The Facility

The John Hunter Hospital (JHH) is the principal referral centre for the Hunter Region and Northern New South Wales and main teaching hospital affiliated with the University of Newcastle. With 750 beds, it serves patient communities across a large geographical area.

The hospital has 15 operating theatres and performs around 1700 cases per month. JHH employs a biomedical engineering team with the anaesthetics department employing a dedicated biomedical engineering technician to support its equipment.

Results

The biomedical service partnership has been in place at JHH for over seven years. Through this partnership, the JHH biomedical technicians have received extensive initial and follow-up training enabling them to support and maintain a large fleet of anaesthesia machines.

This has resulted in JHH having a well maintained fleet of anaesthesia machines and the capacity to achieve a much faster resolution when breakdowns occur. This ensures surgical lists are minimally impacted by equipment malfunction.
Background

As the major tertiary hospital dedicated to communities across Northern New South Wales, having a fully functioning fleet of anaesthesia machines is critical to service delivery at JHH as some patients travel long distances to receive treatment.

With the large investment JHH made in updating its fleet of anaesthesia machines, it needed a service solution to help support and ensure reliable operation of this equipment.

JHH was looking for an agreement that would offer them direct access to the manufacturer to resolve any service issues quickly and efficiently. They were also looking to partner with a company that would provide accredited training to allow its biomedical technical staff to confidently perform planned maintenance (PM) cycles and also resolve service issues promptly.

Solution

The GE Healthcare biomedical service partnership was evaluated by JHH and found to be the most suitable solution as it linked into and built on existing in-house expertise. Unique aspects included: direct access to GE Healthcare factory tools, parts, service information and extensive technical training. In addition, JHH technical staff are entitled to ongoing access to GE Healthcare’s support network.

As a first step, the biomedical service partnership allowed JHH biomedical technicians to attend a training program provided by a certified GE Healthcare trainer over three days. This training offered a comprehensive overview of the anaesthesia system and in-depth coverage of frontline maintenance techniques. Through demonstrations and hands-on experience, attendees were shown how to assemble and test breathing systems and use software diagnostic tools to download internal logs and perform advanced fault diagnosis. In addition, the team at JHH learnt how to perform scheduled maintenance and associated functional testing as per manufacturer’s recommendations.

The JHH biomedical technicians were also provided with direct access to technical support engineers from GE Healthcare to contact in the event additional information is required during equipment service or repair.

Over time, the partnership model has evolved and now incorporates a “consignment of strategic inventory”, which simply means a collection of spare parts housed at the hospital to facilitate rapid response to any equipment breakdown. The inventory is regularly reviewed by both JHH and GE Healthcare and optimised to ensure suitable spare parts are on hand.
Benefits

Through the biomedical service partnership, JHH biomedical technicians are confident in performing all scheduled maintenance and repairs to the fleet of GE Healthcare’s anaesthesia machines. This has resulted in significant time savings, as on-site technical staff can now perform tasks that traditionally would have required a GE Healthcare service engineer to complete.

A recent example involved the breakdown of a gas blender module. This would normally require a GE Healthcare service engineer to be present to diagnose the issue, however, JHH technical staff used training, support documentation and diagnostic tools, to rapidly identify the root cause of failure. By accessing JHH’s strategic spare parts consignment the faulty module was replaced, the system tested and the repair fully documented, reducing equipment downtime from over 24 hours to just 2 hours.

Apart from the rapid response time and fault resolution, the ability of the on-site biomedical team to provide effective support to the clinical team has, at times, allowed equipment to be used safely until the case was completed eliminating the need to transfer the patient to another anaesthesia machine during surgery.

An additional benefit, that has developed over time, is biomedical staff have gained a deep understanding of the features and functionality of the anaesthesia machines. As a result not only are they able to service and repair equipment, but they have also successfully delivered training to clinical staff and registrars demonstrating the basic functionality of the anaesthesia systems. This gives the clinical team competency to precisely identify machine issues, act accordingly and relay accurate information necessary to minimise disruption to theatre scheduling.

Over the past seven years, through ongoing training and technical support the biomedical service partnership has been successful in allowing JHH to manage and maintain its large fleet of anaesthesia machines.

“Being able to run PM cycles and also perform repairs myself, while still being supported by GE Healthcare service technicians, has removed the stress and pressure associated with the daily management of the anaesthesia machines.”

Steven Threlfo, Senior Technical Officer
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