

cause of haematuria is bilharzial bladder damage due to *Schistosoma haematobium*. In order to investigate this association, checks were made on a series of urine samples that had given positive reactions for blood. Microscopic examination revealed the presence of schistosome eggs in the sediment collected by centrifugation from about 75% of the samples studied.

Test	Total Male 1,433		Total Female 623	
	Normal	Abnormal	Normal	Abnormal
pH ..	1,416	17	613	10
ketones ..	1,433	—	622	1
glucose ..	1,427	6	621	2
protein ..	1,353	80	527	96 (92)*
blood ..	1,327	106	514	109 (84)*

*Girls who were menstruating at the time of the test have been subtracted from the abnormal totals.

A previous study in Tanzania² has indicated the presence of irreversible bladder damage in school children in whom genito-urinary bilharziasis had gone untreated. The association between bilharziasis and bladder carcinoma is well known, and in Zambia examination of the Cancer Registry at Lusaka reveals that approximately 12% of all cancers in recent years were bladder carcinoma, moreover many were in young adults. The importance of the early detection and treatment of bilharziasis cannot be overemphasized.

In Zambia, one reagent strip costs 4.6 ngwee (about 2.7p). Thus, at a total cost of 95 kwacha (approximately £56), plus the cost of two technicians' time and transport, it was possible to screen 2,056 children and find hidden disease in 206, all of whom required further investigation, and most treatment.

We strongly recommend the use of reagents strips for routine health screening in underdeveloped regions.

This work was conducted as part of the surveys of the Zambian National Food and Nutrition Commission and we are grateful to the Executive Secretary for permission to report the findings.—We are, etc.,

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¹ Kawerau, E., *Automation in Analytical Chemistry*. New York, Medind Inc., 1968.
² Forsyth, D. M., and Bradley, D. J., *Lancet*, 1964, 2, 169.

Acid-base Status and Azostix

SIR,—We wish to bring to the attention of users of Azostix reagent strips a rare source of possible interference with this test—the patient's acid-base status.

On some of the patients whose acid-base balance is severely disturbed towards acidosis, Azostix reagent strips may give an underestimate of the blood urea concentration. If the severe disturbance is towards alkalosis there is a small chance of a slight overestimate.

This information is being added to the package leaflets. It is hoped that our paper giving a full account of the work will soon be published; meanwhile the evidence may

be obtained from either of the authors below.—We are, etc.,

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Gall Stones after Peptic Ulcer Surgery

SIR,—I have read Mr. E. S. Field's article (27 March, p. 708) with great interest.

In this part of the world peptic ulcer is at least ten times more common than gall-bladder disease. The numbers of operations performed in this hospital over the past six years for these two groups of diseases were 149 and 13 respectively. Of the 13 gall-bladder operations, one was for a gall stone developing in a man 31 months after vagotomy and gastrojejunostomy for duodenal ulcer; but as many as three were for gall stones found at the time of peptic ulcer surgery and performed at the same time.

It certainly appeared that in these four patients cholelithiasis was secondary to peptic ulcer or its operative treatment. But could it not be that both peptic ulcer and gall stones were produced by the same aetiological factor(s)? This may explain the occurrence of gall stones also after peptic ulcer surgery which does not remove the factor(s).—I am, etc.,

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Cerebral Atherosclerosis

SIR,—As your article on cerebral vasodilators (Today's Drugs, 19 June, p. 702) points out, these drugs affect the cerebral blood flow only when there is an element of arteriospasm, and although of great benefit they cannot reverse existing atheroma.

I have found¹ that corn oil in large doses (2 fluid ounces (57 ml) of a 50% emulsion of corn oil four times a day) results after a month in a significant reduction of disorientation, irritability, and incontinence in patients with cerebral atherosclerosis. Presumably, this occurs as a result of the slow solution, in accordance with the law of mass action, of cerebral artery atheromatous plaques.—I am, etc.,

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¹ Beckett, H. D., *Journal of Mental Science*, 1962, 108, 229.

Haemodialysis/Transplantation Programme

SIR,—We should like to thank Dr. R. R. West (24 July, p. 247) for his most detailed and helpful comments on our paper "Statistical Approach to Planning an Integrated Haemodialysis/Transplantation Programme" (19 June, p. 671). We found it most encouraging that his careful analysis did not produce any fundamental criticisms of the Markov chain approach.

He raised three points. Firstly, that there were several minor errors in the text and tables. We attempted to remedy this by publication of corrections (17 July, p. 200).

The second was that he considered certain important probabilities did not appear

to fit the data from which they were derived. This referred to both dialysis and transplant survival. We initially analysed the patients undergoing dialysis at the London Hospital until 31 October 1970. Renal transplantation excluded them from subsequent consideration. We selected a figure of 0.98 for long-term dialysis survival and this was originally fitted to the histogram by eye. We also fitted the curve using regression analysis and arrived at figures of 0.983 for months 6-24 and 0.991 for months 6-30. This analysis has two advantages. The first is that by allowing the probability of survival in month 6 to vary a better fit over subsequent months can be obtained. The second is that the method also attaches less weight to each successive month and this to some extent takes account of the diminishing sample size. The method Dr. West suggests of taking a simple monthly average incorporates neither of these advantages.

The transplant survival data were based on the Edinburgh series.¹ There were several disadvantages, including the fact that the donor population included both live and cadaver donors and also that the average age of recipients was lower than elsewhere. Nevertheless, this series allowed us to calculate monthly probabilities. The data presented gave details of 35 patients. We excluded two patients, one who received two transplants and another who, following rejection, was returned to dialysis, because in each case there were insufficient data. Of the remaining 33 patients 19 had died by the end of the series (1 June 1968). None of these returned to dialysis following rejection—a situation which is quite atypical of current practice. So for this series patient and graft survival were identical. We then used this information to represent graft survival for the estimation of the various monthly probabilities. It was then necessary to determine what proportion in future of these patients whose grafts were rejected would die or be returned to dialysis. We selected a figure of 20-80%. This then allowed us to calculate the expected patient survival. For months 1, 2, 3 this gives values of 97%, 94%, 90% and this agrees with other published and unpublished series. However, it does not represent patient survival in Edinburgh before 1968.

Dr. West's third point involves the calculation of confidence limits. We presented 95% confidence limits based on the mean probabilities in each state as it was not then possible to calculate the error for each probability in the matrix on the limited data available. In future the individual errors will be incorporated in the final estimate of confidence limits.

In conclusion, we should like to emphasize that the purpose of our paper was to demonstrate the method of a particular approach. Probabilities were selected merely to help illustrate the method. They were, however, based on small samples of patients. Before we can use the model for useful predictions it is vital that large series of patient data should be analysed.—We are, etc.,

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¹ Woodruff, M. F. A., Nolan, B., Robson, J. S., and MacDonald, M. K., *Lancet*, 1969, 1, 6.