Letters

tec, method 1. In their previous work Ganguli et al. were unable to study the performance of more than one blood culture system in parallel; nor could we. Without such comparative data the value of retrospective conclusion is limited.

The single most important factor in reducing our reporting time was the revised work schedule. This comprised an initial examination at <16 hours after collection, followed by a further two at 24 hours. It is the interval between these two later samplings that influences the rate of detection.

JE CORKILL
Department of Medical Microbiology,
7th Floor, Duncan Building, Royal Liverpool Hospital, Prescot Street, Liverpool L7 8XP.

New system for blood culture

Recent American reports have favourably compared the performance of a new system for blood culture, the Isolator (Du Pont Co, Wilmington, Delaware, United States), with various existing methods in a routine setting.1-7 We recently had an opportunity to use the system in this laboratory, alongside our existing Bactec radiometric procedure.

The new method, described by Dorn and Smith,8 differs in principle from the basis of most other systems—that is, enrichment with broth—in that organisms are harvested directly from the patient's blood sample in a centrifuged tube containing fluids of different densities and plated directly on to several solid media. Any bacterial cells are thus separated from the different factors in the blood that inhibit growth, and the system is claimed to be sufficiently sensitive to allow recovery of organisms present at less than 1 colony forming unit/ml of sample.

For this assessment an Isolator tube and explanatory note were issued with each of 300 routine blood culture sets comprising a Bactec 6B aerobic and 7D anaerobic bottle. The same range of solid media was used in both systems. Of 168 sets returned with a properly filled Isolator tube, 157 (93%) gave no growth or gave contaminants only using either method.

As regards the positive results (judged clinically important), on two occasions Escherichia coli was isolated from both systems at one day, and in two other instances a mixture of E coli with Klebsiella sp was isolated from Bactec after three days and by the Isolator after one day. Additionally, one isolate of Alkaligenes sp and one of Candida parapsilosis were recovered by the Isolator only. Two isolates of Staphylococcus aureus and one each of Geotrichum sp, Streptococcus pneumoniae, and a group C streptococcus were recovered in the Bactec only. Failure of the Isolator to detect these organisms is disappointing but probably not conclusive, given the small total number of isolates and the performance in other studies.

Our contamination rate was 18%, in contrast with 2-4% for the Bactec. Although this could probably be improved with experience, even the use of special precautions may not reduce contamination of the Isolator to the level encountered in other systems.

The advantage of the Isolator system is that, at the first indication of a positive culture, a colony on solid media is available rather than simply a Gram stained film of culture fluid. Identification can thus be much closer at this stage, and tests of antibiotic susceptibility can be set up with greater confidence and ease than from blood culture fluid. Furthermore, the amount of growth in four of the six positive cultures suggested that it would have been possible to set up direct sensitivities by the Stokes technique at the same time as the original cultures. The possibility of direct microscopy of the original extract, using acridine orange staining, has also been raised.9 10 The quantitative expression of positive results may be another useful feature.1 12 There suggestions await further investigation.

The main disadvantage of the new system is that it requires more labour time than the Bactec system to process each specimen. Furthermore, although some delay may be tolerable,1 12 manufacturers recommend that the initial processing and culture procedure lasting 40 minutes should be performed as soon as possible after collection of the specimen. This would be an additional demand on those laboratories that do not usually devote “out of hours” technical time to blood cultures. The cost of consumable materials in the United Kingdom also seems likely to be greater than that of Bactec bottles, but the capital equipment is cheaper; the Isolator uses more agar plates, however.

The financial and logistical considerations and the possible remaining disadvantage in recovering some streptococci1 4 and anaerobes2 7 suggest that the Isolator may not rapidly replace other systems as a mainstay method for all blood cultures. On the other hand, the possibility of earlier results and the improved recovery of staphylococci1 2 and yeasts1 5,1 11,1 13 reported by other workers may well indicate selective usage of the system as an additional procedure in investigating patients in whom venous lines or other immunocompromising factors are present. We thank Dr Pont for providing the Isolator tubes used.

References


Chlamydia psittaci infection in a man and his birds

A 48 year old motor mechanic became ill on 16 October 1984 with headache, loss of appetite, fever, and other symptoms similar to those of influenza but no cough. Complement fixation antibodies to common respiratory viruses or Chlamydia psittaci were not detected in a sample of serum taken one week later. A second serum sample, however, collected on 6 November had a chlamydial complement fixation titre of 256. When the sera were examined by indirect immunofluorescence, using the L2 strain of C trachomatis and the EAE strain of C psittaci similar titres were noted. Chlamydial IgM, however, was not detected by immunofluorescence in either serum sample (Table). These results were compatible with recent C psittaci infection. The patient was treated with tetracycline and made a complete recovery.

The patient owned over 100 birds, including Australian parakeets, ducks, chickens, and geese. In view of the serological data the recent clinical history of the avian birds in particular was investigated. Although signs of illness had not been observed before the patient's illness, two birds had died for no apparent reason on 29 October. Faecal droppings obtained the next day from all the birds that were housed in three aviaries were examined for the presence of C psittaci. Suspensions of the faecal material were inoculated into mouse L929 cells, and after incubation at 37°C for 48 hours the monolayers were examined for chlamydial inclusions using a C psittaci antiserum labelled with fluorescein. Avian C was found to contain the most birds excreting C psittaci (7/15). Three of the 19 birds in avairy A but none of the 12 in avairy B were positive for C psittaci.

On 25 November a yellow rosella from avairy C died immediately after medication for worms had been administered. Postmortem examination showed many nematodes in the intestine. The liver was enlarged and copper coloured and the spleen was enlarged and mottled, both these signs being the principal characteristic lesions associated with psittacosis.1 C psittaci was isolated from spleen, liver, and cloacal samples according to the method used by Chalmers et al.2 Shortly after this all birds in avairy C were given aureomycin. The antibiotic was added to the feed at a concentration of 4 g/kg and to the water at a concentration of 50–150 mg/l. The birds were on medication for five days then off for two days throughout the 45 day course. The faecal droppings were then re-examined, but no chlamydias were isolated from any sample.

The yellow rosella had been purchased by the patient on 6 October at a parrot show in Luton. It is believed from the ring coding that the bird had recently been imported, probably from Belgium. Ten days after purchasing the bird the patient began to feel unwell. One of his daughters, who had suffered a respiratory complaint all summer, regularly helped to feed all the birds with the exception of those housed in avairy C. The patient himself looked after this avairy and was also responsible for cleaning out all the aviaries. Antibody to C psittaci was not detected in the daughter's serum taken on 23 November, and the respiratory disorder subsequently resolved.

Chlamydial antibody titre in patient's serum

<table>
<thead>
<tr>
<th>Date serum obtained</th>
<th>CF titre</th>
<th>IFA titre</th>
<th>IFA IgM</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>L2</td>
<td>EAE</td>
</tr>
<tr>
<td>23 October</td>
<td>&lt; 8</td>
<td>1024</td>
<td>1024</td>
</tr>
<tr>
<td>6 November</td>
<td>256</td>
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CF—complement fixation; IFA—indirect immunofluorescence antibody; EAE—Enzoatic abortion of the ewes strain of C psittaci, L2 strain of C trachomatis.

The patient's wife, his other daughter, and a friend who occasionally helped look after the birds all remained well.

Although the patient cleaned his aviary thoroughly during the last week of September, the source of infection was most probably the yellow rosella, which had been recently acquired. Interestingly, chlamydial IgM antibody was not detected in either of the patient's serum samples. This may indicate that he had been reinfected.

The protection of the public against contracting chlamydiosis from infected imported birds has been the subject of considerable discussion. The main responsibility of the veterinary officer is to prevent the spread of chlamydia to poultry. To some extent this safeguard is provided by the Importation of Birds, Poultry, and Hatching Eggs Order (1979). Veterinarians who diagnose chlamydial infection in birds should warn the owners of the possibility of contracting the disease but are under no obligation to do so. It should be noted that birds may act as carriers and excrete Chlamydia without showing clinical manifestations of disease.1 Signs of chlamydiosis usually develop in birds suffering a concurrent secondary infection.4 It may be that in the case described chlamydial infection developed in this yellow rosella as a result of stress induced by infestation by worms.

References

1 Mohan R. Epidemiologic and laboratory observation of Chlamydia psittaci infection in birds. J Am Vet Med Assoc