rheumatology will continue to play a less effective role than that of which it is well capable and of which there is an overwhelming need.

Now someone must believe that rheumatologists are required, as evidenced by the recognition of the specialty within general medicine by the Joint Committee for Higher Medical Training and its definition of the necessary period of training before accreditation as a consultant in rheumatology.¹ Not only this, but the Council for Postgraduate Medical Education in England and Wales in its publication "Careers in Medicine" (p 55) describes the training necessary and facilities likely to be made available. If locomotor and rheumatic disorders are "a major medical and socio-economic problem," as Professor Buchanan and his colleagues say, then surely a specialty concerned with their management is a necessity.

Let us hope then that this article and the other factors that I have mentioned will encourage the medical graduate to contemplate rheumatology as a worthwhile career within medicine and most especially within our teaching hospital departments of medicine.

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¹ Joint Committee on Higher Medical Training, *Second Report 1975*, p 40. London, JCHMT, 1975.

Abuse and intoxication potential of nicotine chewing gum

SIR,—Nicotine chewing gum (NCG) is likely to be introduced on the international drug market in the near future. It has been developed to help smokers to stop smoking. By the administration of nicotine the *abstinence* symptoms on giving up smoking are eliminated as long as the NCG is used; untreated, they disappear within a fortnight. Nicotine *dependence*, however, remains for years and is strong enough to prevent the majority of smokers from stopping smoking even if they are suffering from smoking-related diseases. The dependence is also reflected in the poor results, with only 25-30% abstinent after one year, in most smoking cessation programmes incorporating the use of NCG. Thus Dr M A H Russell and his colleagues (14 August, p 391) found that only 23% of smokers treated with NCG remained abstinent for more than one year. These results are consistent with those of Westling,¹ who concluded that "the rate of relapse after termination of NCG treatment is probably identical to that of other smoking cessation programmes."

The philosophy of administering nicotine, a dependence-producing drug,² in smoking cessation programmes has no analogy in the successful treatment of any other form of drug dependence. The introduction of NCG on the open market may cause problems. The extent of the risk of a NCG chewing epidemic is not clear. Repetitive administration of NCG to non-smokers may establish a new group of nicotine-dependent people. Especially among children and youths who are familiar with the chewing-gum habit and who may have intoxication proneness there may be curiosity to try new psychotropic substances. The subsequent career of those who abuse NCG in this way is unclear. Some may turn to cigarettes to experience a quicker uptake of nicotine. This may constitute a new public health hazard. Furthermore chewing NCG may cause

intoxication among children if they consume pieces of NCG simultaneously.³

Before NCG is marketed world-wide the following steps should be taken to prevent abuse: (1) The legal status of NCG (drug or food product) must be determined. (2) NCG must be made available on prescription for specific purposes only. (3) Prescription of NCG must be carefully supervised by drug authorities to prevent the outbreak of an epidemic of NCG abuse and the establishment of a grey market.

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¹ Westling, H, *Läkartidningen*, 1976, 75, 2549.

² World Health Organisation Expert Committee on Drug Dependence, *Twentieth Report*, WHO Technical Report Series No 551. WHO, Geneva, 1974.

³ Hartelius, J, and Tibbling, L, *Läkartidningen*, 1976, 73, 2502.

Normal distributions

SIR,—We have been following with great interest the excellent articles on statistics by Dr T D V Swinscow. There has been a long-felt want for a clear and simple description of statistical methods for use in medicine.

May we raise two points for discussion about the recent article (11 September, p 632) "Some non-parametric tests?" Firstly, we feel that Dr Swinscow has underemphasised the tremendous value of these tests when analysing medical data. Recent examination of data from our department in the field of gastric secretion and gut endocrinology has revealed that these data are very rarely normally distributed; occasionally this can be overcome by such devices as logarithmic transformation, but more often a non-parametric test is required. Furthermore, use of a parametric test on data not normally distributed may not only fail to show a significant difference when one is present, but, and far more important, may actually appear to show a significant difference when there is none. Non-parametric tests on the other hand are *safe*; indeed, even when a parametric test may correctly be used, non-parametric tests are almost as powerful.¹

Our second point regards the selection of data for the *paired* test, "... each member of a pair matching the other so far as possible ...". As Dr Swinscow rightly points out, the fact that data are paired has powerful effects on the sensitivity of the statistical test of the difference. We feel therefore that paired tests should be reserved for truly paired samples—for example, the response of the same patient to two different circumstances or the results of two different techniques of analysing the same blood sample. There should be a major element of identity in both members of the pair. In the example in the article only the unpaired analysis, which failed to give a significant result at the 95% level, should be accepted.

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¹ Siegal, S, *Non-parametric Statistics for Behavioural Sciences*, pp 111-116. New York, Toronto, and London, McGraw-Hill, 1956.

SIR,—I have recently been reading your series "Statistics at square one" and quietly approving the use of clinical examples and small digestible portions in each issue. While I might wish for a modest shift of emphasis from recipe to theory, I believe the series will provide positive support for the medical educators who are trying to tell sceptical students that the statistical approach is vital to many clinical decisions.

I wish to take exception, however, to a concept which appears explicitly at least twice (5 June, p 1393, and 3 July, p 33)—namely, that most characteristics in biology and medicine are normally distributed. Of the examples cited, only the heights of adults is suitable. Blood pressure in a "healthy" population is not normally distributed, unless, of course, you define healthy as the absence of blood pressure readings over a certain threshold. Errors of measurement are indeed distributed normally, but this is not a characteristic of biology, nor is it of particular interest to a clinician.

In fact it is widely accepted that most measurements in clinical medicine are *not* normally distributed. This is of particular importance in understanding mechanisms of multifactorial causation and in the interpretation of "the normal range" of clinical parameters.

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Admission of old people to hospital

SIR,—I read Dr A A Baker's "cri de coeur" (4 September, p 571) with sympathy but some bewilderment.

I agree that we should try, wherever possible, to keep old people, be they demented or not, out of the depersonalising atmosphere of institutions. Nevertheless, there is a limit to which the community can go in trying to maintain old people who are a danger to themselves, and are becoming an intolerable nuisance to others, in their own homes, so that admission to an institution will have to be seen as an unsatisfactory but a necessary alternative.

It is hardly surprising that an old person who for years has been living in a life style and in an environment which most of us would regard as being unhygienic and unsociable should, when this situation is suddenly changed, react adversely. Most people, I would suggest, react badly to sudden changes of environment and the old people more than most.

Finally, I read the case history of the patient mentioned in Dr Baker's article and must confess to feeling somewhat horrified. Certainly had this patient been in my care I would have felt that I had failed in my clinical responsibility. I would not want to have the right to kill. At the same time I do appreciate that patients have a right to die as much as they have a right to live. To strive officiously to keep alive an old person with no worthwhile future is, to my mind, bad medicine.

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SIR,—With his description of a "dementing" 84-year-old woman, Dr A A Baker (4 September, p 571) makes a plea for the frail elderly to