possible in such patients and a precise diagnosis may or may not be achieved, even in retrospect. The pathophysiological processes operating in a proportion of infants with protracted diarrhoeal states remain a challenging area for future research, and we look forward to reading the publication which Dr Branski and colleagues have in press.

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Limitations of the sweat test

Sir,  
We are in agreement with Schwarz et al. (Archives, 1977 52, 870) when they state that the sweat test has some limitations in the diagnosis of cystic fibrosis (CF) and that the diagnosis is not justified on the basis of an abnormal sweat test unless there is other supporting evidence of the disease. We also agree that there is a ‘grey area’ of sweat Na and Cl levels which we would class as between 50 and 70 mmol/l (50, 70 mEq/l). However, there are some aspects of their paper which cause us concern.

We feel the summary at the beginning of the paper is somewhat misleading, especially to those who do not carefully read beyond. From the text, one sees that the 30 patients referred to in the summary as giving equivocal sweat Na concentrations represent only 1.5% of patients tested in their laboratory, the total being some 2000. As the remaining 98.5% of patients did not give rise to diagnostic difficulty, it is clear that the ‘sweat test’ is still highly discriminatory, probably to the degree of any such test.

In our experience a much greater problem of sweat test accuracy occurs in hospitals where the test is carried out on a very much smaller number of patients and where the laboratory has a much lesser degree of experience than that of the authors. We have had a significant number of patients referred to our regional children’s hospital who have had abnormal sweat electrolyte measurements elsewhere, but unequivocally normal measurements when repeated by a laboratory carrying out a large number of tests. Anderson and Goodchild (1976), in their recent monograph, stress the difficulties of carrying out an accurate test and describe some of the errors of technique which on inquiry we still find to be common practice, e.g. inexperienced house officers carrying out the collection of sweat rather than experienced laboratory or nursing personnel. We agree with the authors that factors other than technique may affect sweat electrolyte levels but feel that these are not significant when compared with the variation produced by errors in performance of the test.

We have not needed to go to the extent of serial collections of sweat and of giving spironolactone as have the authors. If we obtain a test within the ‘grey area’ on repeated occasions, we carefully seek other evidence of the disease, particularly evidence of pancreatic disease. This may be obvious from the presence of steatorrhoea of pancreatic type as described by Anderson and Goodchild (1976), but if steatorrhoea is not present (about 10–15% of cases) we should then carry out detailed pancreatic function studies with pancreozymin and secretin stimulation. Hadorn et al. (1968) and others have shown that, although enzyme secretion may be sufficient to prevent steatorrhoea in some patients, the volume of duodenal fluid and its bicarbonate content are always low and neither increases to a normal extent after injection of secretin. This investigation, together with a detailed and critical clinical appraisal, has invariably clarified the diagnosis in our patients with equivocal sweat Na and Cl levels. We do not see evidence that Schwarz et al. have investigated pancreatic function in such detail although they may have done in some of their ‘equivocal’ patients. We wonder whether in Cases 14 and 26 detailed studies might not show some abnormalities. Case 12, where sweat Na is repeatedly raised, is stated to have normal pancreatic function but no details of the method of assessing this are given. We also wonder why Cases 23, 24, and 25 are included in Table 2 as they seem to have good criteria for the diagnosis of CF at present and even when first seen.

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References


Dr Schwarz and co-authors comment:

We agree with Professor Anderson and co-workers that the sweat test is as good a diagnostic test for CF as any, or better. We also concur with their restatement of the well-known fact that the sweat test is badly performed in many hospitals, so yielding far more unreliable results than those due to uncertainties inherent in the test and discussed in our paper.

We do not advocate the general use of spironolactone; the merit of this drug in our experiments on certain patients was merely to support our suspicion of temporary hyperaldosteronism, a condition which might have led to
Limitations of the sweat test.

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