



Musgrove Park Hospital in Taunton serves a population of over 340,000 across part of south-west England.

chose to use another supplier. The principle was nice, it appeared to be a low-maintenance but we experienced unforeseen technical problems.

"Continuing system issues and a shrinking network of users forced Musgrove Park to consider calling a halt to the service. We were close to shutting down all PV testing and shipping our samples to Exeter. It would have been a great shame and the end of an era for us. It's a useful tool and we would have been very upset to lose it. However, the Benson BV1 appeared just at the right time."

Musgrove Park gets its Benson viscometer

"We commissioned the Benson BV1 in February 2009, after we were attracted by the concept of a one-shot system. With only half a dozen or so PVs per week for multiple myeloma and Waldenstrom's macroglobulinaemia patients, it meant that we would be doing about one a day," said Graham.

Benson Viscometers has a fine reputation for quality and the company is held in high regard by users. The Central Quality Assurance Scheme (CQAS) results were also influential in the Musgrove Park decision. The Benson methodology generates very good coefficients of variation (CVs) and, with 40 to 50 users, the statistical bias

sometimes seen with smaller groups is avoided.

Graham continued: "Benson Viscometers is the UK leader for plasma viscosity testing systems and we have had a long relationship with Bernie Benson. The BV1 is superbly engineered and easy to use, with a modified PC cabinet and a small footprint. Customer support is second to none.

"We may never go back to 250 tests per day but PV measurement remains an important part of our haematology service and the consultant haematologists order them when appropriate. We also sent a circular to the GPs in Somerset reminding them of the utility of the test and that they could order PVs according to defined criteria."

Plasma viscosity: the diagnostic tool

Many laboratories use a combination of ESR, CRP and PV testing, but SPS is very specific about the diagnostic capabilities of using PV, as Graham went on to explain. "The ESR and CRP are not the same as PV but they provide us with non-specific screening tools for suspected infection and inflammation to assist the clinician in making a diagnosis alongside the patient's clinical signs and symptoms.

"A high ESR or CRP could be due to many things. However, if we get a PV result over 3 mPas we are moving into


the diagnostic arena. It is no longer non-specific as very few conditions are associated with values as high as this. Multiple myeloma (MM) and Waldenstrom's macroglobulinaemia are at the top of the list and trigger other confirmatory tests such as protein electrophoresis and serum free light chain and immunoglobulin testing. Once a diagnosis has been made, we can use the PV test to monitor patient treatment and progress.

"Occasionally, a GP will send in a full blood count (FBC) with low haemoglobin and this will trigger a blood film. Sometimes the slide stains bright blue, indicating the presence of a lot of protein. Film examination is also likely to show the red blood cells stacked up like piles of coins (rouleaux), which is another indication of raised plasma proteins. A subsequent PV test is often the way that new multiple myeloma and Waldenstrom's macroglobulinaemia patients are first identified."

Case in point

The arrival of the Benson BV1 has ensured the future of PV testing at Musgrove Park Hospital. Graham and his staff are delighted with their new instrument and the contribution it makes to high-quality patient care in Somerset.

Graham concluded with a brief example: "Recently we had a patient whose PV was so high (> 10 mPas) that we had to ask Bernie Benson for a special protocol to adjust the BV1 instrument. We were able to make the adjustment with a simple telephone call and recalibrate the machine with the new settings before analysis. The system allowed us to do this very quickly.

"This patient attended an out-patient clinic where the PV test was carried out after the FBC test and a blood film. The PV was so high that we involved the biochemists and clinicians immediately (Table 1). The patient was diagnosed with Waldenstrom's macroglobulinaemia and underwent plasmapheresis to reduce the risks associated with hyperviscosity (eg stroke). We now monitor the patient's PV regularly to check that it is not rising again. 

RESULTS OBTAINED AT 250°C FOR THE PATIENT WITH WALDENSTROM'S MACROGLOBULINAEMIA.

	Patient	Normal range
Plasma viscosity	> 10	1.4–1.75 mPas
Albumin	27	36–52 g/L
IgM	71.2	0.5–2.0 g/L

Further information is available from
Sabrina Chetcuti
Benson Viscometers
Croft Quarry
West Williamston
Pembrokeshire SA68 0TN
Tel: +44 (0)1646 650065
Email: saby@bensonviscometers.com
Web: www.bensonviscometers.com

Plasma viscosity: Musgrove Park Hospital joins the Benson family

Plasma viscosity testing emerged in the early 1970s following pioneering work by Jock Harkness in Taunton. Now, the haematology at Musgrove Park boasts the very latest in viscosity instrumentation.

Musgrove Park Hospital in Taunton is the largest district general hospital in Somerset and is the birthplace of the plasma viscometer. It is from this hospital that Professor Jock Harkness developed the Harkness viscometer, first introduced in 1971, sparking a long history of plasma viscosity (PV) testing by the Somerset Pathology Service (SPS). The haematology department recently brought its testing technology up to date with Benson Viscometers BV1 single-sample plasma viscometer. In this article, Graham Gibbs, haematology technical manager, provides an overview of the important screening service that the BV1 will be

supporting.

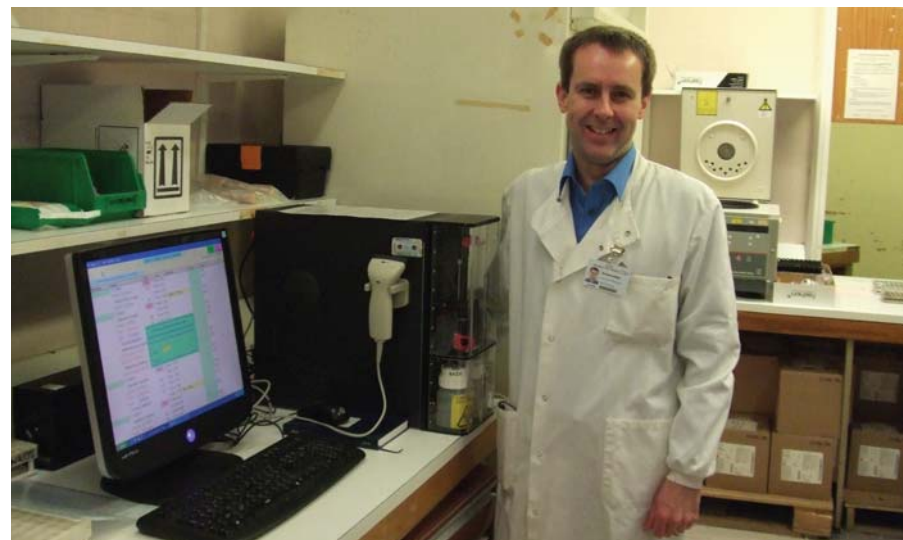
Musgrove Park Hospital serves a population of over 340,000 in the south-west with 4000 staff. Nearly 500,000 diagnostic tests are carried out annually, with the haematology laboratory processing on average 1200 blood tests per day. Somerset Pathology Service is a joint venture between Musgrove Park Hospital and Yeovil District Hospital and employs almost 200 staff to cover the workload. As with most modern laboratories, in addition to providing a core service, staff members are on hand 24 hours a day, seven days a week, all year around. This cross-county service provides all the PV testing for SPS.

Home of plasma viscosity

Jock Harkness work at Musgrove Park Hospital and the laboratory still had one of the original Harkness viscometers for checking very high viscosities when Graham Gibbs joined the laboratory in 1990s. He said: "PV testing was very much a part of the busy routine service when Coulter was marketing the system and the laboratory was processing 250 viscosities daily. Acquisition of the Coulter Corporation by Beckman led to a change in circumstances, combined with staff shortages, which meant that the laboratory had to rethink its service delivery model. It was just no longer feasible to continue to process such large numbers of PV requests."

A fight to maintain the service

With automated systems for erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) testing, the laboratory chose to use a PV system suitable for scaled-down testing. Graham continued: "We like to use the PVs for monitoring multiple myeloma and Waldenstrom's macroglobulinaemia but the routine viscosity haematology screen was abandoned – we did not have the manpower or the technology and we did not have the machine. At the time that we were looking for a replacement PV system, funding was not available to go to the larger Benson system so we



Graham Gibbs and his staff are delighted with their new Benson BV1 instrument and the contribution it makes to high-quality patient care in Somerset.

'The Coulter viscometer was withdrawn from the market in 1997 so many hospitals needed to look for alternative instruments to perform PV testing'