Reducing Waste in Health Care Facilities©

A White Paper on Advanced Linen Management Systems May 2014

Purpose: Every supplier and provider in the health care industry must reduce their cost of doing business while continuing to meet increasingly stringent regulations and doing their part at achieving ever-improving patient satisfaction. The purpose of this White Paper is to review the Healthcare Linen Supply segment to analyze the impact of applying new technologies and greater data analyses as a means to significantly reduce the cost of linen supply to healthcare providers. Can a major waste reduction effort significantly lower the cost without impairing the service levels and patient satisfaction results in acute and outpatient facilities? This provides the results of a large scale test that was conducted to measure the impact of a new technology enabled linen management process on total cost by attempting to greatly reduce waste.

Test Markets: The test involved two major markets in the U.S., each with Angelica laundries serving a wide range of healthcare facilities. Each market included a major healthcare system which had multiple acute and outpatient locations and a flag ship medical system with a main campus. In both markets, Ultra High Frequency (UHF) RFID chips were added to products that represented the vast majority of the cost of linen. Each chip carried a unique identifying code, or license plate equivalent, that was stored in the laundry's database that correlated it with the hospital it was being sent to and again upon its return to the laundry. All history was stored for analysis and for tracking timing of return or if it was not returned. This "Tagged" linen passed through reading devices prior to being shipped to a healthcare provider location (hospital or clinic) and then read again when returned from the hospital or clinic as it reentered the laundry.

The first market began shipping Tagged linen in the second quarter of 2013 and the second market began in Q4 of 2013. Millions of pieces of Tagged linen have been sent to and received from healthcare providers in the test areas, therefore statistically significant metrics on results are used in the evaluation of this program.

PRIMARY FINDINGS

Finding #1:

Wasted expenses from overstocking linens provide an immediate savings opportunity.

Conventional industry "wisdom" has been that a healthcare facility will inventory linen to a certain number of days-of-supply ("Par"), usually assumed to be 7 to 10 Par. This myth was immediately proven incorrect during this test. From the outset of the introduction of RFID Tagged linen, customers were allowed to continue in their normal ordering patterns and were encouraged to replace unchipped linen with Tagged products while maintaining the inventory levels they had considered adequate for their needs. By tracking the shipment of Tagged linen into facilities and its eventual return, inventory levels in customers were accurately quantified. The results showed that stockpiling occurred to a far greater extent and the Par levels were actually double conventional wisdom levels. Despite receiving shipments every day, the average hospital was stockpiling nearly 17 times the daily usage (or Par levels) across the full line of linen compared to the previously assumed levels and four times that amount on some product segments.

Linen Aging Report: Market 1 Par Levels in Month 1 of Fully Tagged Linen (includes Flagship site)

Item Desc	Days PAR on Hand	One PAR	ON HAND INVENTORY	AGING OF PRODUCT AT CUSTOMER LOCATION					
				0-15 Days	16-30 Days	31-45 Days	46-60 Days	61-90 Days	91+ Days
Total: AVE Par (Days of Supply)	16.6	41,538	688,606	373,142	85,121	47,485	34,793	55,125	92,940

A detailed process for guiding a customer to lower Par levels was developed by Angelica's Service Team that saved 6 days of linen cost, in a 60 day period. This efficiency advancing process was employed first at the flagship locations to prove the magnitude of improvement that can be achieved when the process is changed and there is cooperation between the hospital staff and the Linen Service Team. An inventory reduction of 37% was achieved at the flagship locations versus the par levels in other facilities in the same healthcare system and compared to the average facility in the market (excluding the flagship location). It should be noted that every site believed their current Par levels at the beginning of this process were in the 7-10 range.

Customer B in Market 1: Par Levels Were Reduced by over 40% versus the market average (excluding the Flagship site) and37% including the Flagship location in the average.

				AGING OF PRODUCT AT CUSTOMER LOCATION					
Item Desc	Days PAR on Hand	One PAR	ON HAND INVENTORY	0-15 Days	16-30 Days	31-45 Days	46-60 Days	61-90 Days	91+ Days
Total Par/Days of Supply	10.5	6,944	72,577	47,564	9,004	3,467	3,388	5,288	3,866

Reducing Par levels in healthcare facilities is highly achievable and is an immediate savings generating action, but requires a cooperative administration.

Finding #2:

The rate of linen loss across hospitals and clinics is highly variable and can be systemically reduced for substantial savings.

Previously, linen loss rates have not been accurately tracked in the healthcare linen industry. Highly assumption driven methods such as Soil-to-Clean ratios were the mechanism used to assess loss rates, but these are rudimentary compared to the precise RFID system. In these test areas, highly accurate, piece specific tracking was developed that removed all doubt and identified the loss ratio by-product, by-hospital (or clinic) This precision then pointed to corrective action by identifying the targeted products with the highest loss rates by facility (and by department where AngelLink was used for ordering). Linen Service Teams could now provide detailed data on the problem items to focus on for root cause prevention. The AngelTrak™ Linen Management System was developed with the data that only RFID could provide across the products that accounted for the vast majority of linen expense.

The results of the AngelTrak Linen Management process showed substantial improvement and savings to the customer. The flagship locations, where AngelTrak™ was first implemented, experienced far less linen loss. Loss rates were reduced by 54% in the flagship locations in the two markets versus the average loss rate in the markets.

Finding #3:

Reducing Par levels leads to Lower Loss Rates.

The AngelTrak™ Linen Management System has quantified the impact of lowering Par Levels and the subsequent positive results achieved where less excess linen was held in healthcare provider facilities.

The flagship facilities reduced their Par levels by 37% and subsequently reduced their linen loss rates by 54% as linen was better used and returned for cleaning.

The first products that were chipped showed the compelling impact that AngelTrak™ /RFID had on the initial products with product loss rates reduced by 67% on the first product and 33% on the second product within 6 months of launch.

AngelTrak™ /RFID enables healthcare linen to be more efficiently managed and wasted expenses to be greatly reduced for real sustainable savings.

Summary Findings:

Angelica's AngelTrak™ Linen Management system, enabled by the data captured using the UHF RFID chip technology, reduced cost of healthcare linen services across large and small healthcare providers by better managing linen inventories which led to lower loss rates and an overall better managed linen process flow through the full cycle.