

Calibration and Maintenance:

Centralized System Eases Detection of Problems

Jill Schlabig Williams

Managers at the Blood Center of Southeast Wisconsin (BCSEW) decided to implement a centralized equipment management software system called Calibration Manager to maintain compliance with regulations. Blood centers, which are closely regulated by the FDA, face shut-down if equipment is not properly maintained.

Three previous attempts to implement the software had failed. This time, managers hired Austin Williams, a recent biomedical engineer graduate, to lead the effort. He was charged with maintaining equipment inventory, developing and implementing procedures, and training staff on both software and equipment procedures.

Background

The blood center is a non-profit transfusion medicine organization providing blood products and services to the nation's hospitals. It also provides diagnostic laboratory testing, medical services, and blood research.

The center maintains an inventory of more than 3,000 pieces of complex medical equipment, including items such as blood pressure gauges, pipettes, centrifuges, and automated blood collection machines. Centralized equipment management is a rarity in the blood center business, and few centers employ clinical engineers to maintain equipment.

When Williams came on board, he found a decentralized system where each department had its own method for maintaining equipment and complying with regulations. Specialized staff such as phlebotomists had to take time away from other responsibilities to maintain equipment.

Typically, the newest person in the department maintained the equipment, so the person who knew least about the equipment was in charge of it. While the sys-

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Subject: The Blood Center of Southeast Wisconsin

Location: Milwaukee, Wisconsin

Total Employees: 700

Equipment Management Department Staff:

1 supervisor, 3 equipment calibration specialists, 1 data entry person

tem worked, says Williams, it did not work well. "Efficiency was low and procedures were inconsistent," he says. "It was difficult to ensure compliance—each department tracked things differently."

Solution

Williams' first job was to learn about regulations governing equipment at blood centers, about the culture of the organization, and about the new software he was to implement. While being trained on the new software, he took an inventory of equipment and entered data on more than 3,000 high-end devices into the system.

Another early task was to develop and write equipment management procedures for the organization. He relied on help from quality specialists in the various

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operational units. Next, he trained almost 40 end users in both the new procedures and software.

Williams realized the decentralized nature of the system was compromising efficiency and maintaining equipment and updating the software took too much time for the operational specialists to do well. Williams and the blood center's executive team decided to create a centralized equipment management department in August 2002, and initially hired two calibration specialists and one data entry specialist to staff the department.

Backed by a staff, Williams was able to bring in house calibrations that had been done by third parties. This move saved money on outside contracts but also meant the center no longer needed to maintain a double inventory of equipment that would go out for calibration. When he solicited quotes from outside vendors to perform these calibration tasks, proposals came in at approximately \$2 million per year. Williams was able to provide the same service for \$200,000.

Not all equipment could be maintained in-house, however. Since blood centers typically don't have in-house clinical engineering departments, many manufacturers don't offer parts for the equipment. Williams looked at maintenance costs and convinced his supervisors that putting some equipment under service contracts would save money.

In one case, he was able to convert \$30,000 in annual repair bills on centrifuges to a \$15,000 service contract that included annual preventive maintenance checks, thereby extending the life of the equipment and reducing the cost of repairs. Now, managing these outside contracts is one of his department's key responsibilities.

Outcome

Today, the blood center's equipment is managed by one centralized calibration and maintenance department. Uniform standard operating procedures and tracking mechanisms have made it easy to detect equipment problems.

The department is part clinical engineering department, and part metrology lab. Staff members perform preventive maintenance checks, repairs, and electrical safety checks; manage outside vendors; and help the facility evaluate and purchase new technologies. The staff also ensures proper calibration of equipment for

weight, temperature, volume and pressure, and monitor compliance with FDA regulations, generating 1,500 records a month related to equipment operation.

The centralized equipment management approach that Williams has put in place has received praise from the blood center's auditors. "For the first time in 10 years, equipment and calibration management were not mentioned as an issue by the auditors," says Williams. "They were very impressed with our system."

His department has also won approval from within the blood center organization. "Now that we have a proven system in place, the operational departments are giving us a lot of work. They love the fact that they can focus on their area of specialization and rely on us to take care of the equipment. This has improved efficiency throughout the organization." ■

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—Austin Williams