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Drs Boreland and Stoker comment:

In our evaluation of the Ames reagent strip tests, shortage of manpower meant that only a comparison of the dipstick method with our routine screening method—the Leigh and Williams blotting paper technique could be made.¹ This was performed using Bacteriuritest strips (Mast Laboratories) and the manufacturer's recommendations: 20 colonies equivalent to 10^5 organisms/ml (significant bacteriuria) and 10–20 colonies equivalent to 10^4 – 10^5 organisms/ml (doubtful significance). Ideally, we would like to have included a reference method such as the pour plate technique,² or calibrated loops,³ although it should be noted that this latter method can have an error rate as high as SEM 50% due to operator variability.⁴

We concede that it was unclear that the urines screened were from predominantly asymptomatic patients. The prevalence of 5% reported by Leigh and Williams referred to the presence of significant bacteriuria in pregnant women; the 12% prevalence in our paediatric population compared with that found by Cannon *et al*⁵ in a similar population.

Of the urines tested, only six fell within the "doubtful significance" range of 10^4 – 10^5 organisms/ml, and 50% of these were detected by the Ames reagent strips. In our laboratory we normally request repeat samples in these cases. For the purpose of our evaluation, however, we strictly adhered to Kass's criteria,⁶ as existing data from a number of workers^{7–10} still support the criterion of $\geq 10^5$ organisms/ml for the diagnosis of significant bacteriuria in asymptomatic patients.

With the Ames dipsticks, the method of reading them influenced the number of false negative results obtained. Visual reading of the strips resulted in 19% false negative results; photometrically read strips yielded 7%. This may be regarded as an unacceptably high false negative rate, but no urine screening method is 100% accurate. All our urines giving a positive (true and false) strip result are subjected to culture and microscopy before a report is issued to the clinician. We have also encouraged our clinicians to specify those urines from symptomatic patients which require culture and microscopy without screening.

With urine specimens comprising up to 40% of the workload of clinical

microbiology laboratories, most are forced to use some form of screening procedure. We consider the dipstick analysis to be as accurate a screening method as those currently in use, and its ability to screen out clinically insignificant urine samples rapidly reduces the number of specimens to be cultured. This rapid screening method also enables same day reporting of negative urine specimens to be made.

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Enzyme immunoassay for detecting genital tract *Chlamydia trachomatis*

The paper by Taylor-Robinson, Thomas, and Osborn provides interesting data on the use of an enzyme immunoassay (EIA) to detect *Chlamydia trachomatis* in clinical specimens.¹ As the authors point out, these results are at variance with the work of seven other cited groups, including our own findings previously reported in this Journal.²

Clearly, there is cause for concern because EIA tests are now widely used.

Quite rightly, Taylor-Robinson *et al* emphasise the importance of quality control. We agree that quantitative testing of a diluted suspension of the organisms is important, but our results (unpublished) indicate that the sensitivity of Chlamydiazyme is similar to that of MikroTrak. We found that Chlamydiazyme gave a positive result when the titrated sample contained fewer than four elementary bodies by MikroTrak testing. The dilution medium is also important. Diluting the stock strain with growth medium, or with medium containing fetal calf serum, or chlamydial antibodies, reduces the optical density (OD) reading three to five fold compared with EIA buffer alone. This would lead to false negative results with EIA compared with immunofluorescence. We agree that problems of reproducibility can occur with EIA. For example, on one occasion we found that our washing water was heavily contaminated with Gram negative organisms; readings of OD were obtained which were above the cut off level, giving false positive results. Problems of this kind should be detected by strict batch quality control.

Antigen detection tests are still in their infancy, and the study of Taylor-Robinson *et al* is a timely reminder of their potential fallibility. Immunofluorescence tests are a case in point. In the hands of experienced workers the tests perform well, but the literature contains reports of unexpectedly high numbers of chlamydiae when assessed by immunofluorescence alone.^{3,4} Indeed, Jones and Taylor-Robinson⁵ have expressed concern that the widespread use of these tests for the detection of elementary bodies could lead to a rise in the number of cases wrongly attributed to chlamydiae.

What is the ideal test for the diagnosis of chlamydial infection? The fact of the matter is that all existing procedures have drawbacks and may give misleading results unless there is strict quality control in the laboratory and a careful comparison of the clinical and microbiological findings. Even cell culture, widely regarded as the "gold standard", may give misleading results because of variations in technique and cell sensitivity and lack of technical expertise. Antigen detection tests, whether EIA or immunofluorescence, require careful assessment before marketing, and again before use in the diagnostic laboratory. We believe that verification requires the use of a fully evaluated and reliable cell culture system. At present, the results of prevalence or treatment studies which are based on antigen