with the neuroscience services.

Furthermore, general psychiatric services encounter organic symptoms in a significant proportion of individuals (about 10%), some of whom may require a neuropsychiatric opinion. There are further specialised areas dealing with developmental neuropsychiatric disorders, including memory and sleep disorders which fall within the remit of neuropsychiatric services at many centres.

Substantial epidemiological work is required to elucidate the extent of neuropsychiatric need, but the emerging data from different perspectives and in different populations places it as significant. Much of this remains currently unmet.

Demand for neuropsychiatry services

A good way to estimate the demand of a service is to look at the rates of referrals and assessment in a defined population. This has been independently studied by two audits. The North Staffordshire neuropsychiatry service audit showed that the annual rate of new out-patient referral was 38 per 100 000 population and the rate of new in-patient referral was about 20 per 100 000 population (Barrett & Sudharsan, 2005).

Very similar rates of referrals have been found in a much larger audit in South East England. The South London, Kent, Surrey & Sussex neuropsychiatry services audit (Fleminger *et al*, 2006) covered a population of 6.8 million. A referral rate of 30 per 100 000 population was reported from the local catchment area of the service. A review of a sample of these referrals found that the vast majority were appropriate. The further geographically the individuals referred were from the neuropsychiatric services, the lower the referral rate, highlighting the unmet need.

There is now an emerging consensus that a realistic rate of referrals to a neuropsychiatry service would be about 20–30 per 100 000 population; a referral rate lower than this would indicate an unmet need.

Benefits of neuropsychiatry services

Lack of adequate and accessible neuropsychiatry services can result in gaps in service provision causing delays in referrals, prolonged admissions and inappropriately placed patients. An accumulating wealth of data identifies neuropsychiatric issues as key in the patients' quality of life and contributing to carers' burden and distress (Global Parkinson's Disease Survey Steering Committee, 2002; Aarsland *et al*, 1999; Chipchase & Lincoln, 2001). Hence, overall disability burden to society (World Health Organization, 2001) and the cost to the national economy are immense. Additional financial burden is placed on economy directly through inappropriate placements, social care needs, lengthy admissions, and indirectly through loss of productivity. Some of this cost can be reduced by early and appropriate neuropsychiatric interventions.

Planning neuropsychiatry service provision

An ideal future neuropsychiatry service should be accessible, contain an appropriate skill-mix and be adequately staffed to meet local needs and demands. It should be available locally and be closely allied to both mental health services and neurosciences services. It should be acceptable to all the stakeholders and take both the patients' and carers' perspective into account.

Given the current state of neuropsychiatry service provision and the limited availability of trained professionals, the need to provide services locally may require future services based on a 'hub and spoke' model. This could mean a central, regionally-based neuropsychiatry service (possibly closely allied to a regional neurosciences centre) acting as a hub, working closely with local psychiatrists with a special interest in neuropsychiatry (spoke). These local psychiatrists may include general psychiatrists, old age psychiatrists, liaison psychiatrists, learning disabilities psychiatrists, etc., who may run a local special interest clinic in neuropsychiatry with a ready access to tertiary advice and opinion. Establishment of outreach clinics run by neuropsychiatrists could serve as a spoke in some places. One such clinic which has been successful in reducing the unmet need has been reported by Leonard *et al* (2002). It is



special articles

envisaged that both local special interest clinics and outreach clinics (spoke) will be closely allied to the regional neuropsychiatry service (hub) for clinical, educational, research and administrative purposes.

Service model and team composition

There cannot be a single model for either the clinical composition or the approach of a neuropsychiatry service. Several factors including clinical expertise, clinical demand and configuration of neurosciences services will determine the local clinical approach and the model adapted for neuropsychiatry service provision.

However, based on the estimated epidemiological need and clinical demand for the service it is possible to estimate the expected rate of referral. This can inform commissioners and clinicians as to the optimal size and professional mix of a team and help in the business planning process. At present there are no such guidelines to help with service development.

Neuropsychiatry service provision can be divided between out-patient service, in-patient beds and specialised clinics. The following is the consensus recommendation of the working group.

Out-patient neuropsychiatry service

For illustrative purposes, this paper uses a population of 1 million for describing the composition of out-patient neuropsychiatry services. In practice, some existing services cover a smaller population and some services cover a much larger population, based on the local factors. In such cases staffing levels can be extrapolated on a pro rata basis. It is envisaged that the out-patient service may include an outreach or peripatetic clinic.

Based on the expected rate of referral of 20–30 per 100 000 per year, 200–300 new referrals will be expected from a population of 1 million. The range of professionals and staffing levels required to meet this demand is outlined in Table 1 (these are minimum numbers based on what has been found to be adequate provision of liaison psychiatry, old age psychiatry and other mental health services). In addition to the core professional groups included, adequate access to additional clinical staff, like occupational therapists, physiotherapists, social workers, speech and language therapists, etc., will be required (about 1 whole time equivalent each). In some services these clinicians may be integral parts of the team.

In-patient neuropsychiatry services

Most neuropsychiatry services would require dedicated neuropsychiatry in-patient beds, staffed by an appropriate mix of medical and psychiatric nursing staff. The number of beds required may depend on whether the focus of a service is mainly assessment or comprehensive management including neurorehabilitative approaches. For a population of 1 million the appropriate number of beds is estimated between 5 and 10. Such beds need not necessarily be within a psychiatric or dedicated neuropsychiatric unit, but could possibly be shared with clinical neurosciences. The in-patient neuropsychiatry units may also be able to offer some day-patient facilities as required. Additional numbers of a whole range of professionals will be required for the in-patient beds in addition to the out-patient staff as outlined in Table 1.

Table 1. Proposed composition of out-patient neuropsychiatry service (for an illustrative population of 1 million)

Staff category	Numbers required
Consultant neuropsychiatrist	2
Neuropsychologist	1
Junior medical staff	1
Associate specialist	1
Nurse specialist	2–4
Counsellor/cognitive–behavioural therapist	1
Administrative staff	1

Specialised clinics

A number of existing regional neuropsychiatric services run specialised clinics/services covering various neuropsychiatric areas (examples in Box 1). They provide input often in relation to specialist clinics in regional neuroscience centres or brain injury rehabilitation centres. Some of these services have developed in relation to clinical interest and expertise of local clinicians or the research interest of that centre. These specialised clinics/services may require some additional resources.

Referral pathways

Referral pathways to neuropsychiatry vary considerably from service to service. Some of the services are seen as regional and tertiary, only accepting individuals referred from either psychiatrists or neurologists. Many other neuropsychiatry services also accept those referred from primary care. Fleminger *et al* (2006) showed that the vast majority of referrals were appropriate, irrespective of the source of referral. Considering that some of the current unmet need is related to the barriers in accessing services, referral pathways to neuropsychiatry services in future should be based on clinical criteria rather than the source of a referral.

Commissioning

The organisational issues behind the currently patchy and inadequate services and the resulting gaps in service provision need to be looked at urgently. There is lack of clarity in current commissioning arrangements for

Box 1. Some neuropsychiatric conditions treated in specialist neuropsychiatric clinics

- Brain injury rehabilitation
- Epilepsy
- Memory disorders
- Functional neurological syndromes
- Developmental neuropsychiatry
- Sleep disorders

special articles

neuropsychiatry. This is made worse by the fact that neuropsychiatry services often fall in the grey area between neurosciences services and mental health services. This problem is apparent in a huge variability of funding sources in the existing services (Agrawal *et al*, 2008, this issue).

There is urgent need for much closer liaison between mental health and neurosciences services for joint business planning of neuropsychiatry services. Primary care trusts in the future will need to work together to commission neuropsychiatry services, many of which will be regional, and clear guidelines will be required for commissioners and clinicians alike.

Conclusion

Neuropsychiatry service provision in the UK remains insufficient and haphazard. Organisational issues, lack of clear drivers and ambiguities about ownership have been some of the factors behind this. Recognition of the impact of untreated neuropsychiatric problems in neurological settings has led to growing calls to provide for this unmet need. Yet, over the past decade there has been a lack of appropriate expansion of neuropsychiatry services and some existing services have been forced to downsize.

With emerging data on neuropsychiatric need and demand, it is possible to estimate the expected rate of referrals to neuropsychiatry services. This paper has outlined the resources required in order to meet this demand in the 21st century. The gap between the existing level of service provision and what could be considered adequate is vast. To bridge this gap, a close working relationship will have to be established between mental health and neuroscience providers and commissioners. There is a constant trickle of trained neuropsychiatrists emerging from a number of existing centres. The recent development of a new College core curriculum for neuropsychiatry is an important first step that has now been taken. A clear training pathway will now need to be established to allow more trainees to pursue neuropsychiatric training in order to meet the clinical demand. Given that there is a long way to go, the journey must start now.

Declaration of interest

S.F. is the lead consultant neuropsychiatrist for two brain injury units which both require primary care trusts to authorise in-patient admissions and out-patient appointments.

References

AARSLAND, D., LARSEN, J. P., KARLSEN, K., *et al* (1999) Mental symptoms in Parkinson's disease are important contributors to caregiver distress. *International Journal of Geriatric Psychiatry*, **14**, 866–874.

AGRAWAL, N. & MITCHELL, A. J. (2005) The national service framework for long term conditions (editorial). *BMJ*, **330**, 1280–1281.

AGRAWAL, N., FLEMINGER, S., RING, H., *et al* (2008) Neuropsychiatry in the UK: national survey of existing service provision. *Psychiatric Bulletin*, **32**, 288–291.

BARRETT, K. & SUDHARSAN, S. (2005) Service innovations: is there a market for neuropsychiatry? A year in the life of a district based neuropsychiatry service. *Psychiatric Bulletin*, **29**, 465–467.

BRIDGES, K. & GOLDBERG, D. (1984) Psychiatric illness in in-patients with neurological disorders: patients' views on discussion of emotional problems with neurologists. *BMJ*, **289**, 656–658.

BRITISH SOCIETY OF REHABILITATION MEDICINE (2003) *Rehabilitation Following Acquired Brain Injury. National Clinical Guidelines*. Royal College of Physicians.

CARSON, A. J., RINGBAUER, B., STONE, J., *et al* (2000) Do medically unexplained symptoms matter? A prospective cohort study of 300 new referrals to neurology out-patient clinic. *Journal of Neurology, Neurosurgery and Psychiatry*, **68**, 207–210.

CHEMERINSKI, E. & ROBINSON, R. G. (2000) The neuropsychiatry of stroke. *Psychosomatics*, **41**, 4–14.

CHIPCHASE, S. Y. & LINCOLN, N. B. (2001) Factors associated with carer strain in carers of people with multiple sclerosis. *Disability and Rehabilitation*, **23**, 768–776.

CUNNINGHAM, M. G., GOLDSTEIN, M., KATZ, D., *et al* (2006) Coalescence of psychiatry, neurology, and neuropsychology: from theory to practice. *Harvard Review of Psychiatry*, **14**, 127–140.

DEB, S., LYONS, I., KOUTZOUKIS, C., *et al* (1999) Rate of psychiatric illnesses 1 year after traumatic brain injury. *American Journal of Psychiatry*, **156**, 374–378.

DEPARTMENT OF HEALTH (1999) *National Service Framework for Mental Health: Modern Standards and Service Models*. Department of Health (http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4009598).

DEPARTMENT OF HEALTH (2005) *National Service Framework for Long-term Conditions*. Department of Health (http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4105361).

EISENBURG, L., (2002) Is it time to integrate neurology and psychiatry? *NeurologyToday*, **12**, 4–5.

FEINSTEIN, A. (2007) Neuropsychiatric syndromes associated with multiple sclerosis. *Journal of Neurology*, **254** (suppl 2), II 73–II 76.

FINK, P., HANSEN, M., SONDERGAARD, L., *et al* (2003) Mental illness in new neurological patients. *Journal of Neurology, Neurosurgery and Psychiatry*, **74**, 817–819.

FLEMINGER, S., LEIGH, E. & McCARTHY, C. (2006) The size of demand for specialised neuropsychiatry services: Rates of referrals to neuropsychiatric services in SouthThames region of the UK. *Journal of Neuropsychiatry and Clinical Neurosciences*, **18**, 121–128.

GLOBAL PARKINSON'S DISEASE SURVEY STEERING COMMITTEE (2002) Factors impacting on quality of life in Parkinson's disease: results from an international survey. *Movement Disorders*, **17**, 60–67.

JEFFERIES, K., OWINO, A., RICKARDS, H., *et al* (2007) Psychiatric disorders in in-patients on a neurology ward: estimate of prevalence and usefulness of screening questionnaires. *Journal of Neurology, Neurosurgery and Psychiatry*, **78**, 414–416.

LEONARD, F., MAJID, S., SIVAKUMAR, K., *et al* (2002) Service innovations: a neuropsychiatry outreach clinic. *Psychiatric Bulletin*, **26**, 99–101.

LISHMAN, W. A. (1998) *Organic Psychiatry: Psychological Consequences of Cerebral Disorders* (3rd edn). Blackwell Science.

MARSH, L. (2000) Neuropsychiatric aspects of Parkinson's disease. *Psychosomatics*, **41**, 15–23.

MITCHELL, A. J. & AGRAWAL, N. (2005) Training in neuropsychiatry: is it time to reintegrate into mainstream psychiatry? *Psychiatric Bulletin*, **29**, 361–364.

NHS HEALTH ADVISORY SERVICE (1997) *Heading for Better Care: Commissioning and Providing Mental Health Services for People with Huntington's Disease, Acquired Brain Injury, and Early Onset Dementia*. HMSO.

ROYAL COLLEGE OF PHYSICIANS (2004) *National Clinical Guidelines for Stroke* (2nd edn). RCP.

WORLD HEALTH ORGANIZATION (2001) *World Health Report 2001 – Mental Health, New Understanding, New Hope*. WHO (http://www.who.int/whr/2001/en/index.html).

***Niruj Agrawal** Consultant in Neuropsychiatry, Department of Neuropsychiatry, Clare House, St George's Hospital, London SW17 0QT, email: Niruj.Agrawal@swlstg-tr.nhs.uk, **Simon Fleminger** Consultant in Neuropsychiatry, Lishman Brain Injury Unit, Maudsley Hospital, London, **Howard Ring** Consultant in Developmental Neuropsychiatry, Section of Developmental Psychiatry, University of Cambridge, **Shoumitro Deb** Clinical Professor of Neuropsychiatry and Intellectual Disability, Division of Neuroscience, University of Birmingham