

An innovative quality assurance scheme designed to ensure safer transfusion practice in hospital laboratories is now well into its second decade. Transfusion scientist Barry Hill reports on the Welsh Assessment of Serological Proficiency Scheme.

Serological proficiency testing: a scheme with no sting in the tail

The Welsh Assessment of Serological Proficiency Scheme (WASPS) was introduced in 1989, and was designed to assist laboratories in monitoring and improving performance of red cell antibody detection during blood transfusion compatibility testing. As an independent scheme, WASPS operates under the direction of a steering committee established in 1992. It is based at the Welsh Blood Service (WBS) and as such is indebted to the WBS for the help and support it continues to give WASPS.

The WASPS format was developed originally to:

- establish a quantitative basis for assessing performance
- provide sufficient material to allow all laboratory staff to participate in each exercise
- produce a concise report summarising key areas that would allow those responsible for the service to assess the performance of the laboratory and their staff.

The scheme is based on simulated compatibility testing in which four sera are tested against three red cell samples. It is designed to be performed by individual members of staff using routine methods.

Re-inventing the wheel?

Joan Jones, hospital transfusion practitioner manager for the WBS and former specialist advisor on transfusion science to the IBMS, is the present chairman of the WASPS steering group and is in no doubt of the importance of external quality assurance (EQA) schemes in blood transfusion. According to Joan: "It is

vital that transfusion scientists participate in external EQA schemes. They are an important part of the laboratory quality system, with satisfactory performance boosting confidence and less-than-satisfactory performance provoking a review of the processes and procedures that aims to identify improvements. In addition, participation may help transfusion laboratories to achieve compliance with the Blood Safety and Quality Regulations (2005)."

However, EQA schemes in transfusion science practice are not new. For instance, the NEQAS Blood Transfusion Laboratory Practice (BTLP) scheme has been in use in

most transfusion laboratories for many years, so why did Joan and her colleagues feel the need to re-invent wheel?

Joan responds: "WASPS came about through collaboration between the WBS and Welsh regional hospitals as a direct result of variable performance by some in the NEQAS BTLT scheme. Also, there are significant differences between the two schemes. For example, a limitation of the NEQAS scheme is that there is only sufficient material for one person in each laboratory to be assessed.

"The WASPS organisers and participants were anxious that the new scheme should overcome this limitation and provide

'The scheme is designed to be performed by individual members of staff using routine methods'



Although the Welsh Assessment of Serological Proficiency Scheme has seen a move by participants away from traditional compatibility testing towards the newer technologies of bead and gel centrifugation, the aims of the scheme remain the same.

‘There are significant differences between WASPS and the NEQAS Blood Transfusion Laboratory Practice scheme’

sufficient material for all staff to participate. Furthermore, WASPS is not designed to be an alternative to NEQAS but a useful adjunct, allowing quality assessment to be more widely applied.”

Scheme participation

Currently, there are 32 laboratories enrolled and registered in WASPS; 20 laboratories from Wales, 11 from England and one from Scotland. To participate in the scheme, which includes three exercises per year, laboratories register annually. The annual registration fee is £125. Participation is purely on a voluntary basis, and all details of performance are confidential.

Laboratories then register in one of three categories: ‘small’ is a laboratory which has five or less individuals; ‘medium’ has five to 10 individuals; ‘large’ has 10 or more. The scheme is based on a simulated compatibility testing in which four serum samples are tested against three cell samples, and is designed to be performed by individual members of staff using routine methods.

Although WASPS has seen a move by participants away from traditional testing towards the newer technologies of bead and gel centrifugation, the aims of the scheme remain the same. Information provided from comparisons of the technologies has been taken and used to assist participants in establishing ‘best practice’.

Exercise details

Three WASP exercises are prepared annually (April–March). These have concentrated primarily on weak quantifiable examples of anti-D. This has allowed the scheme to provide a quantitative comparison of performance over time.

Materials used for the exercises consist of red cell samples derived from a single donation, suspended in modified Alsevers solution containing antibiotics. Serum samples are defibrinated plasma donations from one or more individuals. All exercise materials are dispensed aseptically and are tested for markers to hepatitis (B and C) and human immunodeficiency virus (HIV) antibodies by approved methods and found to be negative.

Sufficient material is provided for all staff to participate in the exercise. Material is

dispatched to regional participants on routine delivery rounds and to participants outside the region by first-class mail. Dates of exercises are notified to participants in advance.

The exercises should be performed by individuals alone, with no collaboration between staff members. Only the techniques used normally for routine non-urgent testing should be employed.

Each participant laboratory is supplied with exercise material, results sheets and a collation sheet for each exercise. Results are entered on the collation sheet containing the laboratory code and the individual participant’s codes; thus, it is not necessary for the scheme manager to know the identity of individual participants. Exercise collation sheets are returned by post, fax or email to the scheme manager by the deadline date for the exercise.

A report is produced and issued to all participants after ratification by the steering committee. The report gives a graphical representation of the analysis of the current exercise and an analysis of individual performance. It also includes a summary of the material distributed, the aim of the exercise and a comparison of techniques used. Discrepant results are indicated by allocation of a performance score for laboratories and individual participants. Assessment of laboratory performance is defined on the exercise report.

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Feedback

Joan and her colleagues are in no doubt about the value of WASPS to date, as she continues: ‘We achieved Clinical Pathology Accreditation (CPA) approval for the scheme in March 2003, during which WASPS was commended as an excellent scheme developed primarily for transfusion laboratories in Wales, having the advantage of being able to assess individual practice, which is unusual, and of having excellent and well-controlled documentation, and enthusiastic and dedicated staff.’

‘I have also received much constructive feedback from participants who consider that WASPS has matured nicely, and is now a useful and popular addition to laboratory EQA. A general comment from transfusion staff has been that the WASPS exercises fit their needs perfectly, and that the individual reports are especially useful for staff to keep complete records in their portfolios.’

Future plans

In terms of progress to date, Joan considers that WASPS’s most significant achievements have been the implementation of individual analysis following individual participant coding in 1998, as well as the creation of a WASPS website in 2003, which was redesigned and relaunched early this year.

Introduction of an annual WASPS one-day users’ meeting is another important step forward, permitting greater interaction between participants. For example, the use of WASP exercises for assessment of competence was proposed at the meeting in 2005. Subsequently, the steering committee designed a record of performance form that is currently distributed electronically to laboratory managers shortly after each exercise.

As for the future of WASPS, Joan believes that there will always be scope for improvement: ‘We will continue to address the area of cell suspension standardisation, which is a particularly critical factor in the newer technologies. Currently, automation is employed for compatibility testing in one hospital and we are working to develop this area.’

Further information on the Welsh Assessment of Serological Proficiency Scheme is available at www.waspsqa.org.uk.