Belimed
Infection Control

KEEPING THE OPERATING ROOM ALIVE:

MITIGATING OPERATING ROOM SHUTDOWNS

05.2016

CASE STUDY

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BACKGROUND

The main hospital campus of a large, nonprofit, Magnet designated health care system located in Southern California was struggling with a Central Sterile Supply Department (CSSD) challenged by increased processing volumes.

The C-suite was concerned that without a CSSD renovation, Operating Room (OR) shutdowns would be the result.

CHALLENGES

- At 50 to 60 cases/day the CSSD had reached its capacity with no room for future growth or ability to reprocess ancillary items
- High risk to revenue loss caused by OR shut downs and delayed cases
- An upward trend in year over year departmental costs associated with equipment, maintenance, and overtime labor

PRIMARY GOAL

Create a new, state-of-the-art CSSD based on detailed data analysis to mitigate potential OR shut downs, maintain surgery volumes, and protect revenue, within the same footprint.

SOLUTIONS

- A collaborative team was formed consisting of the CSSD renovation project team, a water conservation specialist, and Belimed's Project Planning Group (PPG).
- The final design, layout and capital equipment plan addressed improvements to workflow and wasted space, and maximized throughput.

RESULTS

CSSD renovation savings

Direct Department Cost Savings	**$154,000**
Internal Labor Cost Savings	**$143,489**
Water Cost Savings	**$29,235**

In the first year, the renovation delivered **$326,724** in savings

Annual water savings are estimated to be **7.1 million** gallons

CHALLENGES

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A site analysis of the CSSD uncovered the following contributing factors:

- High associated departmental costs
- Bottlenecks and workflow inefficiencies
- Equipment past its useful life
- Parts and maintenance issues
- Excessive water and energy use
- Maximum reprocessing capacity reached

HIGH ASSOCIATED DEPARTMENTAL COSTS

Maintenance of old equipment	**$67,000/yr.**
Overtime personnel	**$52,000/yr.**
Outsourced labor	**$35,000/yr.**

Additional indirect costs were associated with staff who voluntarily stayed late and worked extra days:

- Burn-out
- Potential Errors
- Possible Department Turnover

Direct departmental costs associated with these issues were estimated to be **$154,000** annually

EQUIPMENT, PARTS, MAINTENANCE AND WATER ISSUES

Dated washers utilized excessive amounts of hot and cold water on a daily basis; unnecessary water consumption is an issue in many U.S. regions, particularly in California, a state experiencing severe drought. Equipment had reached its' end of life, and in many cases, service parts were no longer manufactured or supported by the original equipment supplier.

WORKFLOW INEFFICIENCIES

Aging equipment down time averaged 2-3 days per month, which significantly impacted workflow. The CSSD's outdated floor plan had unused space and created bottle necks, also contributing to poor workflow and inefficient processes.

MAXIMUM REPROCESSING CAPACITY LIMITS

With the OR running 50 to 60 cases/day through 18 OR suites operating at full capacity, instrument volumes were extremely challenging for the CSSD. In addition, the extra, unplanned burden of processing daily GI instrumentation, and cleaning IV pumps and monitors added to the department's overload.

GOALS & SOLUTIONS

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GOALS

The hospital's project goals were simple:

- Create a new, state-of-the-art CSSD utilizing detailed data analysis
- Mitigate potential OR shut downs, maintain surgery volumes, and protect revenue
- Add additional CSSD capacity to support future growth
- Improve system resource utilization
- Reinforce the hospital's community image by promoting investment in new technology and services

> *The customer stated that since roll-out, their new sterilization process has been hugely successful.*

SOLUTIONS

Belimed was chosen to consult with the customer for both the upfront problem analysis phase, and to implement process and product solutions. A collaborative team was formed consisting of the CSSD renovation project team, a water conservation specialist, and Belimed's Project Planning Group (PPG).

Belimed's six sigma techniques and simulation studies identified wasted space and motion, as well as workflow and process efficiency opportunities.

To fully meet project goals, the team recommended space saving, high performance equipment solutions that provided:

- Sustainable reductions in water and energy use with decreased related cost
- High volume throughput in a small foot print
- Connectivity solutions to aid in material traceability and data storage

TOTAL ANNUAL INTERNAL HOURS SAVED

8 hrs PER SHIFT X **3** SHIFTS X **365** DAYS

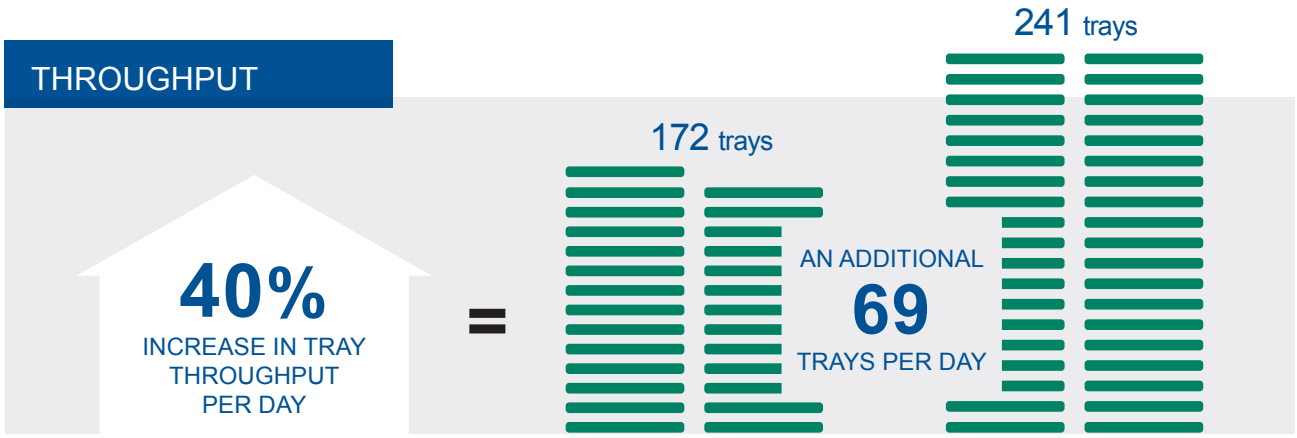
= $143,489 Annual Savings

Structured project management reviews and team discussions resulted in a final design layout and capital equipment plan intended to eliminate wasted space while maximizing throughput. Staff education and training programs were conducted post-installation by Belimed, including ongoing technical and clinical support.

RESULTS

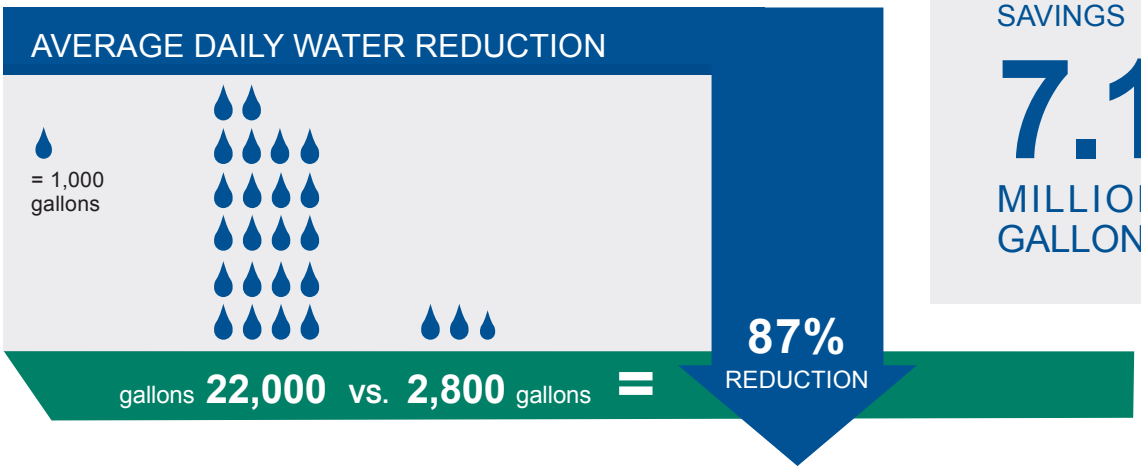
Once the system went “live” marked improvements in throughput, water usage, and operating costs were observed.

The results of the new layout and equipment mix produced a 40% increase in tray throughput resulting in an additional 69 trays/day of reprocessing capacity.



Eliminating labor intensive activities such as hand drying instruments and materials handling resulted in an 8 hr./shift reduction in labor

Hot and cold water consumption was reduced 87%, from 22,000 gallons/day to only 2,800 gallons/day.



PROJECTED ANNUAL WATER SAVINGS

7.1

MILLION GALLONS

Finally, with all of the CSSD improvements, worries over department morale, errors, and patient outcomes diminished.

RESULTS

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Significant savings were realized through the reduction of equipment maintenance activities and elimination of overtime and external outsourcing. Additional savings were achieved with more efficient use of internal labor and water savings. Efficiencies in the work flow also contributed to eliminating overtime and outsourced labor.

ASSOCIATED ANNUAL DOLLARS SAVED AFTER CSSD RENOVATION

ACTIVITY	TOTAL COSTS SAVED
Internal labor savings [1]	**$143,489**
Maintenance of old equipment [2]	**$67,000**
Overtime personnel [3]	**$52,000**
Outsourced labor [3]	**$35,000**
Water savings [4]	**$29,235**

1) 8 hrs./shift x 3 shifts/day x 365 days x $16.38/hr. = $143,489 annual savings; Source: Bureau of Labor Statistics, Sterile Processing Technician National Average Rate = $16.38/hr.; www.bls.gov/oes/current/oes319093.htm

2) Old equipment maintenance of $130,000 less average first year maintenance cost of $63,000 = $67,000

3) Customer provided data

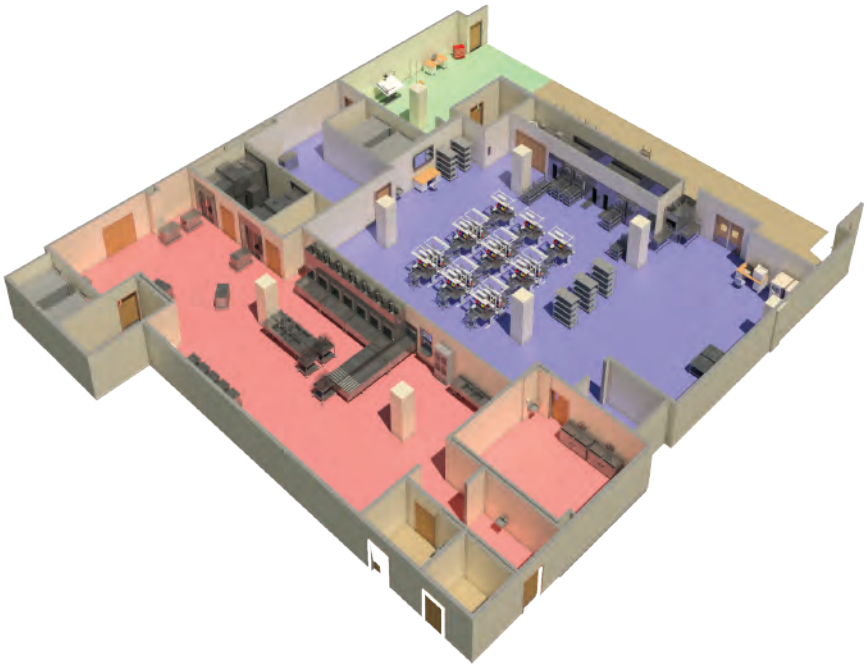
4) 7,100,000 gallons saved/748 gal per HCF = 9,492 HCF x $3.08/HCF = $29,235.29 annual savings; Source: City of Newport Beach Municipal Offices, Revenue Manager; www.newportbeachca.gov/government/departments/municipal-operations/water-services/water-rates

Total $326,724

CONCLUSION

Working collaboratively to meet the CSSD renovation goals resulted in multiple wins for the customer. By focusing on workflow and product solutions to improve the sterilization process, the renovation resulted in a state-of-the art CSSD that addressed current and future demands, while protecting hospital revenue.

Belimed's singular focus on the CSSD provided the expertise to uncover and resolve process challenges, streamline and improve their overall work environment, and deliver safe and sterile instruments to the OR. The data driven process used by PPG coupled with Belimed's advanced infection control technology made the project a success.



NOTE: Information presented here is based on an actual facility but the institution has requested anonymity in this case study. The results discussed here are specific to one healthcare facility and may differ from those achieved by other institutions.

> *Since completion of the renovation, the new sterilization equipment has allowed the CSSD to improve their workflow and make the sterilization process more efficient.*

> *This customer proudly reported that their new CSSD has set best practice standards for sterilization in the community.*

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