NAPA is partially blocked by ranitidine, the excretion rate constants of these compounds are reduced during this period, a higher percentage of these compounds will be eliminated by metabolism, and a smaller percentage will appear in the urine as PA and NAPA. This is depicted diagrammatically in Figure 1.

The urinary recovery of PA and NAPA cannot therefore be used as a relative measure of the bioavailability of PA, nor does it provide a reliable estimate of the amount of drug absorbed.

The authors present their findings based on the mean values of all volunteers, but the mean value can be totally atypical of the pattern of any one volunteer. This is particularly relevant in respect of procainamide that is known to exhibit polymorphic acetylation (Reidenberg et al., 1975). It is noted that the subjects in this study remained 'supine or seated' for the first 2 h following the procainamide dose. The posture of the subject can influence both the rate of drug absorption and the extent of the first pass effect and, in the interest of precision, consideration could therefore be given to greater control of this factor.

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Received November 12, 1984,
accepted January 27, 1985

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Correction equation for ECG time intervals

I have read with interest the letters from Kelman et al. (1984) and Staniforth (1984) discussing the analysis of data presented in Staniforth (1983). Dr Staniforth may have misunderstood the most important points made by Kelman et al. (1984) and seems to have failed to answer their criticisms. The analysis of repeated observations on several individuals is not easy in the best circumstances and when unequal numbers of observations are made on different individuals then the analysis is often almost impossible.

Kelman et al. (1984) have given a clear illustration of the totally invalid 'results' which can be obtained when the structure of the data is ignored. Neglect of the structure of data leads to very much more invalid analysis than incorrect assumptions for t-tests or other topics cited in elementary textbooks. A further culprit is the use of computer programs whether on laboratory computers, microcomputers or even well designed statistical program packages on large computers. These programs will accept data and produce convincing looking results whatever the data structure of the original experiment.

Mainland (1963) gives an extremely clear discussion of the topic and includes the following sentence 'To anyone with a biological upbringing this must be a fantastic concept, unless he has been hoodwinked by an elementary statistics book that has led him to believe that, if he has found no 'statistically significant' difference between the averages for the various (dogs), he
is at liberty to pool the readings of all the (dogs).’
It is most important that unthinking use of computer programs is prevented, and that appropriate advice is taken on the analysis of data. Easy to use programs are not in themselves the answer, but there is current work being carried out by several statisticians to attempt to have a computer program which will elucidate the data structure of an experiment by asking questions of the researcher. Such a program may have its own dangers but may prevent some abuses.

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Received October 16, 1984, accepted February 20, 1985

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Correction equation for ECG time intervals: a reply

We thank the editor for letting us comment on the letter from Dr Evans regarding our previous correspondence (Kelman et al., 1984). We agree entirely with the points which he makes, especially his remarks on the dangers of ignoring the structure of data, and the unthinking use of widely available computer programs for statistical analysis. This was the major point of our criticism of Dr Staniforth's analysis (Staniforth, 1983), and the part which Dr Staniforth failed to clarify. We are still puzzled by his conclusion that it is advantageous to use a curvilinear model when each individual data set did not deviate from a linear one. The justification in Dr Staniforth's original reply (Staniforth, 1984) that this approach has been used by other workers, and that similar results were obtained, presumably indicates that if one repeats a particular experiment then, with luck, one obtains the same answer. This does not validate the experiment or, as in this case, the choice of analysis.

We apologise for returning to an old topic, but we feel that it is important that invalid conclusions and/or techniques are not added to the medical literature.

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Received November 8, 1984, accepted February 20, 1985

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