

UMC Case Study – Playing a key role in Community Water Savings within the Hospital’s Central Sterile Processing Department

We’ve all heard the adage, “what happens in Vegas, stays in Vegas.” This case study, illustrates that while this phrase applies to situations encountered in the gambling capital of the world, that shouldn’t be repeated, the significant win achieved by the University Medical Center of Southern Nevada’s Central Sterile Processing Department should be shared so other facilities can realize similar savings.

Demographic Information:

University Medical Center (UMC) of Southern Nevada, located in Las Vegas, Nevada, consists of a 500 bed campus, including 19 surgical suites on the main campus, 3 surgical suites in the Level 1 Trauma Center, Level 2 Pediatric Trauma Center and Children’s Hospital, an on-site Burn Care Center, and 14 offsite urgent care clinics, all in the heart of Las Vegas. The facility was in need of a major renovation which was the sort of project and challenge that attracted Anthony (Tony) Burt, SPD Director from a neighboring hospital.

Key Issues:

Tony Burt RN CRCST, Manager of Sterile Processing at UMC, came to the facility with 15 years of experience in Sterile Processing. In his new position, Burt was facing a remodel project as a result of the dramatic increase in surgical volume and subsequent increasing surgical case load.

Looking ahead, another process the hospital could not afford to leave to chance was a smooth renovation and installation plan. The daily operations of the hospital needed to proceed un-interrupted. The Las Vegas community depended on the surgical capacity of UMC, so minimizing any disruption was a top priority.

Furthermore, the staff understood the importance of choosing a solution that reduced water consumption and lowered utility costs. Hospitals are often the largest

water users in the communities they serve. A 1996 study by the Massachusetts Water Resources Authority (MWRA) found that typical hospital water use can vary anywhere from 40 to 350 gallons per capita (individual served) each day, which demonstrates much variability among hospitals. The study identified five major areas of water use in a hospital setting in which Sanitary was the largest water user (42%) and acknowledged the SPD was a significant user of water within the Sanitary area, to ensure the functions of sterile processing. It concludes that area facilities were found to have, on average, a potential for reducing about 20 percent of their water use, cost-effectively. With the water and sewer costs of these facilities averaging over 20 percent of total utility costs, the more efficient hospitals can deliver patient care at lower cost.¹ A 2012 USA TODAY survey of 100 municipalities found residential water bills have surged in the past decade. One in four places have doubled in the past 12 years; Las Vegas incurring +129% increase in costs.²

Community Considerations:

For the past 10 years Las Vegas has been in a severe drought. Just look at the water levels in Lake Mead, a reservoir that stores Colorado River water and also known as one of America's most popular recreation areas. The lake’s water level is lower today than it’s been in 40 years.

Southern Nevada in fact, gets nearly 90 percent of its water supply from the Colorado River. Seven western states and Mexico share the river, which serves more than 25 million people. The Water Authority continually monitors conditions along the Colorado River, the source of the majority of southern Nevada’s drinking water.³ Understanding the environmental impact of the proposed solutions would not be overlooked.



Lake Mead clearly showing the white “bathtub ring”

Strategy & Implementation:

The remodel project requirements would be gathered upfront through a Sterile Processing remodel RFP (Request for Proposal) committee, chosen for the knowledge and expertise the members would bring to the process. The team gathered instrument cleaning and processing data to give a clear understanding of what the baseline requirements would be for the new equipment. Committee members included Directors of Surgical Services, Materials Management, Contracts Management, Plants Operations, and Clinical Engineering, and the Manager of Sterile Processing.

The committee studied the facility's current throughput processing volumes and planned for additional capacity to manage growth. UMC's Central Sterile Processing Department (CSPD) processes approximately 15,000 instruments each day, with high surgical volume days exceeding 600 sets per day. These instruments can come from multiple departments and some need to be processed and sterilized for reuse the same day. The CSPD also has responsibility for restocking supply items on the Crash Carts.

"I believe it is critical to have a diverse group who will play an important role in the remodel process. This way the group as a whole makes an informed decision, so no single person has to take the responsibility alone."

Tony Burt, RN CRCST Manager

The vendor selection process started with the RFP. Anticipated growth statistics were included to more accurately represent the instrument processing needs throughout the working life of the proposed washing and sterilization equipment. The goal for washer-disinfector and sterilizer equipment was to meet or exceed throughput of 100 trays per hour.

Solution:

"Here at UMC we needed the latest technology, fast washer throughput, and sterilization capacity to meet the high demands of our level one trauma center and 23 surgical suites. We also had to be mindful of our community as water conservation is a major concern. We evaluated three major vendors to identify the best solution to meet our requirements" stated Burt.

According to Burt, at the onset of the evaluation process, Belimed was considered a little known vendor compared to the two larger, incumbent suppliers of sterile processing equipment. However, following a thorough vendor analysis and a significant learning process, Burt stated:

"Belimed was selected unanimously for multiple clinical & efficiency advantages, utility savings, and cost savings."



WASHERS	CART WASHER	STERILIZER
Highest level of thermal disinfection (A ₀ 3000)	Reduced Cycle Time	Clean Steam technology:
Increased capacity	Reduced Water Consumption	Sterilizer Utility
Smart Fill technology		Smart Dry technology
		Mix of large and small volume sterilizers

Belimed Equipment was selected based on winning advantages and savings.

Sterile Processing Department Success Improved capacity, efficiency, automation & confidence

- Each chamber of the new four Belimed washer-disinfectors holds approx 150% of the capacity of our previous washers. This helps reduce water consumption.
- Cycle times have been reduced by 50% to allow for quicker throughput. (Allowing the CSPD to recycle instruments and return them for use much faster).
- Two previous washers processed approximately 12 instrument trays per hour and it was difficult to keep up with the demand; the Belimed washers process 70-100 instrument trays per hour.
- The Belimed washers have the highest disinfection cycle A₀3000, ensuring the instruments are completely clean and safe for handling by staff.
- The cart washer is one of the fastest and most effective in the business ensuring case carts are thoroughly clean and dry.



Four Belimed WD 290s wash/disinfectors clean over 450,000 instruments per month.

Steam Sterilization

A total of 5 steam sterilizers (3 large chamber and 2 smaller capacity) include high quality components, the latest technology, and quality construction for a high level of product reliability.

Clean Steam

Two clean steam generators use hospital generated steam to convert purified water into pure steam. Clean steam is free of harmful contaminants that cause corrosion to sterilizers and instruments, resulting in increased equipment uptime and reliability, and reducing instrument repair.



Belimed Sterilizers are designed to minimize water consumption, saving millions of gallons of water per year.

Smooth Installation

A key concern for UMC at the beginning of this major remodel was utilizing an existing space and not having any down time. According to Burt, "Installation went very well. From the beginning Belimed was actively engaged with all members of the construction team. Always either on-site or via telephone at all our weekly construction meetings, Belimed was trouble shooting when needed and always met 100% of our needs. An outstanding installation team!"

Clinical & efficiency advantages

Improved staff effectiveness compared to prior year is attributed to the remodel of the CSPD. There is now more time to focus on important tasks.

Water conservation

The sterilizer technology includes the use of chilled water to cool waste water and electric motors to produce the vacuum needed. These features will save approximately 14 million gallons of precious water each year, higher than the original projection of 10.1 million gallons of water each year.

Conclusion

In Las Vegas, Lady Luck is generally the single most associated attribute to winning big. However, the CSPD team at UMC didn't need to rely on her as they selected Belimed as their partner to renovate their Central Sterile Processing Department.

"We have realized increased departmental productivity due to the design and efficiency of the equipment, cost savings with decreased instrument repair, decreased detergent usage, and decreased utilities.

Since construction ended the Belimed equipment has been totally reliable and met and exceeded all of our expectations and requirements. Our in-house clinical engineering staff was trained to troubleshoot and be the first line responders. When a unit goes down the response time from Belimed is immediate and we have someone on-site usually within several hours. Our overall experience with Belimed has been outstanding.

Thanks to our friends at Belimed we chose the best of the best, doubled our sterilization capacity, quadrupled our washing capacity and are saving over 14,000,000 gallons of precious water annually compared to our previous equipment. Way to go Belimed! Thanks for being mindful of our precious planet." *Tony Burt, RN
CRCST Manager*

With the realized water savings, UMC's effort is able to:

- fill 280,000 baths
- water 167 single family residential households per capita
- reduced emissions of 23.7 metric tons of CO₂

in one year, with the water saved by making the decision to use Belimed equipment.

Data Sources: Las Vegas Sun: Residential Water Use, EPA Energy: Greenhouse Gas Equivalency Calculator

Baselining Water Consumption, Single Family House, Las Vegas, NV:
<http://www.watersmartinnovations.com>



About UMC Nevada

UMC is the only public, non-profit hospital in Clark County and operates the state's only Level I Trauma Center and Organ Transplant Center, Level II Pediatric Trauma, and Lions Burn Care Center. UMC is home to Children's Hospital of Nevada, the only one of its kind in the Silver State that is recognized by the Children's Hospital Association. UMC and Children's Hospital of Nevada offer the highest level of care within 10,000 square miles. UMC is affiliated with the University Of Nevada School Of Medicine and serves as the state's major clinical campus. Through its affiliation with the School of Medicine, residency programs in emergency medicine, internal medicine, obstetrics and gynecology, family practice, general surgery and pediatrics are offered at UMC. UMC operates several Quick Care and Primary Care clinics around Clark County. UMC is home to several specialty service lines including orthopedics, pediatrics, neonatology, cardiology, neurology, and oncology, among others. Visit www.umcsn.com and childrenshospitalofnevada.org for more information.



About Belimed

At Belimed, Inc., www.belimed.us, our goal is to ensure absolute customer confidence in sterile processing areas through a unique and forward thinking approach. We provide solutions that can increase the efficiency of Sterile Processing Departments by delivering clean, disinfected and sterilized instruments to the OR in the most efficient manner, helping to reduce operational costs, significantly reducing water consumption, and enhancing the working environment for SPD staff.

We are a leading provider of medical Sterile Processing systems and solutions for hospitals and health care systems across the United States and around the world. We integrate leading water conservation and water quality technologies, awareness, education and implementation efforts into our offering across the US.

Endnotes

¹Inside ASHE Reed, Clark. U.S. EPA. Sept-Oct 2012. http://www.energystar.gov/index.cfm?c=healthcare.ashe_sept_oct_2005

²Sources: Black & Veatch, Raftelis Financial Consultants and USA TODAY research of municipal water data; Energy Information Administration, Bureau of Labor Statistics, and USA TODAY research, By Kevin A. Kepple, Denny Gainer, Joan Murphy, Doug Carroll, Kevin McCoy, Oliver St. John and Tom McGarrity, USA TODAY, <http://usatoday30.usatoday.com/money/economy/story/2012-09-27/water-rates-rising/57849626/1>

³<http://www.usbr.gov/lc/hooverdam/faqs/lakefaqs.html> US Bureau of Reclamation, Lower Colorado River. June 2012.

This Case Study was co-authored by Belimed, Inc. and University Medical Center of Southern Nevada, 2013