

justified in concluding that their evidence refuted the hypothesis that exposure to influenza in the second trimester of pregnancy was associated with an increased risk of schizophrenia. Their numbers were too small and their arithmetic faulty.

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The uses and limitations of mental health service needs indices

SIR: While it is now taken as axiomatic that local mental health services should be planned in relation to needs, the definition of need, the distinction between population and individual levels of need, and the ways in which need can be operationalised all remain to be clarified. The paper by Smith *et al* (1996) adds further quantitative evidence to support the population-level estimates of need, which have been described elsewhere (Thornicroft *et al*, 1992). The paper concludes that the index of needs produced by Smith *et al* shows that the expected rates of local service use may vary by a factor of more than three times between Huntingdon and Central Manchester, the least and most morbid areas included in the study. At first sight this is a remarkable finding given that actual National Health Service expenditure on mental health services varies by a factor of about 1.5 in practice. Nevertheless, the findings of Smith *et al* may still be an underestimate. The recent household National Psychiatric Morbidity Survey, conducted by the Office of Population Censuses and Surveys (1995), revealed a range of annual period prevalence for psychotic disorders between 0.2 and 0.9% of the total population, that is a 4.5-fold variation. Similarly, the MINI computerised program by Glover (1996) also finds approximately four-fold variations in actual utilisation of psychiatric in-patient beds. There does seem to be steadily accumulating evidence that the most and least socially deprived parts of Britain will have, approximately, morbidity levels double and half the national average, respectively; that is a four-fold variation.

Despite the value of the paper by Smith *et al*, and the parallel work in producing the MINI index, these calculations are still, at this stage, of somewhat academic interest. Such formulae guide the allocation of monies from the NHS Executive to purchasing authorities. Purchasing authorities have very wide degrees of discretion about how their total budget may be spent for their varying categories of health care. There is no overall discernible pattern of actual expenditure at the provider level, which varies in relation to any assessment of population need. If there is an overall national pattern, it reflects somewhat higher expenditure in districts which did have long-stay institutions and which appear to have retained some budgetary advantage. Two issues arise: first, in the funding distribution formula adopted by the Department of Health, which is a variation on the proposals put forward by the York Group two years ago, there remains a 20% component of the total budget which is not currently weighted. It is therefore open to discretion of the NHS Executive to re-weight this in line with emerging evidence of variations in mental health care needs that are greater than previously expected. Second, it is becoming clearer that it will be necessary for the NHS Executive to provide clearer guidance to purchasers on the expected proportion of their total budget which should be spent for mental health services in each local area.

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Treatment of severe personality disorders

SIR: As a member of a community mental health team, that in our case includes the local in-patient unit, I found the paper by Norton & Hinshelwood (1996) on the treatment of severe personality disorders troubling in many respects. It reads like a sales pitch for a particular type of facility, particularly given the obvious commitment of the authors

to their own particular units and the necessity of generating tertiary referrals to ensure their survival.

I am aware of the fact that there are outcome data available from these units (e.g. Rosser *et al*, 1987) but the authors go well beyond this evidence in their assumptions about efficacy. The article makes unjustified, cavalier and, at times, insulting assumptions about the therapeutic milieu on acute psychiatric wards. The acute ward is stereotyped as hierarchical, authoritarian, dominating and controlling. Ward staff are stereotyped as undemocratic, narrow-minded, given to bland rationalisations to protect themselves, and generally unable to make the empathic leap of understanding to their patients' internal world.

The staff of all disciplines on acute in-patient units are, I would humbly suggest, not lacking in flexibility, empathy and communication. In addition, unlike the isolated specialist in-patient unit, they are already integrated into the network of multidisciplinary and multi-agency services that connect directly with the real world into which the patient will be discharged, thus potentially mitigating the effects of this transition. Norton & Hinshelwood's description of general services is a caricature. By marketing the specialist unit as a place in which the problems they allude to do not exist, they promote the very 'splitting' (perhaps as evidenced by this letter!) that they are attempting to address.

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ROSSER, R., BIRTH, S., BOND, H., *et al* (1987) Five year follow up of patients treated with inpatient psychotherapy at the Cassel Hospital for Nervous Diseases. *Journal of the Royal Society of Medicine*, **80**, 549-555.

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Who responds to electroconvulsive therapy?

SIR: It was encouraging to read that ECT is a viable treatment option for depressed patients in New York, regardless of the presence or absence of psychosis, retardation and/or agitation (Sobin *et al*, 1996). These findings confirm those from the Nottingham ECT trial (O'Leary *et al*, 1995). In our analysis we highlighted the greater percentage response to simulated ECT at Northwick Park (Buchan *et al*, 1992) compared with those in

Leicester or Nottingham, and postulated this as the main discriminating factor between the centres. It was interesting to read, in view of the similarity of the overall conclusions from New York and Nottingham, how the average percentage response to 'ineffective ECT' in New York was very similar to those in Leicester and in Nottingham. Factors reducing the response to simulated ECT, we proposed, included the proportion of patients failing to respond to antidepressants (high in Nottingham and in Leicester) and mean length of hospital stay prior to ECT (longest in Nottingham). We suggested also that a prior history of ECT (lowest in Northwick Park) may have reduced the response to simulated ECT, as in the absence of a convulsion patients would guess that they were not receiving 'real' treatment during the trial and thus would not have remained blind to treatment type. An advantage of the New York study is that patients in the 'ineffective ECT' subgroup did experience a convulsion, thus minimising the confounding effect of previous history and underscoring the validity of their conclusions.

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O'LEARY, D., GILL, D., GREGORY, S., *et al* (1995) Which depressed patients respond to ECT? The Nottingham results. *Journal of Affective Disorders*, **33**, 245-250.

SOBIN, C., PRUDIC, J., DEVANAND, D. P., *et al* (1996) Who responds to electroconvulsive therapy? A comparison of effective and ineffective forms of treatment. *British Journal of Psychiatry*, **169**, 322-328.

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Artificial neural networks and psychiatric disorders

SIR: Zou *et al* (1996) report the use of a fully connected back-propagation artificial neural network (ANN) to classify interview data into three diagnostic groups. They describe a neural network with 396 input nodes and 40 hidden nodes. The number of output nodes is unspecified, but the ANN has a minimum of 15 880 connections. This is a very large feature space in which to distribute representations of only 60 training cases. The usual rule of thumb in ANN research is that the number of training cases should be at least twice the number of connections within the ANN for satisfactory learning to occur. In Zou *et al's* study this would mean the ANN should have only 30 connections (e.g. nine input nodes, three hidden nodes and one