

tests the deviation from chance expectancy in the proportion of random pairs, both analyses led to essentially similar decisions and both analyses were relevant although they served different purposes.

The sequential analysis provided a simple cumulative summary of the progress of the study, which was very useful for purposes of information. In marked contrast in terms of time to this always current graphic record, the analysis of covariance provided findings only after six months of sample build-up, three months of treatment, and three months of data preparation and analysis. Most of the decisions yielded by the sequential analysis were reached while some hospitals were still accumulating their complete quota of patients for pretesting. If sampling could have been terminated as decisions were reached, considerable economy of effort would have resulted. In this study, however, other objectives, such as a determination of the incidence of side effects and an evaluation of laboratory data in large quantity, made it desirable to complete data collection on the entire sample.

On the other hand, analysis of covariance possesses certain advantages, the most important of which is that it is a more powerful statistical method than this nonparametric sequential model. Initial differences between groups in respect to 12 control variables were adjusted by covariance. This adjustment provided statistical equality of the treatment groups prior to treatment and reduced the error term used in evaluating mean differences. The problems introduced by making multiple comparisons was handled by use of a multiple range test.⁶ Sequential analysis lacks both of these highly desirable advantages.

Sequential analysis is usually recommended because it is economical in terms of the number of observational units, since only that number of units necessary to reach a decision is evaluated. It has already been pointed out that in this study other objectives made it undesirable to suspend sampling and take advantage of whatever economy the method has to offer. Another feature of this application of sequential analysis that reduced the efficiency of the method was the use of pairs of patients as the observational unit. Although some decisions were reached after evaluating a small number of patient pairs, this was not generally true, and in several comparisons the cases available for evaluation were exhausted before a decision could be reached.

There are some alternative sequential models that may lead to more economical decisions but that were not adopted for use in this study because of other special requirements. One of these is the sequential *t* test. For example, previously collected data had shown that the median change in morbidity score over a six week period for phenobarbital and a lactose placebo group was zero, and that the change scores approximated a normal distribution. Using the sequential *t* tables developed by the Bureau of Standards,¹² it was possible to test whether zero would fall within or outside a one standard deviation limit for each of the drug groups at a specified level of confidence. Mepazine and phenobarbital were found to be noneffective agents by this criterion; the remaining four phenothiazines were found to be effective. The number of patients necessary to reach these decisions ranged from 7 to 12. In using this model, four values had to be designated at the outset: the two coefficients of risk (α and β), the expected mean change of zero, and the amount of change which would be of interest (one standard deviation). The normative data that provided the ex-