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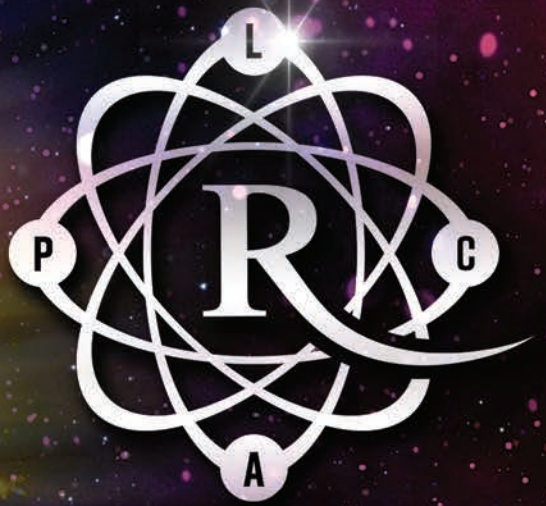

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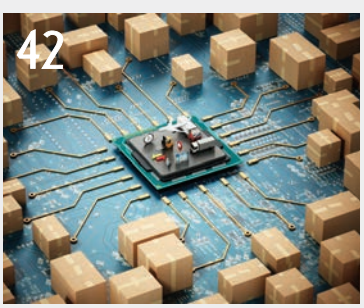

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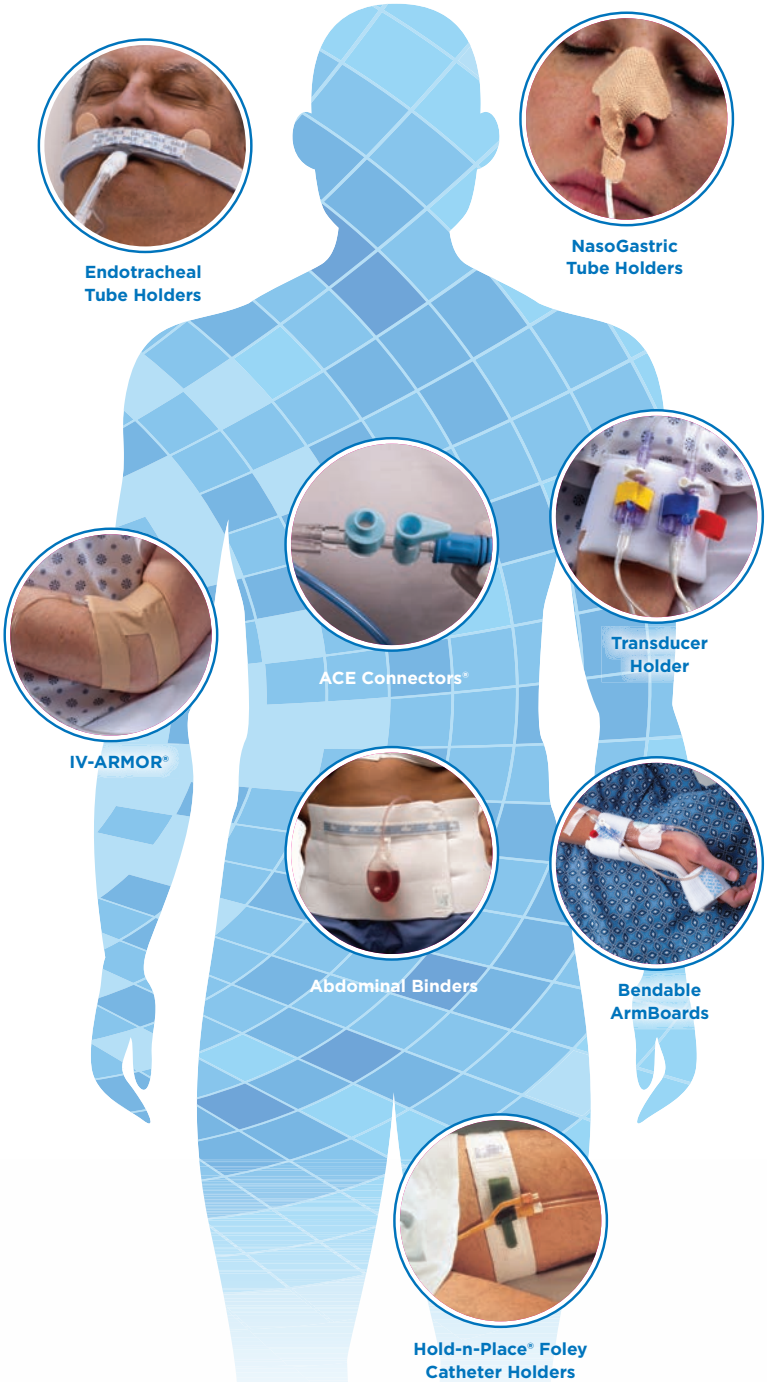

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Saluting the end of the road

Rick Dana Barlow
Senior Edior

This month we're granting two salutes – one to an organization and the other to a person – for reaching the end of the road. For the organization, it's the end of the road through an award process that honors and recognizes departmental performance excellence. For the person, it's the end of the road to an enriching retirement after a long and successful career in publishing.

First up, we salute Sacramento, CA-based **Sutter Health** for earning the 2022 Supply Chain Department of the Year award. Feel free to read their inspiring profile inside the covers a few pages in. As referenced last month, this year's competition – and winner – achieved a bit of history. How?

1. We received the most nominations ever in the 19-year history of bestowing this annual and anticipated honor. The collection of supply chain intelligentsia included some of the most prominent and respected healthcare organizations in the nation. Rest assured, I read each and every one of them.
2. Every few years or so, we receive a nomination I consider unique. For example, we've received nominations from international facilities (Canada and Europe, specifically), we've received nominations from sizably staffed facilities. In fact, one year we received a nomination from a facility whose department comprised a single gender. This year, we received a nomination from the smallest department on record with us – two staffers. I doff my fedora to that facility.
3. This year's winner makes history for us for several reasons: Sutter Health's Supply Chain team hails from California, making it not only the first winning team from California but also the first from the entire West Coast, which means this award now has been given to worthy organizations from coast to coast and from sea to shining sea!
4. This year's winning team earned the top spot for its foundational strategic planning and solid implementation tactics rather than for investing in lots of new equipment as part of a mammoth expansion and/or renovation program. And, like its immediate predecessors during the last two years, they did it during the COVID-19 pandemic and ensuing global supply chain challenges. Like **Banner Health** (2021) and **Dartmouth-Hitchcock Health** (2020), Sutter Health improved performance operations while satisfying soaring customer demands in what may shape up to be a component of the model of the future.
5. Sutter Health also cemented its legacy while experiencing changes in the executive suite, reinforcing the leadership contributions of an entire empowered team.

Next up, we salute one of our own, a long-time *Healthcare Purchasing News* veteran with me during the 21st century and third millennium-to-date. How's *that* for epic?

After more than two decades at the helm of *HPN* (and several sibling publications inside and outside of healthcare), **Kristine Russell** officially retired on July 1, but that doesn't mean she'll be vanishing without a trace. She's only shedding day-to-day operations and will continue her posts as an emeritus.

Kristine Russell

Russell faithfully has served as the dedicated and devoted face and name of *HPN* on the conference, exhibit hall and trade show circuit for many years, a staunch advocate of and evangelist for healthcare supply chain operations, sterile processing and distribution (SPD), surgical services, critical care, infection prevention, information technology and laboratory. While all of these departments and specialties form the turbocharged engine of a healthcare organization, Russell can best be hailed as the spark plug for these topical areas and the important ECM (Engine Control Module) chip of this vaunted publication, now celebrating its 45th year covering these industry segments.

In fact, these industry segments, which fuel the industry, owe a debt of gratitude to Russell, who helped rescue *HPN* and make it part of a publishing family that appreciated, favored, recognized and valued its legacy.

Kris, on behalf of *HPN* readers old and new, thank you for all you've done for *HPN* and for this industry.

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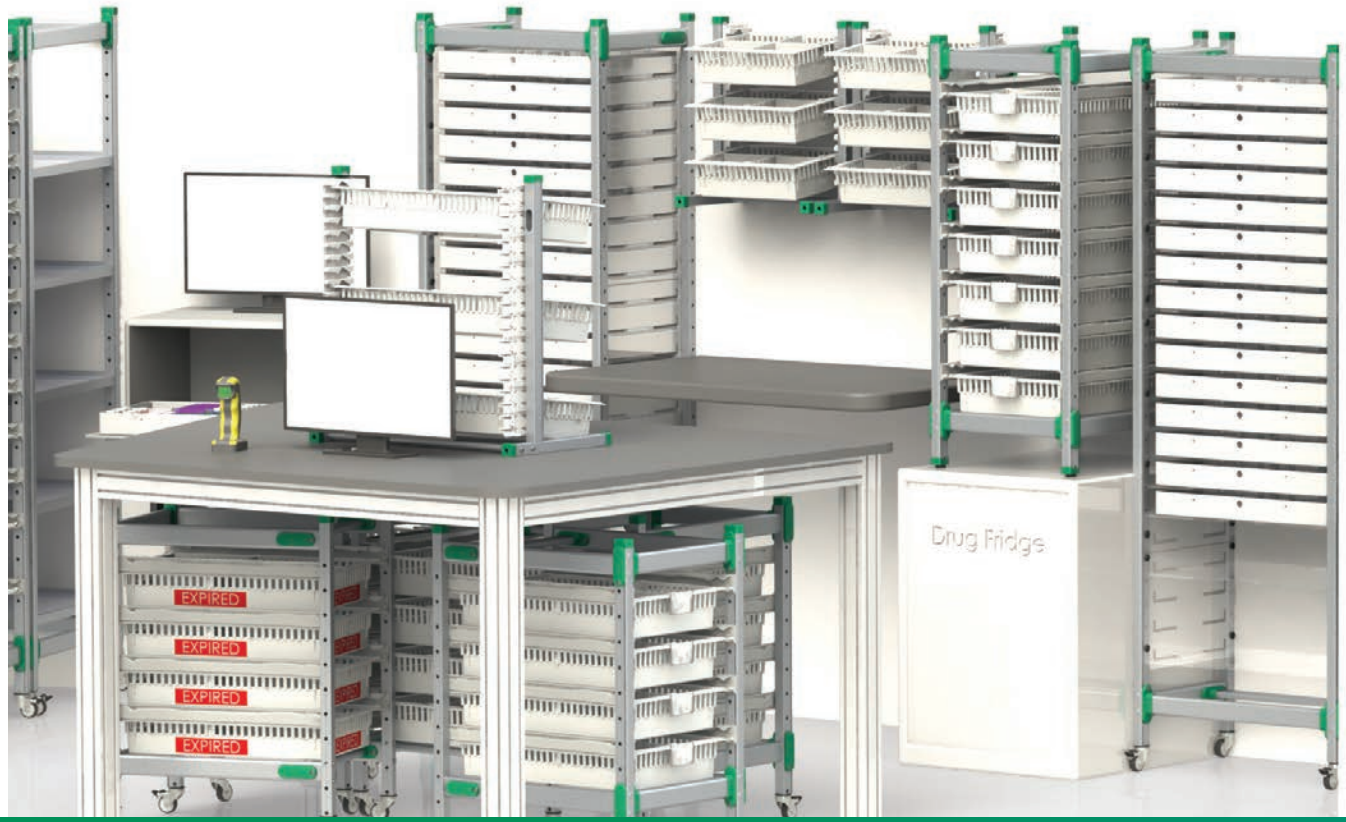

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FAST STATS

LET's TALK ABOUT IT

Stigmas are everywhere in the world today, like it or not. Unfortunately, they are alive and well in our healthcare industry, on both sides of the spectrum. As if providing good healthcare as a nurse or receiving it as a patient were not enough of a challenge, there are emotional and mental burdens that also come with the territory. These stigmas are not easy to acknowledge or admit, let alone talk about freely.

A survey conducted by Wakefield Research and supported by Convatec revealed the following responses from both patients and caregivers:

87% of patients or their caregivers felt a level of stigma directly related to health conditions

44% of respondents felt embarrassed talking about health conditions, while 43% thought their condition wasn't regularly spoken about or represented justly in the media

99% Nearly all of patients and caregivers felt that 'healthcare stigmas' had negative impact, particularly in terms of slowing the perceived healing of a patient

56% Over half of patients reported that they would prefer more time talking with their medical team

96% Almost all patients and caregivers desired more information concerning health conditions, with 53% stating that they would like this information came through conversations with their medical team

68% More than 2/3 of nurses felt they were unable to fully support their patients, with 96% of nurses stating they needed more time, resources, and education to properly care for their patients

60% of nurses responded that they were 'less than completely comfortable' regarding speaking with their patients about their current health conditions

Source: https://www.convatecgroup.com/media/press-releases/2022/convatec-makes-forever-caring-promise/

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NEWSWIRE

The Joint Commission issues advisory on sterile packaging

A new Quick Safety advisory from The Joint Commission, "Managing packaged sterile supplies and devices," provides guidance to keep patients safe from infection and other potential harm from expired or compromised supplies and devices.

Managing commercially prepared sterile supplies and devices can be challenging for healthcare organizations.

"Over the past few years, we have found that many healthcare professionals do not have the proper training to recognize if packaged sterile supplies are appropriate for use," says Diane Cullen, RN, MSN, MBA, CIC, associate director, Standards Interpretation Group, The Joint Commission. "This is concerning because the packaging includes many symbols which represent critical information about how the item should be used, stored and reprocessed. We hope the new Quick Safety advisory will bring this very relevant patient safety concern to the front of mind."

The advisory urges healthcare professionals to pay close attention to device labels. Manufacturers of certain medical devices and products must include labeling on or with their devices, according to the U.S. Food and Drug Administration (FDA). The Joint Commission requires that organizations follow the manufacturer's written instructions for use (IFU) to ensure the end-user understands how to use, clean, disinfect, reprocess and store medical devices.

Additionally, the advisory encourages healthcare professionals to follow a hierarchical approach to infection prevention for packaged sterile supplies and devices. This approach includes following rules and regulations first, followed by the Centers for Medicare & Medicaid (CMS) requirements, manufacturer's IFU, and evidence-based guidelines and national standards.

Safety actions outlined in the advisory include educating staff to:

- Recognize the labeling used for supplies and devices, including the stand-alone symbols and their meanings.
- Follow the hierarchical approach to infection prevention for packaged sterile supplies and devices.
- Recognize when a commercially prepared sterile medical device would be inappropriate to use.
- Know where to find information specific to an IFU should a question or concern be identified.

Healthcare organizations may also want to provide posters and other graphic devices as quick references to the meanings of any stand-alone symbols.

Vizient, Supply Risk Solutions, launch database platform

Vizient, Inc. announced in a press release that they have entered into a strategic partnership with Supply Risk Solutions to provide a database platform for the collection of healthcare supply pedigree data.

The partnership will provide automated supply chain disruption monitoring and risk prevention for Vizient members and is the latest effort by Vizient to increase supply assurance for its membership, which includes more than half the nation's healthcare providers.

"Disruptions in the supply chain can lead to delayed treatment for patients in need," said Margaret Steele, senior vice president of med/surg for Vizient. "Our supply assurance strategy is to increase transparency for our members, and for all stakeholders in healthcare, to ensure continuity of patient care."

Supply Risk Solutions provides an encrypted platform that allows suppliers to store manufacturing pedigree data in a single location and authorize access to that data to multiple healthcare providers. The platform maps supplier manufacturing locations, automates disruption monitoring and tailors risk prevention measures. It will enable key industry measures such as:

- Standardization of product-level supplier pedigree data
- Capture of product and category level pedigree data from raw materials to finished product
- Automation of threat- and disruption-monitoring to accelerate identification of impacted suppliers
- Development and standardization of best practices for supplier responses to disruptions

"SRS bridges a gap between healthcare providers and healthcare suppliers, providing increased visibility into production of critical supplies and collaboration on risk management," said Patrick Brennan, CEO, Supply Risk Solutions. "As we expand our supplier coverage through this strategic partnership, participating Vizient members will have the opportunity to access this information, helping to mitigate against supply disruption."

Cardinal Health, Zipline begin on-demand drone drop-offs

Cardinal Health and Zipline announced that the two companies began long-range drone deliveries in North Carolina.

This launch follows a successful pilot phase as well as Part 135 certification awarded by the Federal Aviation Administration (FAA) to Zipline.

Through this collaboration, Cardinal Health is delivering certain pharmaceutical products and medical supplies to Cannon Pharmacy Main, an independent pharmacy chain that

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services North Carolina locations to help mitigate the risk of inventory stock-outs and reduce barriers for patients accessing the necessary products to fit their needs.

"At Cardinal Health, we're committed to working diligently to help ensure our healthcare provider customers have access to the right medication at the right time for their patients, and an effective distribution strategy is required to make this happen," said Josh Dolan, senior vice president, pharmaceutical operations at Cardinal Health. "Through our work with Zipline, we are able to expand our world-class distribution services with innovative delivery methods that will help our customers meet their patient's evolving needs – now and in the future."

Two other U.S. healthcare organizations are joining Cardinal Health in this effort, Novant Health and Magellan Rx Management. Each organization works independently with Zipline to deliver various products from a distribution center in Kannapolis, North Carolina.

"We imagine a future in which goods are transported nearly instantly," said Keller Rinaudo, founder and CEO of Zipline. "Together with Novant Health, Magellan Rx Management, and Cardinal Health, we are making it a reality. In the process, we are setting the bar for care and convenience with instant logistics."

Zipline designs, manufactures, and operates the world's largest automated on-demand delivery service. The service offers a 98% reduction in delivery emissions compared to standard delivery options and creates a more personalized and faster customer experience.

Through automated on-demand delivery, organizations and their customers can receive deliveries in as little as fifteen minutes. The North Carolina Zipline distribution center can serve customers within a 7,800 square mile area.

Commercial deliveries began June 22, with an initial 16 nautical mile flight. These operations mark the first deliveries since the FAA awarded Zipline Part 135 certification on June 17. The company is only the fourth drone operator ever to receive this certification in the U.S.

Cardinal Health, Magellan Rx Management, and Novant Health join a growing number of organizations including health systems, governments, and companies working with Zipline. The launch of this instant logistics system in North Carolina builds on Zipline's footprint in the U.S., operating with Walmart in Northwest Arkansas for instant delivery of health and wellness products.

HIDA warns of continued trouble for supply chain

According to the latest research released from the Health Industry Distributors Association (HIDA), medical distributors reported no change in lengthy delays for healthcare products reaching customers, although fewer containers of medical products are now delayed inside the supply chain.

"Shipping delays remain unacceptably high and continue to delay shipments of critical medical supplies," said HIDA President and CEO Matthew J. Rowan. "Congress and the Biden Administration must take urgent action to 'fast pass' critical medical supplies. Without prompt action, this fall and winter may see a repeat of the shipping delays that harmed the medical supply chain last year."

COVID-19 lockdowns reduced shipping volumes from Chinese ports, leading to fewer containers moving through the supply chain. HIDA members reported a backlog of 7,000 to 10,000 medical containers, a three-month decrease of 22 percent.

Despite lower volumes, medical distributors report an average delay of 27 days for healthcare products to reach providers – no change over the last three months.

As Chinese ports continue a phased reopening, medical distributors expect to see a late summer shipping surge of medical supplies competing for delivery alongside increased shipments of school supplies, Halloween costumes, and holiday toys.

Medical distributors warn that increased shipping volumes will prompt delays of healthcare products coinciding with a spike in cold, flu, and COVID-19 cases in the fall and winter months.

COVID was third leading cause of death in U.S. in 2020, 2021

COVID-19 was the third leading cause of death in the United States between March 2020 and October 2021, according to an analysis of national death certificate data by researchers at the National Cancer Institute, part of the National Institutes of Health.

The study appears July 5 in JAMA Internal Medicine.

During the 20-month period studied, COVID-19 accounted for 1 in 8 deaths (or 350,000 deaths) in the United States. Heart disease was the number one cause of death, followed by cancer, with these two causes of death accounting for a total of 1.29 million deaths. Accidents and stroke were the fourth and fifth leading causes of death. In every age group 15 years and older, COVID-19 was one of the top five causes of death during this period.

When the authors analyzed deaths in 2020 (March–December) and in 2021 (January–October) separately, they found that in 2020, COVID-19 was the fourth and fifth leading cause of death among people ages 45–54 and 35–44, respectively. But in 2021, COVID-19 became the first and second leading cause of death in these age groups. Among those 85 and older, COVID-19 was the second leading cause of death in 2020, but dropped to third in 2021, likely because of targeted vaccination efforts in this age group.

The pandemic has also had an indirect effect on other causes of death in the United States. Past data have shown that deaths from other causes, including heart disease, accidents, stroke, Alzheimer's disease, and diabetes increased from 2019 to 2020, possibly because people were reluctant to seek medical care for fear of catching COVID-19. Additional impacts of the pandemic on other causes of death may emerge in the years to come, the researchers said. For example, the pandemic prevented many people from getting regular cancer screening, which may result in future increases in cancer deaths. HPN

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[1]Society of Abdominal Radiology's Crohn's Disease Focus Panel (2021)
[2]Comparison of Two Neutral Oral Contrast Agents in Pediatric Patients: A Prospective Randomized Study
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Sutter supply chain success stems from back-to-basics modeling

Solid strategic planning empowers one team to pursue one dream

by Rick Dana Barlow

At first glance, in the mindsets of some, success can result from investing in and installing shiny new expensive equipment that taxes the budget, changing group purchasing organizations (GPO) and/or suppliers, outsourcing various operations, playing hardball with product and service contract pricing, or embracing the wonders of information technology.

If you don't have access to ample financial and labor resources, deep pocket cash reserves or venture capital, success may be more conceptual than reality. And even if you do have access to any of this, success could turn out to be a pipe dream anyway due to a variety of factors—from crises to mismanagement.

But a comprehensive and thorough strategic plan, simply defined and explained, can serve as the great emancipator from inefficiency that ultimately can transform any organization—small or large; urban, suburban, or rural; financially comfortable or perennially and uncomfortably red-lined.

Through thick and thin, leadership changes, pandemic demands and burgeoning operational challenges, northern California-based Sutter Health found value in people to change processes, strategies to improve tactics, partnerships, and professional relationships to generate desired results. The 605-member Supply Chain team of this multifacility integrated delivery network (IDN) relied on internal departmental dedication and expertise, external consulting and services from reliable suppliers and vendors, as well as education and knowledge-sharing from prominent fellow IDNs around the country to fine-tune and hone its own supply chain enterprise.

For these reasons, *Healthcare Purchasing News* granted **Sutter Health** the gold chain in being named the **2022 Supply Chain Department of the Year**.

Ramping up

In the two years leading up to the COVID-19 pandemic, Sutter's Supply Chain underwent extensive changes in leadership with three corporate executive updates. Ginny Borncamp, Vice President, who retired three months ago, joined Sutter in 2018. She then brought in

2022 Supply Chain Department of the Year

All photos courtesy Sutter Health

Front Row: *Brian Pellowski, Stacy Jones, Brian Kay, Candice O'Brien-Dominguez, Malia Weinberg, Karen Kelly, Josh Long, John Apostolo, David Hamlet*
Back Row: *Lee Ayers, Tom Billalon, Paul Chavez, Sonja Grant, Cecille Luna*

Jennifer Carlson, Senior Director, Supply Chain Procurement, to oversee purchasing and sourcing in early 2019, followed by Lee Ayers, Senior Director, Supply Chain Operations, to oversee operations and logistics in late 2019.

"Each of us was selected for our expertise and past performance, and it quickly became clear that we entered a dedicated, hard-working team we could always rely on," Ayers told *HPN*. "While our entire team had our work cut out for us, we also had one core belief: Nobody is going to take better care of our organization than the people who are in it. We focused heavily on reducing unneeded contracted support, enriching key external relationships, leveraging internal diversity, and building the Supply Chain brand."

Unbeknownst to them at this point, the onset of the global pandemic was a few months away.

The trio and their team embarked on a three-year plan of infrastructure improvements driven by internally crafting "7 Principles of Supply Chain" (see chart to the right) to guide decision-making throughout all meetings and processes, defining a series of "SMART Key Performance Indicators" (KPIs) to evaluate departmental performance, and developing benchmarking, metrics, and data streams to share progress with sub-departments and key stakeholders.

They derived the SMART concept from a four-decade-old *Management Review* article published in November 1981 titled, "There's a S.M.A.R.T. way to write management goals and objectives," by George Doran, Arthur Miller, and James Cunningham. That trio defined S.M.A.R.T. as "Specific, Measurable, Attainable, Realistic and Timely" and differentiated goals from objectives, proffering that the two concepts were not as interchangeable as many made them out to be.

For Ayers and his colleagues, this philosophy represented a central component of Lean Six Sigma.

"As a Green Belt in this methodology, I had been familiar with this approach for quite some time and thought it would be appropriate during our transformation," Ayers recounted. "Our system-level executive team and VP of Supply Chain delegated strategy creation to my counterpart (Jen Carlson) and me, but retained approval over the final presentation, which was well-received. They were very excited to see the tangible results, especially when savings was in the double-digit millions and inventory accuracy skyrocketed over 50% across our integrated network."

Malia Weinberg, Manager, Stock Control, and Lee Ayers, Senior Director, Supply Chain Operations, visit Sutter's Distribution Center and discuss product disruption strategies.

What makes the SMART methodology work for healthcare, Sutter's team in particular?

"The reason SMART goals work is because they create an objective process to measure performance against clear targets," Ayers noted. "In other words, it enables managers at every level to hold employees accountable for their results and outcomes."

Of the five letters, two seem to rise above the rest in measurement and achievability, according to Ayers.

"Yes, time frame or time-bound is the 'T,'" he indicated. "It is simultaneously the easiest to measure and the hardest to achieve because there is no subjectivity to time. Each letter has its importance in the equation, but I would have to say 'Specific' is the most important because it defines the scope of the objective. I would also argue it is the most effective because it should never change during the measurement period, unlike other letters in the equation."

Ayers further believes any other organization can adopt SMART as a strategy and

7 Principles of Supply Chain

1. **Delivery of Supply (Product or Service) is the Priority.**
2. **Commodity Variation Increases Costs.**
3. **Centrally Managed Demand Reduces Uncertainty.**
4. **Least Handling is Best Handling.**
5. **SMART (Specific, Measurable, Actionable, Realistic, Time-bound) Objectives Build Effectiveness.**
6. **Standard Work Creates Value & Reduces Waste.**
7. **Measure Twice, Supply it Once.**

Source: Sutter Health Supply Chain

Top Row – Tina Ramm, Lee Ayers, Angela McMindes
Middle Row – Terry Thompson, Sonia Sruba, Shelley Mathiesen
Bottom Row – Annie Forrester, Jen Carlson, Georgette Kearsing

Sutter Health

Fast Facts

Headquarters: Sacramento, CA
Facilities: 23 hospitals, 33 ambulatory surgery centers, 8 cardiac centers, 9 cancer centers, 4 acute rehabilitation centers, 6 mental health and addiction centers, 5 trauma centers

Statistics			
Licensed general acute care beds	4,167	Hospital Emergency Room visits	691,176
Neonatal intensive care units	7	Hospital Outpatient visits	1.49M
Births	27,493	Medical Foundation visits	8.37M
Discharges	174,779	Patient Days	872,542
Sutter Care at Home, Home Health visits			685,841
Sutter Care at Home, Hospice visits			234,811
For more details, visit https://www.sutterhealth.org/about/what-is-sutter-health			

Leadership
- CEO – James Conforti (Interim)
- CFO – Brian Dean
- COO – Theresa Frei (Interim)

Supply Chain

Vice President, Supply Chain: Ginny Borncamp (retired in May 2022)

Senior Director, Supply Chain Operations: Lee Ayers

Senior Director, Supply Chain Procurement: Jen Carlson

Director, Business Intelligence & Performance: Brian Kay (Vizient Employee)

Employees/FTEs (at Sutter Health): 55,000 employees and 12,000 associated physicians for Sutter Health, 605 FTEs for Supply Chain

Conduit to CEO: With Vice President position vacant until July 2022, Supply Chain Senior Directors report directly to the CEO of Shared Services, who reports to the CFO of Sutter Health, who reports to Sutter Health's interim CEO.

GPO affiliation(s): Vizient

Annual purchasing volume/supply expense (FY2021): $1.5B in supply contracts, $1B in purchased services contracts; $2.5B cumulative

Annual purchase order (PO) volume (FY2020 vs. FY2021): 804,000 vs. 842,000 POs; 3.36M vs. 3.4M PO lines

Percentage of purchase orders transmitted electronically: 73%

Percentage of requisitions processed electronically: 100%

Division functions: Inventory, Distribution, Sourcing, Contracting, Purchasing, Analytics, Master Data, Sterile Processing, Linen, Mail Services, Courier Operations and Finances.

Purchasing and contract management: Centralized

Sutter's Total annual operating expenses: (FY2020 vs. FY2021): $13.5B vs. $14B

Sutter's Total net revenue (FY2021): $14.2B

encourages organizations to develop these goals and objectives on an annual basis. But Ayers cautions that while SMART KPIs may be synonymous with SMART goals and objectives, they also extend beyond standard KPIs.

"They are not universal," he added. "They should be tailored to the culture and objectives of the organization.

The magnificent 7

Believe it or not, the team's "7 Principles of Supply Chain" finds its roots in the hospitality industry.

"I read the book, 'Excellence Wins,' written by Horst Schulze, who is the co-founder and former president of the successful hotel chain, Ritz-Carlton," Ayers recollected. "In this book, he describes a set of principles he created that the teams would cycle through at each of their employee huddles. The concept resonated with me, so we researched the available principles of Supply Chain and then tailored them to fit our department. At every one of our team 'All Hands,' [group meetings] we take time to explore the underlying meaning behind one of the principles, cycling through them at least annually."

Ayers points to "Centrally Managed Demand" (No. 3) as the "easiest" to achieve because it represents "a simple concept to implement." However, the pandemic reinforced the "hardest" as both "Delivery of Products" (No. 1) and "Commodity Variation" (No. 2) due to the global disruption in the supply chain. "Organizations absolutely should tailor a version of this to their organization," he added. "It was easy for our leaders to gain buy-in from internal stakeholders to support this."

To implement this new strategic direction, Supply Chain worked with key partners and stakeholders to establish and solidify the blueprint.

"Internally, we collaborated with Sutter's Board of Directors, Chief of Clinical Operations, CEO of Sutter Shared Services (S3), Chief Medical Officer, Chief Nursing Officer, Acute and Non-Acute C-suite leaders, physician leaders, service line leaders and many other key stakeholders," Ayers indicated. "At a high level and externally, we partnered with Vizient (our GPO) and Medline (our primary distributor)."

Ayers promotes Supply Chain's strategic plan as succinct, simple, and modern, but acknowledges that for other organizations to develop something similar for their own implementation might be a bit challenging, particularly if the executive leadership is looking for quick results and returns.

"In my opinion, it is not particularly hard to implement a strategy such as this, but it may not be an easy task if you have no experience building strategic plans," Ayers said. "Another barrier may also be that the leadership team needs to agree on the concepts for it to become a reality. Because of these two perspectives, many organizations fail to design and integrate a functional strategy. ROI is certainly an attractive aspect of a strategic plan, especially if it comes with KPIs and other measurements to track progress towards the objectives. The other side of the equation is value. Many of our goals are in the plan because they directly support our core mission and cannot be compromised."

Taking stock of control

Pressures from the COVID-19 pandemic and the concurrent—if not resulting—global disruptions in access to and availability of products served as an eye-opener to the team, according to Ayers. It motivated them to revamp their supply resiliency strategy as funneled through a distribution control tower model called "Stock Control," something Ayers parlayed from his prior military experience.

Three demonstrate One Piece Flow Receiving (from left to right): Jon Borgo, Distribution Supervisor; Francisco Perez, Director, Supply Chain Operations; and Tyler Mitchell, Supervisor, Distribution

From the beginning of the COVID pandemic, Sutter, and its member facilities dealt with backorders, shrinking product allocations and item discontinuations, he recalled. "Daily lists of aging open orders, POs rejected by distributors due to low allocation and killed logical unit of measure (LUM) requisitions lengthened to alarming proportions," said David Hamlet, Regional Director, Supply Chain. "Known substitute products became increasingly unavailable as entities around the world grabbed for the same scarce supplies."

Throughout the lingering pandemic and related supply chain clogs, now in its third year, providers and suppliers frequently have heard the term "resiliency" to the point of exasperation for some. But Ayers and the Sutter Health team gave it more substance as they became "hyper-focused" on product disruption.

"I would define resiliency as a department's ability to pivot and recover faster than the impact of a challenge or roadblock," he said. "Having redundant processes, a business continuity plan and a strong professional culture will help sustain resilient operations, where customers and stakeholders never even realized there was a problem to begin with."

Sutter's Supply Chain resiliency strategy comprised of five progressive steps across each facility and throughout the organization as a whole:

1. Standardize and position emergency supplies
2. Secure and transfer internal/external supplies

SUTTER HEALTH SUPPLY CHAIN CORPORATE MANAGEMENT TEAM ROSTER

Borncamp, Ginny (retired in May 2022)
Vice President, Supply Chain & eQuip

Ayers, Lee
Senior Director, Supply Chain Operations

Carlson, Jennifer
Senior Director, Supply Chain Procurement

Kay, Brian
Director, Supply Chain Business Intelligence & Performance

Apostolo, John
Director, Supply Chain Pharmacy

Billalon, Tom
Regional Director, Supply Chain Operations

Grant, Sonja
Regional Director, Supply Chain Operations

Hamlet, David
Regional Director, Supply Chain Operations

Jones, Stacy
Regional Director, Supply Chain Operations

Karen Kelly
Regional Director, Supply Chain Operations

Forrester, Annie
Manager, Strategic Sourcing

Kearsing, Georgette
Manager, Strategic Sourcing

Luna, Cecille
Manager, Purchasing

Mathiesen, Shelley
Manager, Performance Management

McMindes, Angela
Manager, Strategic Sourcing

Pellowski, Brian
Manager, Ops Integration

Ramm, Tina
Manager, Purchasing

Sruba, Sonia
Manager, Supply Chain Finance

Thompson, Terry
Manager, Strategic Sourcing

Wansik, Paul
Manager, Master Data

Williams, Patty
Manager, Purchasing

Weinberg, Malia
Manager, Stock Control

Chavez, Paul
Supervisor, Stock Control

O'Brien-Dominguez, Candice
Supervisor, Stock Control

Long, Josh
Supervisor, Stock Control

Chain reactions

GOLD CHAIN

Sutter Health, Sacramento, CA

Highlights: Modeling demonstrates a business approach to healthcare supply chain as well as a mature organizational and departmental development by way of a "fully baked" strategic plan and visual road map to convey performance improvement. Supply Chain measures service offering results via a variety of metrics and displays results using visual dashboards. Adapting and adopting "SMART" concepts, along with "7 Principles," extensive benchmarking and other measurements to assess progress at a quick glance reinforces their resiliency and stewardship mindset via its Distribution Control Tower using a stock control manager design.

SILVER CHAIN

Parkview Health, Fort Wayne, IN

Highlights: Supply Chain "branded" itself internally as an ecosystem for better recognition, accountability and responsibility, and for clearly defining service offerings. SCORe stands for "Supply Chain Operational Resources enovation," the last word representing innovation and technology. By identifying key pain points using a variety of metrics, including engaging in Lean Six Sigma tools, they have developed new roles and processes to bring about big leaps in performance improvement. They also have nurtured successful business relationships with suppliers and service companies that are reinforced through its visually oriented and outlined "Wall Walk" concept that profiles and showcases internal performance. Conducting rounds with clinical customers and maintaining flexible and open communications contribute to Supply Chain's recognized value throughout the organization.

BRONZE CHAIN

Memorial Sloan Kettering Cancer Center, New York, NY

Highlights: Aligning and positioning Supply Chain with the goals, mission and values of the organization promoted the group at its core and reinforced its drive to fortify operations, processes and dashboards to maturity. Such progress led to the elevation of Supply Chain to the highest levels of the organization. Supply Chain created its own finance department, improved centralized demand planning through standardized processes for clinical, financial and operational collaboration. The group also demonstrated valuable expertise with its cross-functional Supplier Relationship Management strategy, Pharmacy collaboration, Operating Room engagement for process improvement and Capital Resource Planning via lifecycle management. The group also shined by developing an optimized and scalable logistics services network and through Supply Chain Informatics Team's automated "patient take-home" supply process post-discharge for convenience.

3. Access to government agency support
4. Rapidly reassign and acquire resources
5. Return operations to steady state

Under the "Stock Control" model, three elementary functions worked simultaneously: Forecasting represented the proactive via analysts, distributing represented the physical via inventory technicians and purchasing represented the reactive via buyers.

Ayers first saw the term "Stock Control" while he served in the U.S. Air Force.

"[Stock Control] is a corporate Supply Chain office that handles demand planning and order management for the entire organization," Ayers explained. "I assisted the Air Force to evolve the office from something done at every base to a centralized function. The concept solidified over many decades and resulted in massive cost savings and efficiency, so we modeled our team against the mature structure. Stock Control was approved as our Distribution Control Tower and quickly became our central point for all things disrupted. The team has become a household name, both in our organization and with numerous other health systems under the Vizient umbrella." Sutter regularly shares its modeling, benchmarked by Vizient, and with other providers during conferences and trade shows.

Ayers likens the Stock Control team to the "Impossible Missions Force" from the "Mission: Impossible" television series and film franchises. The team of 21 includes one manager, three supervisors, nine buyers, six analysts and two inventory techs.

"Stock Control's scope is anything that comes through distribution and anything that is in our perpetual inventory (storerooms)," he said. "They are a very distinct 'Impossible Mission Force.' The team

Chris Bell, one of Sutter's corporate Business Analysts, leads the "Ops Transformation" project to standardize field processes across the system.

Ryan Davis, one of Sutter's Distribution Supervisors, preps needed PPE for rapid distribution during the height of a major COVID-19 surge.

is worth its weight in gold amidst global product disruption and is truly the reason we have sustained product delivery. The Stock Control Manager title is in theory and legend only—the real title is generically labeled 'Manager, Supply Chain.' Due to strong logistical focus and direct inventory management, the role reports directly to me."

Sutter's Supply Chain Decision Support (SCDS) team created an online two-way communication tool or "Stock Control Portal" that establishes visibility for requestors in the field and enables them to highlight priority open orders and rejections for quicker resolution, according to Ayers. The team populates the portal daily with the latest PO status, refreshed hourly so the Stock Control team can prioritize the incoming requests, and end-of-day comments automatically are transmitted back to the Requestors. They also instituted an "Urgent Request" process and have a buyer, an analyst and couriers standing by to address situations where cases are in jeopardy of being canceled or patient care may be impacted.

"The order management portal arose from a need to effectively communicate and provide visibility to order exceptions in the face of growing backorders and rejections from product disruption," said Malia Weinberg, Manager, Stock Control. "By allowing the sites to prioritize their most critical needs, Stock Control can focus on the most impactful items needed for patient care."

SCDS leveraged a PHP website for data visualization, IBM Cognos for data modeling and Informatica Power Center for data integration, according to Weinberg. They synchronized data points between Sutter's enterprise resource planning system (Infor/Lawson) and daily backorder/killed order/rejection reporting from its primary distributor (Medline) as well as comments from front-line Supply Chain and Stock Control team members. Linking the ERP data with distributor data, such as stock on hand and system-approved substitutions, creates actional data at the user's fingertips, she notes.

Sutter Health Supply Chain team salutes supplier, provider partners

Who supports an award-winning healthcare supply chain organization? Sutter Health's Supply Chain team appreciates the product and service companies – and fellow provider organizations – that have helped them develop and improve their operations and performance. The team shines a spotlight on 23 below that have motivated and fortified them to make a difference and succeed.

3M Health Care demonstrated superior customer service to ensure our organization, among others, had an adequate flow of N95s during national respirator shortages.

Accurate Courier Services displayed premiere collaboration and consistently identified cost savings through more efficient courier routes, while providing flawless and uninterrupted personal protective equipment (PPE) delivery to all corners of our organization.

Balt Medical is a great contracting partner because through every step of the process they are always friendly and show integrity, along with exceptional customer service, to our physicians.

Baxter partnered with Supply Chain Pharmacy and our Stock Control Team (Distribution Control Tower) to resolve solution shortages and troubleshoot allocations.

BD/Bard leadership met consistently with our team to assist with direct purchases, identify subs with available inventory, and overcome product disruption.

Granite Data provided our team tremendous amount of support by receiving and storing PPE product, allowing our members to pick, pull and distribute product daily, greatly contributing to our success.

Indiana University Health Supply Chain coordinated with our team during several knowledge-sharing sessions to sharpen our collective perspectives.

Iron Mountain brilliantly handled our records management, document shredding and PPE storage with extremely responsive customer service.

Logo Brand leveraged overseas relationships to purchase and distribute millions of procedure masks and isolation gowns, enabling our organization to maintain safe operations during aggressive COVID response.

Maclean Group is a Service-Disabled Veteran-Owned Small Business that aided our team in sourcing extra needles and syringes when we discovered you could get more "liquid gold" doses from the government vials than originally intended.

Mayo Clinic Supply Chain collaborated with us on several key backorder process enhancements and inspired many of our automation pursuits.

McKesson provided uninterrupted support during a courier transition for our pharmaceutical deliveries.

Medline overcame significant challenges during the pandemic to sustain our strategic partnership and delivered critical material to our organization amidst global product disruption.

Nest delivered collection material to sustain our COVID testing at a time when swab and transport media were globally constrained, sustaining direct support for our patients and community.

Onsite Management Group (OMG) is our mail services partner, who provided expertise and contracted staff to ensure the safe and efficient delivery of our postal correspondence, while also embarking on a digital mail transformation.

Pride Industries provided our team rapid relief to store sensitive COVID Testing kits at the onset of summer within its temperature-monitored warehouse.

Providence Health Supply Chain acted as a sounding board for our many non-traditional ideas, and through recurring meetings, sustained our innovative spark.

RS Hughes quickly supported our system's PAPR Hood demand during peak usage and expedited critical shipments of N95s to our doorstep during the most recent COVID surge.

Sentara Health Supply Chain partnered with our team to investigate product disruption strategies and discuss modern staffing models.

Stanford Health Supply Chain delivered N95s to our organization when we were on the brink of stocking out during the 2022 surge.

Stericycle provided unparalleled support when a resin fire wiped out our vendor's sharps container supply, while at the same time providing a reusable option to support our sustainability model.

Stryker has provided unparalleled support during conversions, working one-on-one with staff, and providing educational opportunities to help understand their products and how it compares to others in the market.

Vizient is the epitome of a strategic partner, providing us top-notch industry tools and creative solutions to prepare our organization for financial and operational success well into the future.

The system provides the ability to solve complex or widespread problems within geographically separated teams, making it simple to spot disruption patterns and spread acceptable substitutions or workarounds quickly, according to Ayers.

Stock Control at first wasn't so tech-enabled, Weinberg recalls.

"Stock Control was initially communicating with spreadsheets, sent daily to Supply Chain site leadership who in turn responded with their requested action," she said. "Stock Control used that back-and-forth experience to identify the kinds of requests the portal needed to accomplish and automate the communication in an hourly blast to the buying team. Leveraging focus groups and pilot populations, the team honed the look and feel of the portal, such as adding filters to classify orders and ease navigation."

They continue to tweak the tech. "Stock Control is still enhancing the portal to further integrate with operations and expand to other purchasing groups for our direct purchases," Weinberg indicated. "Currently, the portal is primarily used by Supply Chain, but Stock Control plans on launching automated requestor emails shortly to provide nearly real-time PO status. These emails will notify all requestors if there is a problem with their order and direct them to the portal to request resolution."

The results to date? The Stock Control team has maintained on average 2-3 open days per PO, indicative of a "smooth level of service," according to Ayers. To date, Sutter has not stocked out of medical supplies during the pandemic either, he adds.

Even as this award-winning model gains in promotion and publicity, it's also primed for emulation, according to Weinberg.

"The Stock Control team model would work for any size organization as the principles of communication, prioritization and a centralized approach to product disruption consistently serve patient care needs," she said. "All organizations need to identify critical supplies, understand what can be done through distribution channels but also be able to bring in product in house to support the system. The team structure naturally links the proactive function (protecting against future stockouts) with the reactive function (resolving current stockouts). These are two sides of the same

Sutter Health's Supply Chain team shares mindsets, motivations for success within their West Coast organization

The supply chain team at Sacramento, CA-based Sutter Health had their leadership mettle tested within the last few months as the departmental Vice President retired and two members of the C-suite (CEO and COO) are held by interim officers. Because he prefers to "give credit where credit is due" and share the wealth with colleagues, Lee Ayers, Senior Director, Supply Chain Operations, recruited several colleagues to contribute their leadership insights. Together, this team of six articulated with *Healthcare Purchasing News* Senior Editor Rick Dana Barlow what, how and why they do what they do to operate as an award-winning enterprise.

HPN: What's the secret formula that makes a leader in supply chain management? How does your department implement that secret formula?

AYERS: "Purpose," "Communication" and "Teamwork" are the defining ingredients of our secret formula, which propels our Supply Chain department to success. Purpose unites the team under a common goal, to care for our community (staff and patients). Strong and routine communication ensures our vision remains fresh and objectives are transparent. Finally, teamwork is encouraged at every turn to leverage our diverse perspectives in pursuit of unique solutions.

The next big trend in healthcare supply chain management will be…[fill in the blank]. Why?

The transition to home health is the next frontier for Supply Chain Management. We have seen more procedures migrate to outpatient and have also seen a shift in telehealth due to the pandemic. Our goal is to continue providing the right care, at the right place and at the right time. To accomplish this, improvements in technology will certainly be needed, but the Supply Chain will also need to enhance logistical practices to align the delivery of products and services with home health nurses at patient residences.

Some in the "C-suite" have criticized supply chain managers for being too technical and not strategic enough to "join their club." Do you agree? How might supply chain's pandemic response contribute to the viewpoint(s)? Why?

David Hamlet, Regional Director, Supply Chain: Supply Chain became especially critical as the demand for personal protective equipment (PPE) first increased around the world. For the first time, operations and logistics became the primary focus and the technical expertise of Supply Chain site leaders is in high demand as they scramble for solutions amidst global product disruption. Cost savings is still important, but in today's environment, the question really becomes, "Will I get my product when I submit this order?" Since our Supply Chain has been so successful on many fronts, we are seeing a new level of respect and admiration for our profession.

How can consulting firms, distributors and GPOs contribute to the performance of your internal supply chain management expertise without overshadowing the department or usurping control?

I think the easy answer is to provide resources for project management activities, but the real value comes from pulling, analyzing, and presenting data in a manner where supply chain teams can make quicker and more informed decisions. We are currently using a consultant to help increase revenue through product charge capture, based on complex financial data. Furthermore, we leverage our distributor's (Medline) warehouse analytics to prioritize scenarios where we need to find product substitutes. Finally, we routinely communicate with our GPO (Vizient) liaison to stay informed on Price Indexing, new tools, and overall marketplace trends.

What specific project did your department complete where you felt they exceeded your expectations?

My counterpart, Jen Carlson, set a Supply Chain cost savings target of $30 million for 2021, based on sound research and using data from Vizient's price index tools. Her team diligently executed numerous high-dollar conversions across the most expensive and underperforming categories at Sutter Health. Leveraging our organization's size and scale, they were able to negotiate new contract pricing with our preferred suppliers, while maintaining the utmost quality and safety for the organization. When the dust settled early this year, the Strategic Sourcing team proudly reported a savings of more than $60 million, two times the annual target!

coin, and when working together, [they] address product disruption in unique and powerful ways."

Buckling down

Like other healthcare providers around the country, Sutter had to cancel elective surgeries during the pandemic, reinforce the protection of critical patients and slow or prevent the spread of COVID-19 within its facilities. Reduced revenue streams, coupled with increasing expenses from dealing with multiple surges, motivated them to evaluate and pursue financial viability last year. Sutter worked with Vizient on price indexing and "aggressive contract negotiation" as well as a comprehensive stewardship strategy that generated savings for many physician preference items (PPI).

"Sutter had been experiencing significant year-over-year expense increases without revenue offsets, and it had become challenging for the organization," said Jennifer Carlson, Senior Director, Supply Chain Procurement. "Additionally, our benchmark data indicated we were overpaying for medical devices. We enlisted support from clinical and operations leaders at Sutter to create a new approach that included physicians in the contracting process at the system level. It was not as challenging as you might think to get cooperation from clinicians.

"Most physicians we recruited to participate in stewardship initiatives generally supported the idea of standardizing supplies and reducing complexity in the procedural areas. We offered up several scenarios with different cost models and had them evaluate with a group of their peers. In many PPI projects, such as GI, trocars and endo-mechanicals, physicians opted for highly committed contracts that could bring the best financial value. In other implant categories, they opted for multi-vendor awards that reduced variation but still allowed for some choice." In fact, they were able to capture more than $60 million in cost savings in 2021 across several PPI categories.

Supply Chain also worked closely with the executive team. "Before launching any of these initiatives, we made sure the executive leaders knew about the projects and that we would need their help to implement them at the local site level. We developed compliance dashboards and started monthly executive leader meetings to review challenges and savings that were generated from the projects. The executive leaders support

In your opinion, what is your department's toughest administrative challenge? How might you solve it?

Karen Kelly, Regional Director, Supply Chain: At the very onset of the COVID-19 pandemic, our biggest administrative challenge was working in siloed Supply Chain teams with the rapid deployment of new policies, procedures and product disruptions. We began having daily Supply Chain Huddles to keep the entire department up to date with all the changes and information about alternative products and strategies to address backorders. This meeting proved to be invaluable in providing a forum for problem solving, raising issues, connecting Operations with Purchasing, Business Intelligence, BioMed and subject matter experts from Pharmacy and Lab connecting the siloes to give way to a more System approach. The format and content continue to evolve, but it continues to be our go-to tool for addressing a universal administrative challenge: Consistent, clear and timely communications so the entire team is on the same page and working together. Through every challenge, our teams continued to put the patients at the center of everything we do.

What is your department's toughest operational challenge? How might you solve it?

Tom Billalon, Regional Director, Supply Chain: Our toughest operational challenge is clearly product disruption, and a large part of this is outside of our scope to solve, given the pandemic and global supply chain delays. Although we have created a Distribution Control Tower, system job aids and an integrated reporting system, there remain a few things we can do to mitigate our organizational impact. At the tactical level, we are implementing standard work and an active daily management system to ensure performance matches the expected execution of tasks. At the strategic level, we are working to enhance our key performance indicators (KPIs) to include measurement of the "Perfect Order," providing us insight into key trends that are preventing POs from fully executing. Using the Pareto methodology, we can identify and focus efforts on top detractors from a purchase order (PO) being on-time, in-full quantity and having correct invoicing.

What are your top three priorities for the remainder of 2022 and for 2023?

AYERS: Our three top priorities for the remainder of this year and into 2023 are stewardship, product delivery and technology upgrades. We will continue leveraging Vizient's Price Index data and project management services to ensure we are achieving the maximum level of savings in product and service contracts. We will continue tweaking our non-traditional Distribution Control Tower (Stock Control), while also sharing our methodology across the industry. Finally, we are on the cusp of integrating a new dashboard analytics tool (BIRST), we are piloting a new point-of use (POU) system and will be selecting a new enterprise resource planning (ERP) system for implementation in 2024.

How does the CEO view your department? Does he or she see it as a strategic function or a support service? What resources can the department count on and will they come every year – and not just in response to clinician complaints or crises like the pandemic?

Jeremy Eaves, CEO, Sutter Shared Services: As proven during the pandemic, Sutter Health's Supply Chain department remains a strategic function of the organization, influencing major financial and safety decisions from our senior leadership team. Regarding resource constraints, Supply Chain is not immune from inflation, rising product costs and labor shortages that are overshadowing all of healthcare, including our organization. We will continue to change how we operate and how we deliver care, further organizing and integrating our entire network around the patient, making critical investments and dramatically improving our total cost of care. The department will be resourced appropriately to meet the objectives of the organization and deliver on our community-focused mission into the future. I cannot thank Supply Chain enough for their contributions to the organization, and I am confident they will continue to be successful into the future. I am so proud of this mission-driven team.

What are some practical, common-sense ways that supply chain managers can keep patient satisfaction in mind as they're performing their duties?

Stacy Jones, Regional Director, Supply Chain: It is Supply Chain's goal to have the correct product on the shelf, in the right quantity, when the clinicians need it. Clinicians should not have to leave the bedside to locate supplies that are required for care of the patient. Some things Supply Chain Leaders can do to ensure we have the right supply, at the right time in the right quantity, is to optimize Periodic Automatic Replenishment (PAR) inventory according to patient census. Supply Chain leaders also need to be aware of fluctuations in patient census as well as changes in procedure schedules. It is important to engage with Clinical leaders frequently to discuss changes in practice or startup of new services and be able to swiftly make the necessary adjustments to ensure patient care is not impacted.

has been instrumental in the success of the stewardship initiatives," she said.

The great convergence

Supply Chain transitioned a host of functions and processes from the site level to the system level in 2021, including purchasing, stewardship, technology assessment, demand planning, distribution, and overall compliance measurement to enhance customer service and demonstrate outcomes to leaders.

One prominent example involves the consolidation of local technology assessment committees into a system-level Clinical Technology Assessment Council (CTAC) that pair senior clinical leaders with Supply Chain to discuss and evaluate physician requests for technology throughout the IDN.

Supply Chain also centralized inventory and distribution operations under a tiered approach that centered on maintaining relationships with site-based Supply Chain leaders, Sutter's prime distributor (Medline) and a host of prime manufacturers, while adding a small warehouse to store PPE and critical supplies, according to Ayers.

The Supply Chain team created internal distribution metrics to increase confidence in product availability, right-size inventory and maximize hand-held technology, Ayers indicated. Web-based Tableau reports were used, enabling team members to extract necessary data to improve the direction of the KPIs, he added.

Supply Chain also worked with Medline to develop a performance dashboard to record and showcase contract compliance and provide talking points for recurring quarterly business reviews, Ayers said.

"In the past, we had an adequate relationship with Medline leaders, but we lacked strategy," he recalled. "To improve, we quickly developed monthly operational meetings, began tracking contract KPIs, built the first-ever dashboard and scheduled quarterly business reviews. The new professional environment significantly grew our relationship and commitment, leading to an extension of our long-term partnership. Because of COVID's labor shortages, we hit some challenges in 2021 for ops and logistics, resulting in a sizeable investment from Medline to establish a distribution center dedicated to Sutter."

Supply Chain shared this intelligence during recurring "Affordability" meetings with site-based leadership teams to highlight distribution and operational metrics, compliance targets, realized and missed savings (the latter to provide incentives to stay contract compliant). This represented a Supply Chain report card for internal customers, which includes executive staff, physicians, clinical directors, and nursing leaders.

Much of this is an outgrowth of Sutter's 2013 consolidation efforts when the IDN centralized its business support services, including the contact centers, document management, finance, human resources, credentialing verification, revenue cycle, supply chain under one umbrella called Sutter Shared Services (S3).

"Today, the teams within S3 deliver cost-effective, standardized and high-quality services for patients, physicians, hospitals and medical foundations," Ayers insisted. "As with most evolutions, it requires years, if not decades, for entities to fully mature and start to resemble a universal culture. In 2019, our Supply Chain operations was still a group of facilities, operating mostly independent from one another. Two years later, we solidified standard work, implemented standard huddle boards, expanded SMART KPIs, assigned system performance targets and completed a reorg at the Regional Director level. These seemingly simple achievements paved the way for our department to start acting in harmony and in unison as a system for the first time." HPN

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Sutter Health Supply Chain tackles 8 issues 8 ways to Sunday

On interacting and integrating with non-acute care facilities, particularly in context with different classes of trade and demand/supply patterns:

Lee Ayers, Senior Director, Supply Chain Operations: "In 2021, we centralized our Supply Chain support for non-acute care facilities under a single Regional Director. Previously, Supply Chain managers in this space felt like an island on teams that were hyper-focused on acute operations. Aligning these leaders and functions under a single Director increased synergy and paved the way for further transformation. We are currently implementing Kanban and transitioning traditional Supply Chain replenishment from clinicians back to our team. Demand planning is accomplished centrally by our corporate analysts, but execution is decentralized at the local facility level. Where possible, we deliberately intertwined many classes of trade (pharmaceuticals, lab specimens, and medical supplies) into our courier model, so that we max out truck space and pay minimal delivery fees."

On supporting and participating in sustainability initiatives … as a California organization:

Jennifer Carlson, Senior Director, Supply Chain Procurement: "Sutter has a robust program in place to collect and reprocess single-use medical devices that are FDA approved for such a process. This reduces the amount of waste that we generate and allows us the opportunity to buy back the devices at a reduced cost. We collect and recycle sterilization wrap but have also increased utilization of the rigid sterilization containers to minimize use of disposable wrap. We have also decreased utilization of disposable sharps containers by partner with a vendor that offers reusable options. We are also evaluating several composable options as part of a food services initiative and are standardizing to coreless toilet paper rolls and other recycled paper products."

On balancing the risks and rewards of global sourcing with domestic and local sourcing on a short-term vs. long-term level:

Carlson: "We can't provide patient care if we don't have access to high-quality medical supplies when they are needed. Reliability in our supply channel is so important and something we took for granted in the past. In the long term, we believe a shift to more domestic manufacturing is financially sustainable, if hospitals support it and suppliers can create efficiencies on both ends to keep costs lower."

On incorporating Diversity, Equity and Inclusion (DEI) as a priority within operations and practices:

Carlson: "Sutter Health is committed to the diversity and inclusion of our workforce and valuing the unique backgrounds and beliefs of the patients we serve. Diversity and sustainability both play an important role in our support of the communities we serve."

On advising other organizations that may be smaller and/or have fewer resources, but still would like to emulate an award-winning model and implement in stages to grow organically:

Ayers: "I am a firm believer that if you take care of the people, they will take care of the mission. With that written, it all begins with building the right culture, an environment where the staff feels connected to mission, feels like they have a voice, feels supported when they hit challenges, and feels like they can trust their leaders. The size of an organization or how many resources they have is irrelevant; building a culture is free but it takes time and an investment. When the culture is set appropriately, employees will go the extra mile, solve more problems, surprise you with innovations, give more feedback, and ultimately, realize the vision."

On delineating between Supply Chain's contributions versus the GPO's and/or prime distributor's:

Ayers: "It helps if you think about this from different perspectives, so that you compartmentalize how we leverage services from our partners. From a Sourcing standpoint, Vizient helps us compare and minimize our costs (products and services), where Medline is simply a vendor that happens to create savings through distribution fee reductions if we buy their products. From a purely Operational perspective, maximizing distribution through Medline creates less trucks on our docks and simplifies the logistical footprint, where Vizient is merely a community that helps us share ideas with our peers. Through this lens, we ask that our partners strive to present data in a meaningful manner, that allows our teams to make quick and informed decisions. With this understanding and through lots of feedback, we have built processes with very little overlap and redundancy."

On how an extensive Air Force supply chain experience (military) contributes to a Sutter supply chain experience (private sector):

Ayers: "The Air Force prepared me extremely well to handle a wide range of scenarios with little or no direction. They provided me decades of training, through basic training, a Supply Chain technical school and multiple degree programs. The service also gifted me years of leadership opportunities, including several tours in command cells, which greatly aided in my emergency management role during COVID. The best skill I brought to our organization from the military, is my ability to align a team to a vision, even amidst the most chaotic time in our lives. You could say it enabled me to be the right leader, at the right place and at the right time!"

On joining Sutter about three months before the pandemic hit stateside:

Ayers: "Yes, as I reflect on that time, it was almost as if it was destiny! The military and healthcare are both highly regulated industries and at the end of the day, they are both in the business of saving lives. Upon becoming retirement eligible and reviewing job postings for nearly four years, healthcare's purpose and Sutter's values attracted me to this new career. I even had to make a request to accelerate my retirement date from the Air Force, so that I could meet Sutter's timeline. I am thankful for the symbiotic relationship I share with Sutter, the amazing team I work with, and I enjoy supporting our great community!"

STERILE PROCESSING

The case for conformity, collaboration in managing case carts

by Kara Nadeau

Photo credit: andre | stock.adobe.com

The Central Service/Sterile Processing & Distribution (CS/SPD) and Operating Room (OR) teams' processes are critical to the healthy functioning of both departments. Because their processes touch in many places, and an action, good or bad, can have a small or significant impact on the other, it is common to hear CS/SPD and OR team disagreements, finger pointing and, in some cases, outright distain for one another.

On the flip side, successful relationships among CS/SPD and OR team members have been shown to improve processes across both departments, contributing to safer patient care, greater efficiency, and a healthier work environment all around.

With case carts traveling from the CS/SPD to the OR and back to the CS/SPD again, there are plenty of opportunities for collaborative improvements throughout their journey. Let's look at two success stories of case cart collaboration, along with factors for consideration when choosing case carts that meet both the needs of CS/SPD and OR teams.

Visibility drives Mount Sinai West NYC case cart success

Case carts were a "logistical nightmare," says William DeLuca, Director of Sterile Processing at Mount Sinai West NYC, causing bad relations between the CS/SPD and OR teams and extreme stress for everyone involved.

"My team would have 9:30 a.m. and 2:30 p.m. huddles with the OR nurse managers each day and everyone dreaded them," said DeLuca. "When we had a rough day, we knew they were really going to let us have it."

Determined to get down to the root cause of the issues, DeLuca began attending the huddles himself to show the OR team that he was "serious and committed" to improvements. To understand the challenges his staff was facing firsthand, he worked each of his department's three shifts side-by-side with managers and staff members, performing the same work they do.

"When picking cases I noticed a variety of issues, such as where case carts were stationed, where packs were stored, the location of high use trays, and how they picked the cases," said DeLuca. "It is a big department, so logistics are important. My staff had to travel from the sterilization area to the storage area then from the case cart area to storage, which were all far away from one another."

With input from his team, DeLuca decided to make several logistical changes that have had a huge impact on the efficiency and effectiveness of the department and how it serves the OR.

- Color-coded the entire department by service line (e.g., Ortho: Beige, Neuro: Black, etc.)
- Labeled racks by service line (e.g., Ortho: 1-20, Neuro: 21-25, etc.)
- Moved the 10 most used items to be stationed as close as possible to the case cart and sterilization areas, making it a very short trip from storage to the case cart area to case picking
- Properly labeled packs so even new employees picking cases could easily and quickly find what they needed
- Placed packs as close to the case picking area as possible

Recognizing how preference card formatting also contributed to confusion and inefficiency, the CS/SPD manager suggested to DeLuca they take a new approach. Previously CS/SPD staff members would label each completed case cart with a print up from the physician's preference card, including the OR location and time for the case, in tiny font that was very difficult to read.

"We would send up 70 case carts and when OR staff members came to the inner core they would have to travel around to all the carts to figure out which cart was for which room and case because it was so hard to see the print outs," said DeLuca.

The CS/SPD manager came up with a simple, yet very effective solution:

- A numbering system for each room: OR room one is "1", two is "2", three is "3", etc.
- A numbering system for each case: First case of day is "1", second case of day is "2", third case of day is "3", etc.
- Using this numbering system to label sticky notes placed on each case cart:
  - o Sticky note for Room 1, Case 1 7:30 a.m. case reads: 1/1
  - o Sticky note for Room 1, Case 2 8:30 a.m. case reads: 1/2
  - o Sticky note for Room 2, Case 1 7:30 a.m. case reads: 2/1

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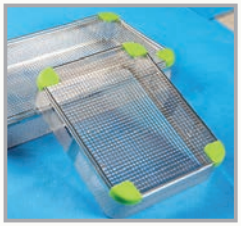

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o Sticky note for Room 2, Case 2 8:30 a.m. case reads: 2/2 (and so forth)

"Now anyone who walks into the inner core can easily identify the needed case cart and bring it to the room," said DeLuca. "It was a simple change that has had a tremendous impact."

Another visual cue that the team implemented is highlighting completed trays on case carts. When assembling a cart, the staff member has a print up of the physician preference card listing each of the required trays. As each tray is completed and placed on the cart the staff member highlights the tray on the card. When the next shift comes into the CS/SPD or the OR team looks at the cards, they know any trays not highlighted have not been loaded on the cart.

"Since we have made these changes, we go to the OR huddles and have plain old conversations like friends," said DeLuca. "It has been a tremendous change and our stress level is completely gone away. My advice to others when collaborating with the OR is to prove that you are really committed to a change. The OR is a high-touch department, so you need to be in front of them, be personable, and show you are willing to give 110%."

Christopher Sleet Tech I and Ashley Alexander OR Liaison (CRCST,CIS) Ashley is communicating to Chris about the emergency add-on.

Angela Salmen System Educator (CRCST,CIS,CHL), Jackie Johnson Manager (CST, CRCST, CIS, CHL), and Justin Fordeck System Director(CRCST,CIS,CHL) standing in clean cart holding area

Jewish Hospital achieves 99% case cart to patient tracking

While UofL Health – Jewish Hospital in Louisville, Ky. had "one of the best tracking systems on the market" in its Central Service/ Sterile Processing & Distribution (CS/SPD) department, it was identified during auditing to ensure best practice that the department was not utilizing the scanning capability that would provide identification between cart and patient.

Instead, case carts were stored in the tracking system as locations, so when they scanned cart trays to a cart, there were no details in the system specific to where and how that cart was used (e.g., surgeon, patient, etc.).

This lack of tracking to the item and patient level made it extremely challenging for the CS/SPD and operating room (OR) teams to document missing items and determine which surgeons/ procedures generated the extremely high volume of sterile items returned to the CS/SPD unused (an average of 1,600 per month).

It also impacted the safety and well-being of the CS/SPD team, as UofL Health System SPD Educator Angela Salmen, CRCST, CHL, CIS explains:

"If someone working in decontamination was exposed to a contaminated item, there was no way to determine whether that item had been used on a patient with an infectious disease. There were staff members who received shots for 30 days as a precautionary measure, which came with unwanted side effects."

The CS/SPD team updated the tracking system so that individual case carts could be tracked. Today, a staff member prints a barcoded label from the tracking system and sticks it to a case cart. When they scan a cart, they add the room number, surgeon, the patient ID, and time of case, and mark whether it is a scheduled case or an add-on. This has enabled the department to track 99% of carts/trays/items to the patient procedures in which they were used.

The team also scans each cart to the physician's preference card and the tracking system makes a list of missing items. After all the carts have been completed and delivered, the CS/SPD team can pull a "needs list" from the tracking system to see what case is missing what instrument tray. In the early morning, the OR Liaison checks the list and identifies which missing items need to be processed and in which case cart they must be placed.

"This has been a better way for us to streamline our priority process and make sure our team is building trays with needed items based on the case load for the next day," said to UofL Health System Director for Sterile Processing Justin Fordeck CRCST, CIS, CHL.

An additional finding was addressing returned items. The CS/ SPD and OR teams have collaborated closely on preference card updates to minimize the number of items that go unused in cases. Now that more sets and instruments are available when needed, instead of being unnecessarily packed on case carts, instrument set availability has improved, and immediate use steam sterilization (IUSS) reduced to under 1% from a previous rate of 4%.

According to Fordeck, the CS/SPD and OR teams have a good relationship throughout the health system, which paved the way for a successful partnership on the initiative.

"There is a mutual understanding that we are here to help one another and the realization there are things we cannot successfully achieve on our own," said Fordeck. "The support goes both ways. We are there to support the OR and its patients, and the OR team has been very receptive to doing what they can to help us."

Jackie L. Johnson, CST, CRCST, CIS, CHL, who is new to the hospital, agrees, commenting on her interactions with the OR team:

"When they realized I was there to support them and help them mend some of the gaps in our processes, they have all been on board and very helpful and supportive. When new CS/SPD staff members observe in the OR, they come back and tell me how the OR team tells them how much they appreciate our department. They are coming out of training and learning about teamwork and how they impact the department within their role."

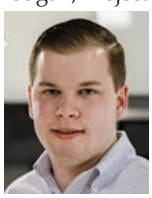
Considerations for selecting case carts

Case carts come in many shapes and sizes with different features and designs. Selecting the right carts for the healthcare organization or specific use can help speed efficiency, enhance safety, and make life easier for both CS/SPD and OR teams.

"The CS/SPD and OR teams each use case carts in a different way – the former loading instrument trays into the carts and the latter unloading them from the carts," said George Daetz, Director of Sales, Blickman Industries. "This means it is important to take into consideration the needs of both departments when selecting cart design. It is important to understand the cart path from stocking to OR to decontamination/cart wash to stocking."


George Daetz

"As the saying goes, two heads are better than one," said Calvin MacDougall, Project Consultant at Coulmed. "It is so much more productive for SPD and OR teams to collaborate on case cart design to create the most effective design for their facility. Working together, they can figure out what is needed with each departments' day-to-day workflow and case load to solve any challenges they may have found with their current system."


Calvin MacDougall

"Collaboration during improvement projects promotes optimized workflows, improves team relationship, and increases efficiency," said Christy M. Newland, Director of Professional Services and Processing Standards, STERIS. Upstream, product-driven processes can have a positive or negative impact on OR and SPD. Both departments should have a vested interest of ideas, skills, experiences, and opinions to build a great program that has benefits for both departments. An individual effort could unintentionally build conflicting processes and workarounds because of the overlapping responsibilities related to this type of program and workflow."


Christy M. Newland

"In my experience, there is already a lot of collaborative conversations happening between CS/SPD and the OR," said Dave Salus, Market Manager, Healthcare Division, Metro. "Both have professional staff with common goals, so it's incumbent on each member to communicate where the challenges are and when changes are planned."


Dave Salus

"Finally, don't forget about involving your physician community," said Cory Ezell, North American Sales Director for BELINTRA. "They can help you decide the must haves versus the specialty items for particular cases. You only have so much space in any type of transportation


Cory Ezell

device and overcrowding it can lead to issues such as contaminated supplies or compromised instrument trays."

Use case

"From a manufacturing and design perspective, we always want to consider how and where the cart is going to be used," said Tom Hillebrand, Vice President Sales & Marketing, Pedigo Products. He suggests asking these questions:

- Do you or will you have an automated cart washer?
  - o Yes - make sure you get stainless steel sealed casters, roll-out shelf locks, mechanisms to hold open the door and make sure it will fit
  - o No - make sure the cart will drain and be easy to wipe down the interior, all the cracks and crevices
- Does it need to be completely sealed - are you going outside, rolling through a parking lot, transporting on a truck?
- Do you want windows, roll-out shelves, card holders, security latches?

Tom Hillebrand

Hillebrand says it is essential for case carts to have biohazard indicators that can be seen from all four sides.

"At Pedigo we ALWAYS recommend getting in demo carts in several sizes to evaluate floor space, capacity and container size fit and we need that collaboration between OR and SPD on these issues," he added. "Cart size is critical on both ends, OR and SPD, so the team needs to work together. And don't forget the closed surgical case cart is the critical link between clean and dirty. That reason alone makes collaboration critical."

Pedigo surgical case cart

When selecting a case cart, it is important to understand its intended use in the OR as well, as Salus explains:

"It is key to define the role of the case cart, so the proper size can be chosen. Beyond transport, the OR may also opt to utilize the case cart as a back table during a procedure. In this use case a low-profile cart is ideal. For larger cases, a longer cart will often be needed to keep the lower height. Whereas, if the cart will not be used as a back table, a taller cart that will occupy less floor space may be chosen."

The Metro CaseVue

"When planning for a case cart improvement project, the team should gather data including surgery schedules, SPD processing capacity, staffing needs, pick ticket accuracy, and instrument tray inventory," said Newland. "In addition, the team should consider plans for training and the measurable indicators of new processes."

Procedural volumes and cart capacity

Understanding the facility's case mix and procedural volumes will help the CS/SPD and OR teams select the right carts to meet their needs.

"The first step to creating a case cart workflow is to look at the number of carts needed," said MacDougall. "Think about your busiest days – how many times can a cart be washed and reused in a day? Next, it's important to get the right size case cart – one of our most popular sizes is the deep robotic cart which allows large robotic instruments to place front to back versus side to side."

"A spike in certain procedures can put a strain on specific instrument sets needed to support them," Salus added. "To meet the increased demand, some attention in scheduling is needed to allow sufficient time for instrument sets to be reprocessed and made ready for the next case."

Rebecca Johnson, BSN, RN, CNOR, Clinical Resource Manager, Medline notes how instrument and tray requirements can vary broadly when looking at the continuum of cases performed by the OR and in other procedural areas.

Rebecca Johnson

"Depending on the procedure that can range anywhere from one pan of instruments to more than ten," said Johnson. "Trays of instruments are designed in varying sizes; some may be light while others with more complex instrumentation can be heavier. The ideal weight of an instrument set should be less than 25 lbs per standard of practice, but if a procedure calls for multiple sets you can imagine that a case cart could be heavy."

"Required instrument tray capacity will depend upon the types of procedures performed, for example, orthopedic surgeries use more trays," said Daetz. "Tall carts are harder to deliver from CS/SPD and do not allow the top of the cart to be used as additional workspace in the OR, but they might hold more instrument trays."

"Smaller, less complex cases can often be supported by a single small cart, while more complex cases, like orthopedics, will need the largest of carts and sometimes multiple," said Salus. "Because space is such a premium, ordering the right number of right sized-carts can mean the difference of fitting the total number of needed carts in the allotted space, or suffering through an inefficient process created by an insufficient number of carts."

Ezell recommends healthcare organizations take a "fleet approach" to case cart selection. He states:

"Case cart selection should match the types of procedures your facility is performing. For smaller cases like ENT and ophthalmology, there is no need to have a large case cart that is half empty. Conversely, not having a cart large enough to accommodate robotics and revision cases could result in multiple carts for those procedures. Understanding where loaners are being staged can also help you differentiate the need for either a closed or open case cart."

Physical space

"The size of the cart is most important," said Sierrah Spell, QC Storage. "The dumbwaiters, elevators, staging area, or department all have size limitations. The volume of required sterile cases and supplies needed will also dictate the size of the cart. QC Storage can create custom sized case carts that fit our customer's needs. They should also choose between using open or closed case cart. Due to safety protocols, an open case cart might not be right for their facility's needs. Other important considerations would be to assess the durability, casters, and door swing."

The cart's path from the CS/SPD to the OR and back again is another important factor to keep in mind according to Ezell:

"In cases where sterile processing department and operating room are separated by hallways or floors, it makes collaboration critical to select the best transport cart to meet the standards set forth by Joint Commission

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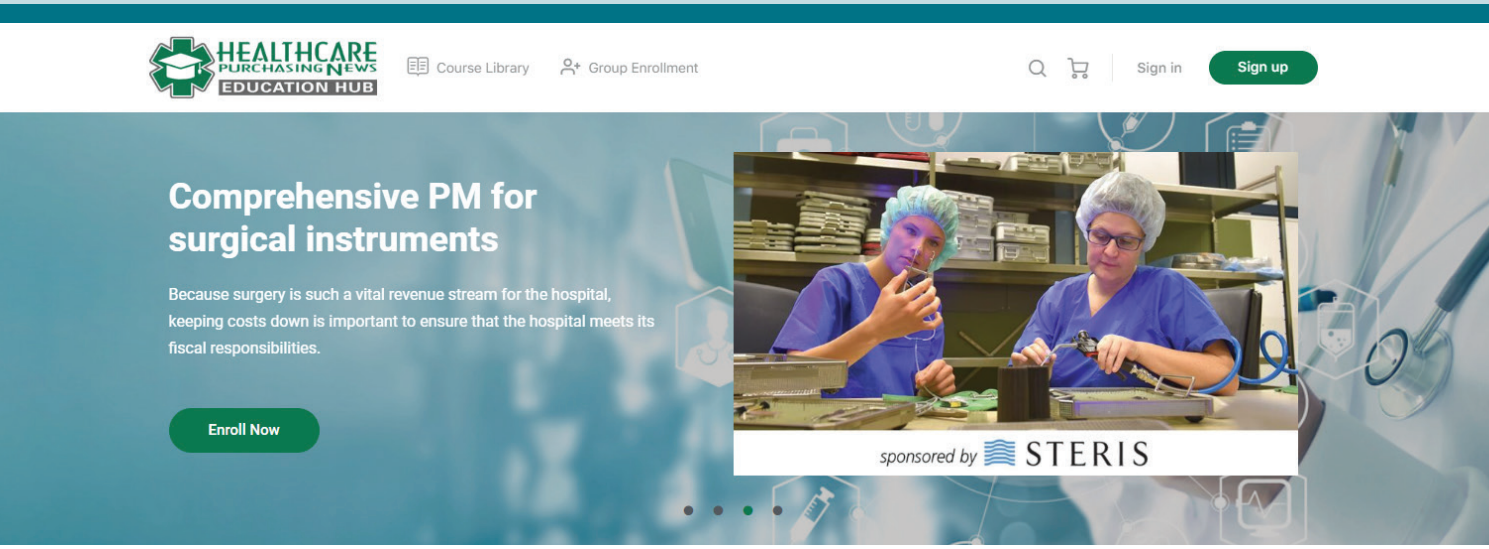

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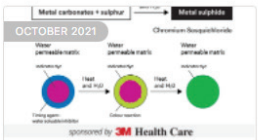

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and Association for the Advancement of Medical Instrumentation (AAMI)."

When determining how many case carts to purchase, be sure to assess the size of the staging area as well, as Ezell explains:

"Case scheduling ahead of procedures allows for time to accurately pick cases and stage carts in the appropriate location. Sometimes the staging area can be limited. Allowing for access to that area at designated times improves the flow of smaller or shared spaces. Consistent auditing of the case cart process ensures the floor plan can accommodate as many carts that are needed for a given day."

Contents

"The overall goals for both depts should be to provide a case cart with all supplies and trays listed on the surgeon's preference list for the procedure, maintaining the sterility of all wrapped instrument trays during delivery, and the return of all contaminated instruments in a safe manner," said Daetz.

The process of picking and pulling items for a case and stocking the case cart presents its own challenges and considerations.

"Many times, the responsibility for picking cases, updating pick sheets and general pulling for cases is a shared responsibility between departments," said Ezell. "For increased overall efficiency, it is critical to collaborate. All cases are not created equal. Some have limited instruments and lots of consumables. Many orthopedic and spine procedures require loaners, consigned and owned instrumentation, as well as hardware."

As demonstrated in the UofL Health Jewish Hospital success story, preference card accuracy is a major driver of case cart success and a significant challenge for many healthcare organizations.

"When carts come back to CS/SPD with a lot of items that were not used, it creates 'waste' for the CS/SPD staff," said Salus. "There is no value created in the time spent unloading clean items and returning them to their storage locations. This is not only a drain on labor, but it can also often result in damage to wrapped packs, requiring reprocessing of the entire pack. This added labor and reprocessing time can often be tracked back to out-of-date preference cards, still calling for supplies that are no longer used."

CS/SPD and OR teams must also take into consideration infection prevention protocols, as Johnson explains:

"Case carts with contaminated (blood/bioburden) supplies post-surgery should be contained, which may look different from facility to facility. Some chose case carts with doors while others chose open case carts that are contained with a disposable cover. So while case carts are a seemingly 'simple' piece of equipment, many factors should influence the decision-making process for case carts they can easily derail the flow and efficiency of moving supplies and instruments throughout the surgical process."

Shelving and accessories

"There are many different features to choose from to best fit the needs of your operating room," said Johnson. "It is most important to test the cart for easy loading shelves and no sharp edges to tear wrapped instruments. If changing sizes, a test run is good so there are no surprises."

The shelving within the case carts can also have an impact on workflow efficiency, as Daetz explains:

"Determine whether roll out shelves work for both departments, and whether wire, solid or perforated shelves work best, keeping in mind that wire can cause breaches in the instrument tray wrapping. If soiled items will be returned from the OR to the CS/SPD in bins, consider whether this is good for both departments."

Daetz recommends the use of card holders to provide a visible check list for cart contents, as well as visible clean/dirty indicators to show the status of the contents within the cart. Another consideration when choosing cart design is to consider whether the cart doors need to be secured after the cart is loaded.

"The accessories that are available for case carts should not be overlooked as they can be very useful," said Spell. "Indicators can be attached to closed case carts to designate clean or dirty carts, disposable cart covers, preference card holders and shelving (solid, wire or perforated metal) with the option to roll out for easy loading and unloading. If the facility is using a cart washer you need to consider the casters that are used."

Just ask – and listen

While measuring metrics around procedural volumes, reprocessing volumes and other hard numbers is important to understanding the needs of a facility, don't overlook a simple but critical step – subjective input from the end users.

"My approach would be to ask some of the key staff using the carts in the SPD and OR to make a list of the challenges they are facing with case carts," said MacDougall. "Then have the SPD and OR Managers review that list and give that to a vendor and have them spec a cart that will eliminate those challenges. There are many small features you can add to a case cart that will make the staff on the frontlines' job easier."

"To enhance the collaboration efforts, prioritize listening," said Newland. "When SPD and OR listen to each other's concerns and ideas, they learn quicker and identify more opportunities to improve. In addition, this can help build trust in their relationships. Next, set ground rules. When these two groups get together, it can be chaotic. Agreeing to ground rules at the start can help control the chaos and keep the project moving forward."

"By taking everyone into account that is involved with using the case carts daily, the team can come up with an efficient workflow that considers case turnover times, available storage space, dumbwaiters/transport to and from the OR, instrument tray sizes, and tray counts," MacDougall added. "It will also boost the morale of the staff as they see their voice was heard and actioned on."

"Lastly, accept that it won't be perfect the first time," noted Newland. "Be ready to implement improvements in phases because many changes might be required, and new opportunities may be revealed. A phased approach provides time to assess, collaborate, and integrate more improvements." **HPN**

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by Craig Wallace

August 2022
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3. *Discuss the recommended practices for use of biological indicators.*

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Biological indicators (BIs) are an important part of a quality control system for hospital sterilization processes. The information on the quality of the sterilization process supplied by biological indicators, when combined with the information from physical monitors and chemical indicators, provides the basis for the decision on whether or not to release the medical devices for use on patients.

Biological indicator basics

Biological indicators are defined as a test system containing viable microorganisms that provide a defined resistance to a specified sterilization process[1]. The key part of this definition is "viable microorganisms," as biological indicators are the only sterilization monitoring device that directly tests the effect of the sterilization process on microorganisms.

The primary biological indicator design used in health care facilities is the self-contained biological indicator, or SCBI. (SEE FIGURE 1) Self-contained biological indicators contain the critical elements of a biological indicator: the bacterial spores on a carrier, and the growth media required to culture the test organisms to determine if the BI is positive or negative. The self-contained design eliminates the need for a microbiological laboratory to complete the BI test.

To better understand biological indicators, we need to take a minute and review a little bit of basic microbiology. The term "spores" is short for bacterial endospores. There are a few types of bacteria that have developed the ability to change from an active, growing cell (or vegetative cell) to a highly protected, dormant cell (endospore), and back again depending on their environment. These bacteria will change to a spore when faced with a shortage of food or other conditions that are harmful to the cell. The spore itself is like a plant seed or hard nut – it is biologically dormant (or "sleeping"), it has a highly protective dry shell, and it is capable of withstanding extreme conditions for prolonged periods of time without ill effect. If the spore senses that conditions have improved and will support life, it goes through a series of biological steps called activation and germination, to shed the hard coat and become a regular, active bacterial cell once again.(SEE FIGURE 2). Biological indicators use the spore form of *Bacillus* bacteria because of the toughness of these spores and the challenge they present to the sterilization process. Each sterilization process requires a specific *Bacillus* species proven to be the most resistant to that process.

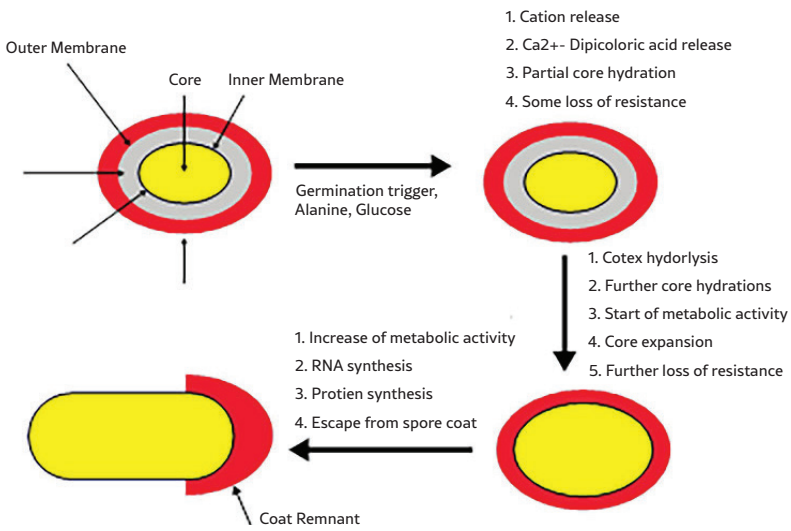
Spores require a source of nutrients and optimized temperature and pH to begin the activation, germination, and outgrowth processes. Self-contained biological indicators contain growth media that has been optimized to support outgrowth of the spores used in that BI. All biological indicators require incubation, during which the spores are exposed to the growth media and the biological indicator is heated to the optimum temperature for spore outgrowth. Any surviving spores will first activate and germinate to become vegetative cells, and then these cells will begin to "grow," which means they will replicate (one becomes two, two become four, and so on). (SEE FIGURE 3)

Incubation time

The incubation time for a biological indicator is the amount of time that the BI must be incubated before a decision can be made that the BI is negative (i.e., the spores are all dead) and the test is complete. This concept takes a little more explanation . . . if a biological indicator turns positive, it has completed its "task" of providing information on the quality of the biological indicator system (in the case of a positive control) or of the

FIGURE 1 – Components of a self-contained rapid readout biological indicator.
Photo courtesy of 3M.

FIGURE 2 – Activation and germination of a bacterial spore



sterilization process itself (a positive test BI indicates a sterilization process failure). If a biological indicator turns positive you will end the BI test at that point and take appropriate action. But how long must you incubate a BI before you can decide that it is truly negative and end the test? This time frame is called the incubation time.

The international biological indicator performance standards state that the reference incubation time for a biological indicator is 7 days.[2] This incubation time was established in the early days of biological indicators and was based on the technology available at that time. An incubation period of seven days is not at all practical or useful in today's healthcare environment. So, for biological indicators, there was a need for speed.

Biological indicator signals

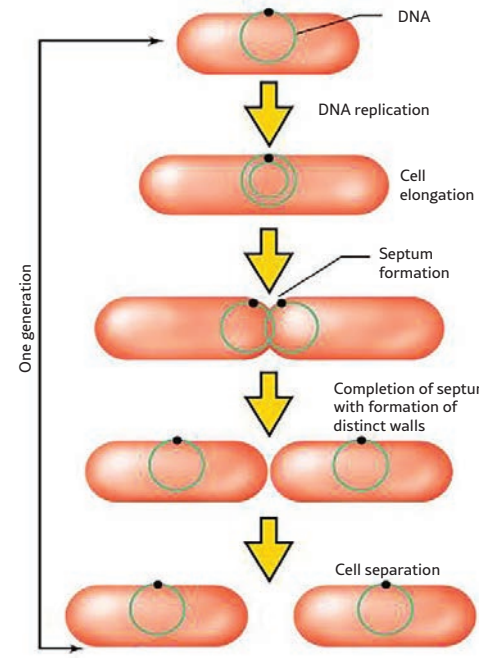
A biological indicator must produce a "signal" that it is positive or negative. This signal must be easily interpreted by the end user. Early BI spore strips used media "cloudiness" (turbidity) as a signal, but this was hard to interpret. A better signal was developed - a distinct color change in the growth media. The new SCBI designs put a color-based pH indicator into the growth media. A pH indicator is a chemical that responds to the acidity of the medium and will typically be one color at an alkaline pH and change to another color as the medium becomes more acidic. Biological indicators utilizing the pH color change system have growth media that is specially formulated so that bacteria growing in the medium will produce acidic by-products. As the bacteria grow continue to grow, the growth medium will continue to become more acidic until the pH indicator changes color. This technology was introduced in the 1970s. The optimization of the growth media and the improved color change signal reduced the incubation time from 7 days to 2-3 days. This was much faster and easier than spore strips, but still required incubation times that were not optimal for health care.

The next major leap in reduction of biological indicator incubation time came from new technology that enabled detection of biological signals from viable spores much earlier in their germination and outgrowth process. To understand this, we need to understand a little more microbiology. The spore activation and germination processes may sound simple, but they are complicated, multi-step processes.(SEE FIGURE 2) A good analogy is the steps that occur when a computer powers up. Once the power button is pushed the computer goes through a series of actions that turn on many programs and sub-systems in the computer in a specific order, until the computer is fully operational and ready for use. In the spore, the cell's "sub-systems" are created and activated by many biochemical reactions. Specialized proteins called enzymes act as catalysts that make these complicated reactions happen much more quickly. The first rapid readout biological indicators used the actions of some of these "boot up" enzymes to produce a signal that could be detected earlier in the spore outgrowth process, reducing the required BI incubation time from days to hours.

The enzymes used to produce a signal for rapid readout biological indicators are enzymes that become active early in the spore's activation and germination processes. Rapid readout biological indicator technology uses a special indicator in the growth medium that can interact with the enzyme. This chemical is like the pH indicator discussed earlier, except that instead of turning color based on a change in acidity this indicator changes from a non-fluorescent molecule to a fluorescent molecule when it is acted on by the enzyme. Fluorescence means that it will "glow" or emit light at a certain wavelength (say, Wavelength B), if it is first exposed to light of a different wavelength (Wavelength A). So, rapid readout BIs use a biological indicator reader that shines Wavelength A light onto the incubating biological indicators and has a detector that is sensitive to Wavelength B light and looks for a fluorescent signal. If the enzyme is active in the biological indicator (i.e., a positive control BI or a positive BI from a sterilization process failure), the sensors will detect the fluorescent signal and the reader analyzes this signal and indicates a positive BI result.

Rapid readout biological indicator technology has reduced incubation times from days to hours. Continued improvements of the physical design of these biological indicators concentrated the fluorescent signal to make it easier to detect. These changes, coupled with improved sensors and electronics in the readers, have now reduced biological indicator incubation times to less than 30 minutes. This dramatic improvement in incubation time, from 7 days to less than 30 minutes, means that this important quality control information regarding the efficacy of the sterilization process is now available in a timeframe that fits with the healthcare facilities' workflow.

FIGURE 3 – Bacterial growth



Self-Study Test Answers: 1. A, 2. A, 3. A, 4. A, 5. B, 6. B, 7. B, 8. A, 9. A, 10. A

Quality control of sterilization processes

You can't see sterility. This basic fact drives the need for a quality control system that provides information on the quality of a sterilization process, so a decision can be made on whether or not the processed instruments are safe for patient use. The American National Standards for the key health care sterilization processes: steam, ethylene oxide, and vaporized hydrogen peroxide, all recommend the integrated use of three quality control monitoring tools: physical monitors, chemical indicators, and biological indicators.[3,4,5] The information provided by each tool is different. Physical monitors are electronic sensors inside the chamber that provide data on the environment inside the sterilizer chamber such as the temperature or pressure. This data is recorded on a printout that can also be used as a record of the cycle. Review of cycle printouts from the physical monitors can confirm that the proper cycle was selected. The second quality control tool, chemical indicators, utilize specially selected chemicals that respond to the effects of the sterilization process. Chemical indicators that are used on the outside of packages (Type 1 process indicators) can provide visual evidence that an item has gone through the sterilizer. Remember that process indicators are only designed to indicate exposure to the sterilant, and they *do not* provide evidence that the process was effective. The more sophisticated chemical indicators (Type 5 and Type 6 indicators) that are used inside of containers and packages are designed to respond to all the sterilization process variables. These chemical indicators provide more detailed information on whether the required process conditions were achieved inside of the packages.

The third quality control tool, biological indicators, are used to directly measure the effectiveness of the sterilization process by measuring its effect on live microorganisms. Let's take a closer look at the role of biological indicators in the quality control of sterilization processes.

The role of biological indicators in quality control

Biological indicators are placed with the load inside of the sterilizer chamber in the location determined to be the most difficult to sterilize. The typical biological indicator placement location for large steam sterilizers is over the drain, for ethylene oxide sterilizers, in the center of the load, and for hydrogen peroxide sterilizers at different chamber locations specific to the sterilizer, cycle, and load. The instructions of the manufacturer regarding the recommended placement location for the biological indicator in the sterilizer should be followed.

Biological indicators are typically used inside of process challenge devices (PCDs) or other items that can represent the sterilizer load. Placement of biological indicators inside of the containers or packages would give direct information on the lethality of the sterilization process inside the device packaging, but this placement is not practical as even today's rapid readout biological indicators require incubation time that would not be feasible in the OR. So, biological indicators are placed into PCDs or other devices that are intended to have the biological indicator perform as if it was placed inside of containers or packages in the load. Reference PCDs that can be constructed in health care facilities are described in the standards.[3,4] Commercially available PCDs that have been cleared by the US Food and Drug Administration (FDA) with performance equivalent to the reference PCDs are also available. These devices eliminate the need for staff time to assemble test packs and are typically more consistent because of automated assembly processes and quality control procedures required of medical device manufacturers.

The recommended frequency of use of biological indicators in health care facilities varies by the sterilization process. For steam, the recommendation from AAMI is weekly use, but preferably daily use, for routine efficacy monitoring. Also, a biological indicator should be used to release any load containing an implantable device. Implants loads should be quarantined until the biological indicator results are available.[3] Per AAMI, a biological indicator should be used to monitor every load for ethylene oxide sterilization processes. Again, any implants should be quarantined until the biological indicator results are available.[4] Finally, for vaporized hydrogen peroxide processes, the AAMI recommendation is that biological indicators be used daily, but preferably in every load. The same requirement of BI monitoring with load quarantine until the BI results are available applied for implants.[5]

As you can see, there is some variability in the current recommended practices regarding frequency of use of biological indicators. Many health care facilities are now leveraging the significant reductions in biological indicator incubation time to increase their frequency of use of this important QC tool, without negatively affecting their workflow. For example, rapid readout BIs make the quarantine of implantable devices until the biological indicator test result is available much more realistic. Many hospitals have moved to monitoring of every sterilization load with biological indicators even where the current health care standards do not require it, such as for steam and vaporized hydrogen peroxide. The criteria often cited for making this change include a desire to improve quality control to assure a uniform standard of care for all patients, avoidance of the extra work required in the event of a recall, as well as reduction of errors in the sterile processing department caused by varying requirements for biological indicator monitoring.

Summary

Biological indicator technology has continued to evolve with faster detection of the biological signals produced by the bacterial spores that provide the direct challenge to the sterilization process. These technologies have resulted in biological indicators with incubation times of less than 30 minutes for some sterilization processes. These short incubation times now make it possible to obtain biological test results in time for optimized instrument workflow, including shorter quarantine periods for implantable devices, and in many facilities, for all instruments. These indicators can facilitate improved quality control of sterilization processes by enabling increased frequency of biological monitoring. HPN

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3M Healthcare sponsored this article.

Craig Wallace, president of Wallace Sterilization Consulting, LLC, has over 28 years of experience in the field of medical device disinfection and sterilization. Craig is the Convenor of the ISO TC198 Working Group 4, the ISO committee responsible for international biological indicator performance standards, as well as a U.S Technical Expert for Chemical Indicators (ISO WG 6). He is also the Co-Chair of the United States (AAMI) Biological Indicator Working Group, and an active member of several other AAMI working groups including chemical indicators and vaporized hydrogen peroxide sterilization.

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The Science of Speed

How those rapid readout BIs actually work

Circle the one correct answer:

1. **Biological indicators utilize bacterial spores because spores are difficult to kill and present a significant challenge to the sterilization process.**
   A. True B. False

2. **Biological indicators with rapid readout technology rely on a biological signal from germinating and replicating spores.**
   A. True B. False

3. **The reference incubation time for a conventional biological indicator is seven days, but rapid readout technology has enabled biological indicators with incubation times of less than 30 minutes.**
   A. True B. False

4. **The most effective quality control system for healthcare sterilization uses a combination physical, chemical, and biological monitoring.**
   A. True B. False

5. **Sterilizer printouts from the electronic sensors in the chamber can prove that a sterilization cycle was effective**
   A. True B. False

6. **Chemical indicators on the outside of packages are used to test all the sterilization process parameters and prove that the process was effective.**
   A. True B. False

7. **Chemical indicators can provide a direct measurement of the lethality of the sterilization process.**
   A. True B. False

8. **Manufacturers' IFUs are the best reference for where biological indicators and PCDs should be placed in the sterilizer chamber.**
   A. True B. False

9. **Rapid readout biological indicators can make it easier to quarantine implantable devices until the BI test is complete.**
   A. True B. False

10. **For biological monitoring of steam sterilization, AAMI ST79 recommends weekly, but preferably daily testing as well as use of biological indicator PCDs with all implant loads.**
    A. True B. False

HSPA HEALTHCARE STERILE PROCESSING ASSOCIATION

The approval number for this lesson is **3M-HPN 221107.**

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Hidden risks of endoscope storage cabinets

by David Taylor, MSN, RN, CNOR and Scott Pasternak, BSN, M.Div., MBA, RN

Methods of protecting endoscopes that have undergone high-level disinfection (HLD) or liquid chemical sterilization (LCS) from damage and contamination during storage have changed over the years. Not long ago, healthcare organizations stored patient-ready endoscopes in a variety of transport bins (sometimes in bags), in their original endoscope boxes with foam inserts, and upright in cabinets (with and without airflow). These methods were viewed as appropriate at the time and as a means of keeping processed endoscopes from becoming recontaminated and accidentally damaged. Over time, those processes changed and eventually moved to storage cabinets more appropriately designed for this purpose.

In March 2022, the Association for the Advancement of Medical Instrumentation (AAMI) released ANSI/AAMI ST91:2021 *flexible and semi-rigid endoscope processing in health care facilities*. This updated standard reflects current research and advancements in endoscope processing and recommends two types of storage cabinets for HLD- and LCS-processed endoscopes. The first is a drying cabinet specifically designed for flexible endoscope storage. ST91:2021, 11.2.2.1, defines endoscope drying cabinets as closed cabinets designed for storage of flexible endoscopes that circulate HEPA-filtered or instrument air through the cabinet and each endoscope channel at continuous positive pressure. The collective evidence shows that drying cabinets provide effective storage of flexible endoscopes to facilitate drying, decrease the potential for contamination, and provide protection from environmental contaminants (AORN, 2018 [367]). Within the drying cabinet, internal and external surfaces of the endoscope are intermittently or continuously dried, suppressing microbial growth. Studies related to the efficacy of drying cabinets compared with other methods of storage showed that drying cabinets effectively limited bacterial proliferation during storage of potentially incompletely dried endoscopes (Saliou, 2015 [284]; Perumpail, 2019 [254]). A second storage option is closed cabinets that circulate HEPA-filtered or instrument air through the cabinet passively or via continuous positive pressure, but do not include forced air through endoscope channels. There is no clear consensus at this time among professional organizations regarding which type of cabinet is best; however, drying cabinets have been shown in scientific studies to reduce the risk of retained moisture and microbial contamination. Endoscopes hung in HEPA-filtered storage cabinets that do not have drying capabilities should be dried thoroughly following manufacturers' instructions for use (IFU) prior to storage or immediate reuse. *Note: Per ST91, before storage, the channels of the HLD endoscope should be dry to help prevent bacterial growth and the formation of biofilm (see 8.2.5). If a drying cabinet is not used, dryness can be checked with dryness indicators.*

Endoscopy departments and Sterile Processing professionals who routinely manage flexible and semi-rigid endoscopes and are considered subject matter experts may be surprised at what they may uncover when looking more closely at their processes. While building a digestive health program across three campuses of a large teaching hospital located in the western half of the U.S. the endoscopy unit director (Scott Pasternak) and I (David Taylor) recently reviewed the new ST91 updates and decided to do routine checks to validate our compliance with the new recommendations. We noticed our endoscopy endoscope cabinets at one of the campuses needed attention. Of the four storage cabinets in place, one cabinet door did not close properly and the fan systems in each cabinet were inoperable. The management team at that location was unaware of the situation and the employees had not reported any problems. After replacing the damaged door and installing new HEPA-filtered fans, we then investigated the storage cabinets at the other two campuses. Those cabinets appeared to be in order—until the unit director examined the insides of the fan unit and found an excessive amount of dust on the internal components and dust accumulation on the ceiling above the cabinets. This was perplexing because the cabinets are cleaned routinely (daily). Additionally, if dust was to accumulate, it would do so at the top external portion of the cabinet and not internally. After careful investigation, we discovered the filtered

Photos courtesy David Taylor

fans were installed improperly by the manufacturer, reversing the airflow from the floor through the cabinet's grommets, past the stored endoscopes, and out the top. The manufacturer was notified of the problem, new fans with the appropriate HEPA filters were ordered and installed, and all endoscopes were reprocessed. Airflow now travels correctly, originating from the top of the cabinet, through the HEPA filter, past the endoscopes, and out the bottoms of the cabinet (through the grommets).

Conclusion

It is easy to see why endoscope storage cabinets can be taken for granted and may be perceived as low risk; however, improper or inadequate maintenance and cleaning steps can eventually lead to serious problems. Leaders should take time to review their current processes and modify their practices as needed to comply with the latest guideline updates and/or changes to the IFU. ST91:2021 has added clarity and will help leaders ensure safe and proper endoscope processing and storage. HPN

Instrument air and A_o validation

by Stephan Kovach

Q "We have a co-worker who uses a can of Air Duster from Best Buy. Could that be used instead of the air gun provided at our tables? If there is an ST79 or AAMI recommendation we can read about, or something you can send, it would be appreciated. Also, the department doesn't have any type of air hook up on the clean side."

A In the latest update of ANSI /AAMI ST79, they defined the type of air that a medical device reprocessing department should have available within their department. The term they use is "instrument air". The definition of instrument air is, "Medical gas that falls under the general requirements for medical gases as defined by NFPA 99 (*Health care facilities code*), is not respired, is compliant with the ANSI/ISA 7.0.01 (*Quality standard for instrument air*), and is filtered to 0.01 microns, free of liquids and hydrocarbon vapors, and dry to a dew point of −40° F (−40° C)."We know that air is needed in every medical device reprocessing department. It is needed in the decontamination area to "flush/blow out" debris and in the assembly area to help dry lumened devices and sets that still might be wet. Items should be dried for steam as well as low-temperature sterilization methods, unless otherwise directed by the sterilizer manufacturer or the device's manufacturer. That is why ANSI/AAMI ST79 defined the correct type/kind of air that should be available, unless the manufacturer of said medical devices gives you other specific directions.

Many sections within ANSI/AAMI ST79 reference instrument area, such as a) 3.3.1, b) 3.3.6.1.1, and c) 7.6.4.2. These sections provide support for having the correct type of instrument air available for your department. Portable instrument air tanks can be brought in for staff to have the proper equipment to provide a clean and functional medical device so that it can either be high-level disinfected (HDL) or sterilized.

I also want to make sure that you have a way to monitor the pressure that is being used. In my view, just hooking up air with no monitoring is wrong. Some medical devices require specific pressure requirements, and, as a medical device professional, you need to ensure you are processing that medical device the proper way—including air pressure.

Lastly, I see many people flushing devices on the assembly side. In my view, they should be wearing at least some type of safety glasses to help prevent any possible eye injury if "stuff" is blown out accidentally.

My response to your question about whether to use a can of spray air to clean any medical device is, "No." Unless the manufacturer's instructions for use (IFUs) specifically states to do so, which up to now, I have not seen any air cans in the IFUs, I would not recommend it.

Q "I am buying a washer and the salesperson told me the washer is validated for A_o. Is this important and what does it mean?"

A As we all know, automatic washers are sold all over the world, and companies have to meet various market specific requirements.

A washer sold in the United States can also be sold in Europe. The basic model might be the same, but features might differ from market to market, so it can be sold there.

A_o is an expression of the time/temperature needed for the disinfection process to achieve a desired level of kill. Specifically, A_o is the time required to achieve a specified log reduction of microorganisms based on the water temperature of the thermal disinfection cycle. The A_o concept is used mainly outside the United States and is described by ISO 15883-1.

The FDA at this time does not recognize A_o but does stipulate that any washer/disinfector sold in the United States claiming thermal disinfection for reusable medical devices needs to validate that it can achieve the stated level of disinfection.

While it is a nice to know, A_o is not germane to washer-disinfectors marketed in the United States. It is not part of the requirements process as outlined in various FDA documents, such as:

- Medical Washers and Medical Washer-Disinfectors - Class II Special Controls Guidance Document for the Medical Device Industry and FDA Review Staff1
- Guidance Document for Washers and Washer-Disinfectors Intended for Processing Reusable Medical Devices.2

You have raised a very good question concerning "what I need to know" when buying a washer disinfector.

You could also ask the manufacturer for the validation study (sometimes called a white paper), which should explain how the equipment was tested and the results. Another important standard you can ask about—was the equipment tested according to ASTM D7225 Standard Guide for Blood Cleaning efficiency of Detergents and Washer-Disinfectors. Because you do want to make sure it can actually clean blood off at least stainless steel (the most common material used to make surgical instruments).[3] HPN

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SURGICAL/CRITICAL CARE

Smart ORs facilitate operation, sterilization for best outcomes

by Erin Brady

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The future is now.

The operating room in 2022 is a complex and innovative theater of technology, combining HD, robotic arms, video and sound, control centers to produce results more efficient than ever.

The integration of equipment and automated tools has resulted in a digitally-enhanced OR that melds the smarts of doctors and nurses with the intelligence of modern technologies.

The benefits of a smart OR are endless, and the smart keep getting smarter. Simply said, a smart OR equates to better services, and enables optimization across the board.

Defining smart OR

Diversey defines a smart OR from an environmental hygiene perspective, said Larinda Becker, Executive Director of Marketing, Infection Prevention, Diversey. "It is an OR with simplified and standardized products and processes to clean and disinfect, and having a successful operation that has efficient turnover with effectiveness both between cases and end of day WITHOUT compromising quality. A Smart OR has a comprehensive approach to cleaning and disinfection that is effective, fast and simple. Staff can quickly engage, align and implement for consistent, positive results."

Larinda Becker

"Doing" smart OR means execution of best products and practices with best practices, consistently achieving positive results, she said. Customers are practicing smart OR by, "defining the products and procedures, and implementing practices with the appropriate tools to provide repeatable and successful environmental hygiene (reduced risk)."

Delivery of a comprehensive toolkit for cleaning and disinfection between cases that is simple, engaging and standardized for staff to understand and implement with ease, Becker continued. "Enabling the best solutions to meet the needs for turnover with contact times, efficacy requirements and awesome user experience, with the right protocol to be both effective and efficient, and achieve the best results/quality."

"Workflow tools and training tools utilizing AORN guidelines, defined clear roles and responsibilities, and a process designed to optimize the workflow and ensure the job is completed and nothing is missed or redundant," are the kinds of products and devices that help design and improve workflow, she said. "Diversey has implemented an operating room turnover program. The program is to help improve employee engagement and satisfaction. Diversey's TurboTurn program, which allows staff to quickly align products and tasks to ensure the lowest turnover time without compromising quality."

What many expect to be the next major advance in Smart OR technology is already on its way, said Eugene Malinskiy, CEO and cofounder of Cleveland based med-tech startup Lazurite. "While there have been incremental advances in camera technology over the years, current systems remain tethered to the tower by a power cord and more importantly, by a light cord that generates significant heat. The desired benefits of a wireless camera system include ease of use, improved OR efficiency, reduced costs, and better patient outcomes." A new, Food and Drug Administration (FDA)-cleared wireless arthroscopic surgical camera has been demo'd in surgical suites around the country and is on track for commercialization later in 2022, he said. Lazurite's ArthroFree wireless arthroscopic surgical camera is powered by a high-efficiency, low-heat light source.

Eugene Malinskiy

We believe practicing Smart OR is also practicing Right OR, said Cory Allison, CEO and Founder, KelCor, LLC. "It is crucial to re-examine how it's always been done in the past. Using a roll of tape on multiple patients has been the standard of care for decades, but it's time to change the old way. While change for change's sake should be avoided, it is necessary to make a Right

change that will improve the current standard of care and practice Smart OR. It is important to address known problems such as cross-contamination and HAI risks with time efficient and cost-effective solutions that ultimately provide better patient care."


Cory Allison

Maximizing time

"OR leaders and surgeons need to maximize every minute of available OR time," said David Atashroo, MD, Managing Director, Perioperative, Qventus. "Manual scheduling processes and tools make this nearly impossible to achieve. To address these challenges, hospitals are using automation software that enables them to improve OR access and utilization. By applying AI and machine learning, the software automatically frees up OR time and then strategically fills the slots, increasing prime time and utilization of critical resources, such as robots. In the future, surgeons and OR teams will come to expect that all world-class surgical suites have highly efficient, automated access."


David Atashroo

"Previously, the Smart OR has been defined by innovations inside the OR at the point of care," he continued. "Now, the Smart OR definition is expanding to include the use of AI and automation for the operational processes that surround the OR and improve efficiency, access, and utilization. Each day, half the battle is setting up the OR team for success before the first cut ever begins. But one of the biggest challenges is unpredictability around scheduling and staffing. Block time is often released at the last minute, forcing schedulers to scramble to fill the time with any available case. A significant amount of OR time goes unused, wasting critical resources. To reduce these inefficiencies, hospitals are now using AI-powered automation software that enables them to increase block release lead time and scheduling accuracy. These performance improvements reduce staff burn out, improve surgeon satisfaction, and enhance the care of the patient."

"Everyone relies on automation to simplify their personal lives," Atashroo said. "There's no reason we shouldn't have this technology available in our professional lives, including in surgical settings. For hospitals, automation softwares reduces the manual back-and-forth coordination for OR and surgeon schedulers. Surgeon schedulers can directly view and request OR time — without logging into the EHR. Data for the case request and procedure order form is then pushed directly into the EHR, enabling OR schedulers to focus on triaging and finalizing the requests. These efficiencies lighten workload, reduce call and fax volume, and minimize transcription errors."

He emphasized the value of automation for OR leaders and teams. "By streamlining scheduling processes, they improve OR access, increasing utilization and growth. And by eliminating manual steps and using AI to guide decisions, they reduce workload, enhancing staff and surgeon satisfaction. "Unlike OR scheduling software that uses out-of-the-box models and fills open time with the next case on the list, automation software that applies AI and machine learning fills time based on hospital-specific goals, such as service line or robotics growth, and surgeon-specific criteria, such as case length distribution or booking patterns. In essence, the intelligence automatically creates the perfect match for every OR time slot that becomes available."

Workflow improvement

A smart OR utilizes all tools available to help in process flow by increasing efficiency, specifically, during in-between case or after terminal cleaning, said Katja Auer, MA, MBA, CMIP, Clinical Director, American Ultraviolet. "In the case of fixed mount UV-C, UV-C fixtures are strategically placed throughout the OR to provide an even UV-C disinfection energy footprint for maximum adjunct disinfection. Some Surgeons utilize UV-C fixed mount packages during surgeries to help reduce microorganisms in the environment. This approach has been well studied and was first implemented by Duke University in the mid 1930's. Surgeons at Duke were specifically interested in the reduction of SSIs at the time. Long-term studies are available highlighting the impact UV-C can have on SSI reduction."


Katja Auer

There is much interest in the automated fixed mount UV-C systems in operating rooms, Auer said. "Smart UV-C systems do not add any FTE's, are user friendly, and with the push of a button provide adjunct cleaning to the operating suite. The UV-C fixed mount systems help take the stress out of the daily cleaning. Although UV-C is an adjunct cleaning technology and does not replace the manual cleaning process, it provides an additional layer of cleaning power by reducing microorganisms in the environment."

Workflow is always improved when you do not have to invest in additional staff and you can rely on an automated system, she continued. "This is true for the UV-C fixed mount systems. Extremely easy to install, train staff on, and requires very little maintenance."

The Smart Operating Room of tomorrow is here today, emphasized Peter Veloz, CEO, UVDI. "Advanced Internet of Things, or IoT, technology that we enjoy at home is now integrated into key products and technologies used in the Operating Suite. Technology with IoT, or Smart device communications, can automate and accelerate activities previously completed manually. This is particularly valuable in an environment geared to speed and precision. The UVDI-360 Room Sanitizer is now equipped with UV Smart Connect cloud communications — which automatically uploads usage data to operator websites in real-time, provides automated device updates and provides 24/7 device health monitoring. The impact is enhanced efficiency – simply put, fewer steps completed faster using devices that integrate into - as opposed to disrupt – workflow."


Peter Veloz

Rex Grindstaff, RNFA, Educator, CTO, medEclean Inc, suggests using workflow improvement products, such as the company's Biocontainment Instrument Transport Bag to increase efficiency in sterile instrument reprocessing. "It addresses back injury protocol by reducing physical demands of repetitive lifting, squatting, and bending related to handling of contaminated surgical instruments and enhances infection prevention and sharps protocol."


Rex Grindstaff

Digitalization

The advent of advanced surgical suites started with innovative hardware such as robotics systems and next generation C-arms and other imaging systems, said Rob Stineman, Director of Strategic Growth at Explorer Surgical (a GHX company). "These hardware platforms have evolved to incorporate software into their overall solution, providing important feedback on the procedure or the patient to the clinical team as they use the equipment. Software has allowed all of these disparate systems to become integrated with each other so that a single monitor in a control room, or even in the OR suite itself, can monitor them all at once. As surgical and interventional suites become even more advanced, the adoption of software will become more prevalent to reduce the administrative burden on teams so that clinicians can focus on what's most important: treating the patient. Examples of such tools are RFID platforms to scan what instruments are used in a procedure, automated supply counting platforms, and other systems that seamlessly integrate with EHR platforms."


Rob Stineman

Over the last couple of years, more advanced surgical suites are starting to embrace 'procedural telemedicine' offerings, such as digital case support, which allows specialists to provide remote support to surgical teams in the OR with real-time annotation and image-control, he said. "Digital case support helps drive standardization of best practices, reduce costly and risky variation, and increase procedural efficiency and effectiveness, all while enabling the clinicians in the room to continue focusing their energy on treating the patient. "COVID-19 dramatically accelerated the use of digital case support as it gave product experts (i.e., medical device representatives), proctors and trainees an avenue into the OR when pandemic-related travel and hospital visitor restrictions made it difficult to do so. Even though travel restrictions and access to hospitals aren't as stringent today, medical device companies and providers continue to use digital case support given the many benefits it offers. This includes reduced travel costs, a more personalized training experience for physicians, reduced variability in device utilization and surgery workflows, standardizing training and helping clinicians stay current on the latest device and procedurale advances."

Smart ORs contain next generation physical equipment that are integrated through software that communicates with each other and becomes connected around the case, Stineman emphasized. "All administrative tasks become automated so that the only preop, intraop, or postop work performed by the team is meant to accomplish one goal: achieve the best outcome for that patient. Not only is the entire room connected from within, but most Smart ORs can connect those in the room to experts or trainees from outside the room to facilitate even more education and collaboration."

Smart OR technology, such as digital case support platforms, are helping clinicians improve collaboration and procedural workflows in pursuit of better patient outcomes, he continued. "With surgical best practices and guided workflows presented clearly for everyone in the OR, procedural teams are better prepared and can collaborate with those in the room and those joining remotely. This collaboration drives procedural efficiencies and repeatable processes to enhance patient outcomes. Additionally, the data that is captured during a procedure can provide insight to surgical teams about opportunities for improvement in future procedures, further contributing to improved patient outcomes. Ultimately, leveraging digital case support within the Smart OR environment will help drive adoption and utilization of other innovative technologies in the surgical suite that aim to bring life-saving therapies to more physicians to ultimately treat more patients and improve care overall."

"First, do no harm" is a core value of all medical providers, said Brian Jackman, VP Marketing, National Accounts, Encision Inc. "A smart OR needs to prioritize patient safety first and foremost. There are many proven patient safety technologies that can be implemented along with best practices from professional organizations. When these come together, they create an intelligent OR that delivers improved patient outcomes while also reducing OR expenses." HPN


Brian Jackman

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Infection Prevention remains the lock on the safety chain

Working with Supply Chain reinforces patient, staff, visitor protection

by Rick Dana Barlow

Photo credit: kulkann | stock.adobe.com

Forward-thinking healthcare administrators and management consultants routinely caution against working in silos because that can lead to departments running around in circles and a lack of trust due to unfamiliarity.

Instead, they encourage and recommend interdepartmental relationships for the benefit of the healthcare organization and the patients it serves. Call it a circle of trust between two or more areas or departments working together for the common good.

For Infection Prevention – both the department and function – such relationships extend to Sterile Processing and Distribution (SPD), Environmental Services and Surgical Services for logical reasons, and especially with Supply Chain. *[Editor's Note: For examples, visit https://www.hpnonline.com/infection-prevention/article/21213928/infection-prevention-and-spd-united-we-withstand and https://www.hpnonline.com/infection-prevention/article/21206385/managing-the-microscopic-battleground.]*

Why does Infection Prevention (IP) partnering with Supply Chain make so much sense? IP has the clinical experience and expertise for product and service evaluations and value analysis; Supply Chain has contracting and negotiating expertise, as well as professional connections with suppliers, to procure and provide what's needed for optimal costs.

At facilities where those bonds exist, the COVID-19 pandemic certainly stretched and tested their mettle.

"It is vital to our Value Analysis process to have our Infection Prevention nurses weighing in and participating in product standardization and savings initiatives," insisted Cheryl Anderson, System Director of Value Analysis at Steward Health Care. "They bring a unique perspective at looking at product conversions and how changes could possibly jeopardize patient care and nursing safety.

Cheryl Anderson

"Our Infection Prevention nurses were key in monitoring and managing products during the height of the pandemic," Anderson continued. "They evaluated different N95 respirator masks that popped up in the marketplace and developed a procedure to re-use and preserve our N95 masks. They played a key role on Steward's Emergency Preparedness Team."

Critical value

Executives at HealthTrust recognize and understand the value of Infection Prevention partnering with Supply Chain.

"Collaboration between Infection Prevention and Supply Chain is critical," indicated Jennel Lengle, Assistant Vice President of Clinical Operations at HealthTrust. "Supply Chain is constantly being lobbied by determined suppliers eager to get their products on contract. Many claim their products help to reduce Hospital-Acquired Infections (HAIs). Engaging IP experts in product vetting can leverage clinical evidence reviews and practice reviews and ultimately impact the overall quality of patient care. Their expertise can help sort through all details to determine what outcome claims are true and which are not supported by evidence. This type of collaboration brings value to the organization by improving clinical outcomes and safety, creating efficiencies, and finding savings."

Jennel Lengle

Suppliers acknowledge that inherent value, too, specifically as providers strive to implement product and service standardization efforts and enhance best practices, according to Donna Matocha, DNP, VA-BC, Manager Clinical Resources, Medline Industries.

Donna Matocha

"Our central line insertion and dressing chance bundles, included in our Vascular Access Health Solution to help prevent CLABSIs, incorporate best practice guidance, education and training, and a system of products to better support clinicians," Matocha explained. "Before Medline's clinical support team can provide a health system with a recommendation on bundles, we often initiate a clinical assessment to gather essential data. During an assessment, I have found that when there is participation

from the system's supply chain team in the leadership interview, the project's scope is better understood, easing the anxiety of the potential increased product cost. Respecting the fact that the supply chain's role is to control and reduce costs is paramount to the hospital's financial viability. I worked with one customer in this way, and when it came time to present the assessment findings, by having the supply chain team in that meeting, the approval for the new bundle was granted in that same meeting. Adding that team to the conversation earlier provides them with all the facts."

As an example, Matocha describes her experience working with a large system of hospitals with her main point of contact was a member of its clinical supply chain department.

"Our first introduction of the product portfolio to their system included her and the system Infection Preventionist, and we were able to get clinical validation and identify appropriate [stock-keeping units] within the same conversation," she said. "Once ready to move through to trialing the product, the clinical supply chain contact will also be able to ensure we bring in the appropriate system clinical leads."

Against the backdrop of the pandemic and the ensuing global supply chain challenges, Infection Prevention working closely with Supply Chain should be imperative and an ongoing reality to enable uninterrupted patient care, according to Sarah Herrmann, Director, Program Services, Vizient.

Sarah Herrmann

"Procedures and protocols on both sides must be continually evaluated to ensure supplies associated with infection prevention follow best practices, including strategies for sourcing, inventory, and communication between the supplier and the provider as needs change," she said. "Stakeholders should align infection prevention, supply chain and product to create operational efficiency, thereby reducing or eliminating the threat of improper product use that creates unsafe conditions and contribute to wasteful inefficiencies."

Herrmann emphasizes the strategic continuity between these disciplines will reinforce four tactics:

- The ability to obtain needed products for optimal patient care
- The ability to maintain patient and clinician safety
- The ability to ensure that infection risk is minimized by utilizing products with relevant Infection Preventions for the specific patient in their specific care setting
- The ability to operate efficiently in terms of delivery, quality and costs

She adds that any inability between the two departments to coordinate product acquisition may lead to "sub-optimal patient care outcomes, inefficient purchasing patterns and at times higher overall costs for the organization."

Intertwining goals

Structured governance and aligned decision-making represent the core of HealthTrust's sourcing and contracting process, according to Lengle. Advisory boards and specialty committees, comprising subject matter experts from member organizations as well as physician advisors, vet products and submit their recommendations to the Supply Chain Board.

The HealthTrust Infection Prevention Specialty Committee includes 26 members representing 18 health systems. These experts develop strategies and determine clinical efficacy across the portfolio that then are vetted by a primary board, such as the Nursing Advisory Board, and a specialty committee, such as Infection Prevention, to ensure multiple aspects of clinical utilization and clinical operations are considered, she adds.

"We strive to ensure that products have clinical efficacy across multiple patient-care areas," Lengle said. One example involved infusion port disinfection caps.

"We discussed this category among several service lines to ensure it met all clinical and operational needs," she noted. "The Infection Prevention Specialty Committee weighed in on the evidence behind the different device options and concluded that, based on research, all devices were clinically equivalent and met the needs of the represented IP programs, and therefore the membership. The Nursing Advisory Board also engaged the Perinatal Specialty Committee to review the products and strategy from a nursing practice and operational perspective. The feedback from these discussions was utilized during the negotiations to develop a strategy which brought savings to the membership.

"When evaluating products, it is imperative that clinical needs and outcomes are considered," Lengle added. "Breaking down silos, collaborating and sharing feedback across service lines allows for better product adoption and ensures multiple aspects of utilization are considered."

While working at a hospital, Medline's Matocha witnessed the push-and-pull between the two departments that must be addressed and resolved for progress to be made.

"I learned that Infection Prevention and Supply Chain teams have two distinct roles that are equally important and, by nature, can conflict with one another," she said. "Both teams have to understand the driving factors behind making a change. Supply Chain may be looking for SKU reductions and cost savings, while IP/Quality/Nursing will want improved patient outcomes, reduced variability and standardized practice following evidence-based practice guidelines. Usually, if one team is far down a path in their decision-making process without including the other, we see that the less optimal options are often chosen. We see great success when the Value Analysis and Supply Chain teams have members with clinical backgrounds. Even removed from direct patient care for some time, those team members can evaluate products and bring in the appropriate decision-makers earlier."

HealthTrust's Lengle asserts that neither department should dominate the process because supply chain remains a "critical component" of infection prevention and vice versa. Supply Chain working in concert with clinicians helps to meet organizational goals and produce quality outcomes, including infection prevention, she says.

"Supply Chain enables clinical strategy to identify the best products to advance these organizational goals," Lengle said. "Products are evidence-based and must be used according to the manufacturer's Instructions for Use (IFUs). Once products have been identified, Supply Chain allows for infection prevention through standardization, reducing the need for end-user education and reducing infection risk overall. For example, by using multiple non-standard cleaning products in a single space, the dry time to reach effectiveness may vary, and therefore user-error related to surface sanitization is possible. By standardizing cleaning products, an organization can ensure consistent results regardless of the end-user environment."

Supply Chain also plays a key role in product selection related to patient and staff safety, according to Lengle. "Hospitals must know they have the products necessary to protect staff while they are providing patient care," she said. "An ongoing dialogue between Supply Chain and clinicians is critical to understanding disease peaks or plateaus, and therefore related consumptions needs. Robust communication between clinicians and Supply Chain also ensures quality control and efficient use of product shelf life. The COVID-19 pandemic underscored this tenfold." HPN

What Infection Prevention, Supply Chain can accomplish together

Infection Prevention can and should be working with every area and department within a healthcare organization because infection preventionists are essential for ensuring patient, staff and visitor protection and safety, sources tell *Healthcare Purchasing News.*

As a result, HPN asked clinical, IP and Supply Chain experts to share examples of what the two have done in tandem, whether that includes enabling or facilitating product and service comparisons, evaluations and identifications; enabling or facilitating access, contracting expertise and cost containment without sacrificing quality or to explain how to use a product properly. One example even benefited a product manufacturer and group purchasing organization (GPO). Here's what they shared.

"The beginning of the COVID pandemic was one of the most challenging times of my career as an Infection Preventionist. As the pandemic was starting, but had not reached our community, I was feeling very comfortable in our N95 mask supply. Unfortunately, that supply was greatly reduced by theft shortly after I was congratulating myself that our facility would be facing the pandemic well-stocked in these masks.

"When the theft was discovered, our materials manager sprang into action, contacting local businesses who might use N95s and asking for donations until such time as she was able to obtain more N95 masks from the supply chain. We got enough masks to see us through the initial period. I had to do a lot of fit testing to ensure our staff was ready when COVID would strike our community.

"One brand of mask that we had stocked and that a large percentage of our staff used was no longer available at all, anywhere. Our MM and I had a conference, I asked if we could go with a brand of mask that I had experience with at other facilities, and she came through with enough of them in both sizes to start out with and as time went on, was able to obtain more of these masks. Again, I was doing a lot of fit testing to transition our employees to this brand, but it was worth it.

"We also had two PAPRs [Powered Air Purifying Respirators] in the building; she was able to obtain filters and other parts for the PAPRs for those staff members that could not be fitted to N95s.

"We are a small facility, an LTACH [long-term acute care hospital]. We took many long-term COVID patients who needed to be weaned from ventilators or high-flow oxygen or who needed strengthening to go to inpatient rehab units. At several points in time, our patient population was over 90% COVID patients.

"Due to the efforts of – this materials manager, we did not ever go without the necessary PPE to care for these patients.

– Teri Koch RN, CIC, Director of Quality Management, Infection Control, Risk and Employee Health, Landmark Hospital of Joplin

"Steward Health Care relies heavily on the expertise of our Infection Prevention Nursing Directors. We have two Infection Prevention Nursing Directors who serve as committee members on our Enterprise General Medical & Surgical Resources Value Analysis Teams (VATs). One of the Directors, Laura Macomber, RN, also sits on HealthTrust's Infection Prevention Specialty Committee.

"Projects we have worked on together include: CHG Skin Prep Solutions, IV Start Kits, PPE supplies, Reprocessing and Surgical Skin Prep Trays. With these projects, our Infection Prevention Nursing Directors helped facilitate product comparisons and provided Infection Prevention Clinical documents for the VATs to review. Their insights from an infection prevention standpoint helped our committees make better clinical decisions."

– Cheryl Anderson, System Director of Value Analysis at Steward Health Care

"Vizient partners with both suppliers and providers to create sustainable connections within provider organizations that link infection prevention and supply chain departments.

"The most notable example is a partnership with a manufacturer during the height of the pandemic in direct support of provider healthcare organizations with a need to reduce the spread of infection through increased purchasing of PPE that was already in short supply. The manufacturer was able to quickly adapt an existing production line nearshore, which ramped up production from an initial 50,000 gowns a week in April 2020 to 500,000 gowns per week in June, putting nearly 22 million additional gowns in the hands of healthcare facilities across the country at a market-relevant price at a time when it was critical for both acute and non-acute providers.

"Once the initial production was in place, and gowns were being shipped rapidly to meet needs, the manufacturer met with healthcare providers' Infection Prevention and Purchasing teams to refine design details and better meet clinical needs of the teams utilizing the gowns. Some of the updates included adjustments to sleeve lengths and cuffs, the design of the back and the seaming for the 'tear-down' feature. Stakeholders on both sides operated quickly to get feedback from infection prevention teams, funneling those through the supply chain, adjusting production at the factory to implement the requested refinements and then releasing samples for review. Once those changes were validated, the updates were put into production, with improvements benefiting everyone across the market.

"In addition to rapid deployment of product, expeditious feedback connecting both Supply Chain and Infection Prevention, the manufacturer provided additional assurance of supply after having built up 90 days of inventory as part of a sourcing strategy with participating healthcare organizations. This provides an additional cushion in the supply chain, and meaningful time to react when demand surges. Domestic products are often equated with being more expensive, but contracting for on- or near-shore manufactured products allows manufacturers to ramp up production in a time of volatility, enabling healthcare providers to secure increased supply.

"In an email to the manufacturer, a Director of Materials Management at a provider location offered feedback that enabled the organization to provide its clinicians the appropriately sized gowns, ensuring patient and clinician safety. He thanked the suppliers for their responsiveness during a time when burn rates on the gowns had quadrupled but pointed out that the arms in the latest samples were smaller than what staff needed. The manufacturer rapidly updated the sample for approval and produced the next order and to meet their needs.

"Another provider shared with the manufacturer a video of a clinician donning their gown to demonstrate fit issues at the sleeve. The manufacturer rapidly provided an updated design to fix the issue and because the new gowns had been vetted with infection-and-control clinicians, they could be used in non-COVID areas as well. This allowed the provider to allocate the volume of other gown styles to COVID specific areas."

– Sarah Herrmann, Director, Program Services, Vizient

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PRODUCT & SERVICE LINE REPORTS *sponsored by* VPL

The state of freight

by Scott Tomko

Photo credit: Destina | stock.adobe.com

If doctors and nurses are the heart of the healthcare industry, freight and shipping would certainly qualify as the veins and arteries.

Simply put, if the veins and arteries aren't operating efficiently, the vital organs that sustain life will suffer immeasurably.

Likewise, if freight and shipping aren't providing hospitals and healthcare workers with the supplies that they need, on time and in proper abundance, their services will be greatly hindered.

It's about time and money

MedSpeed is a company very aware of the fact that effective same-day logistics in the healthcare world saves money – but, far more importantly, *it saves lives*.

Recently, the company conducted a survey of nurses on the impact that medical deliveries have on care delivery, the results of which from over 350 respondents were truly eye-opening.

87% of the nurses responded that logistical efficiency, or lack thereof, effected their work on a weekly basis, while 71% stated that delivery errors or delays directly effected their patient care capabilities at least once a month.

Additionally, over the past year, 56% of nurses said that medical courier ineptitude led to patient procedures needing to be rescheduled.[1]

Jake Crampton is the CEO of MedSpeed, a company that is dedicated to transforming the perils of medical courier service into an asset.


Jake Crampton

"There is a significant difference between a medical courier that delivers items from Point A to Point B, and a partner like MedSpeed that designs and operates an agile healthcare logistics network. Our system-wide approach produces value for our customers by making transportation a strategic asset, providing our customers with a smarter network.

We begin each relationship by conducting a Transportation Evaluation and Design, or TED, as we call it. This exercise helps us identify redundancies as well as opportunities for more effective logistics.

With one MedSpeed customer, we received an RFP and responded as requested. After being selected as the partner of choice, we conducted a TED to ensure we understood the full scope of operations. During that analysis, we discovered four additional couriers the customer's leadership team was unaware of. Our team created a solution that incorporated all movements within the network into an efficient and streamlined system with far better reliability. Because of the dependable service we provide, they trust the network, and as a result, clinicians order far less on-demand/STAT service. Without the TED, the network would not have streamlined all logistics for the customer."

Don't get clocked at the dock

Managing and shipping inventory effectively in healthcare today could not ever be more critical or more costly. Healthcare networks and facilities often struggle with this, and there are many companies attempting to step in and aid healthcare systems in attaining and managing their inventories.

According to Cory Turner, Senior Director of Healthcare Strategy & Product Marketing at Tecsys, "shipping and transportation in healthcare is an opportunity wrapped in a challenge. Whether it's direct sourcing of essential supplies, med-surg replenishments to the hospital or a critical patient specimen that needs to be delivered to the lab within one hour, logistics is everywhere and costs a lot — about 25% of the total cost of supply chain operations, in fact. Despite this, most healthcare organizations never properly account for or manage those costs.


Cory Turner

Not that health systems aren't trying their best. However, it is a very complex and complicated process, and managing all parts of a supply chain inventory is comparable to weathering a storm with innumerable and ever-changing variables.

"On the heels of an exceptionally difficult few years, health systems are more compelled than ever to gain visibility and control over the wild west of couriers, carriers, and departmental cowboys so they don't lose sight of what's available across their network. Corralling all of that demands governance and a concerted effort to centralize shipping and transportation management.

"Without the ability to control inbound and outbound processes, healthcare supply chain managers are leaving a huge gap in their resiliency planning, and that's where we encourage our healthcare customers to focus: Evaluate your goods in motion from end-to-end and pinpoint where there are blind spots, handoffs, or error-prone processes. This helps drive down logistics costs with a single, centralized, easy-to-use system."

Ryders on the storm

Organizations who are dedicated to corralling the wild west of freight and shipping in hospitals today are often doing their best to develop digital solutions to see through all of the processes.

Ryder System, Inc. is committed to providing their customers with a highly efficient logistical platform, as Steve Sensing, their President of Supply Chain Solutions, details.


Steve Sensing

"What has quickly become a key differentiator for Ryder and for Ryder customers is RyderShare, our proprietary, end-to-end visibility and collaborative logistics technology platform.

Ryder's new solution is focused on answering all the aspects of transporting and delivering goods, and also takes on the key element of warehousing.

Sensing continued, "when we initially rolled out RyderShare, we started with a focus on the transport of goods. In February of this year, we announced that RyderShare now includes a warehouse management solution for true end-to-end visibility as goods move inbound on trucks to within the four walls of warehouses and distribution centers and, ultimately, outbound to their final destinations. The result is a digital platform by a 3PL that provides real-time visibility, collaboration, and exception management throughout the supply chain."

Since the original launch in May of 2020, RyderShare has logged nearly seven million shipments with customers realizing improvements in productivity, labor efficiency, and on-time delivery performance."

Visibility Matters

Vantage Point Logistics (VPL) is a company dedicated to visibility. Their

cloud-based software platform provides their customers with transparency throughout the entire supply chain lifecycle. Moreover, VPL focuses on developing shipping solutions exclusive to the needs of their clients, and works with them every step of the way.

Eric McGlade is the Co-Founder and CEO of VPL.


Eric McGlade

"We changed the path of the freight management industry by creating a Smart Supply Chain Platform, the industry's first and only, freight management program built with technology. We were approached by a large IDN that wanted to run their freight management program themselves. We took a supportive position, 'sure, you can do that, but don't go it alone.'

"With one of the industry's largest IDNs in collaboration with us, we built a 'do-it-yourself' platform that takes much of the guesswork out of managing a freight program. With shipping volume that would dwarf the next largest IDN, this health system was able to manage their own freight program with significantly less time than their interaction with a previous freight management provider, while saving several million dollars a year. With a successful outcome in hand, we converted this tailored solution into the industry's first and only freight management technology, which creates economies of scale that cannot be accomplished in the traditional 'freight management as-a-service' model.

Their customer-driven approach, centered on visibility, has proved more than reliable, especially during the recent pandemic.

"During the pandemic, a customer of ours called with the challenge of keeping track of PPE orders. Like many, they were ordering from many different suppliers, including non-healthcare suppliers – even a western-wear outfitter was making PPE! They had a team of people focused on acquisition of PPE and needed to know throughout the day the status of the orders they had placed and what quantities, if any, were going to be delivered so they could quickly react and make alternative arrangements. We developed technology to collect the order status from their suppliers. This allowed their team to focus on what they did best – product acquisition – and took the order status busywork and automated it. This was the framework that became our VPL View Track & Trace product that is now available allowing anyone in the IDN to keep track of their orders."

People make the difference

Caduceus Medical Logistics has had to utilize principles such as insight and innovation more than ever, as they literally commenced operations right as the COVID pandemic began its spread. Mark Speight is the Chief Operating Officer of Caduceus Medical Logistics.


Mark Speight

"Being "born" during the pandemic is notable on its own. We have put together a management team that combines vast experience in medical logistics, mechatronics, industrial and computer engineering, project and financial management, and military leadership and execution. We are enthusiastically looking to future applications of our team's experience to discover how cutting-edge technology such as artificial intelligence, lidar and unmanned air system technology can be used to better serve our partners and patients. We are currently pursuing collaborations with academia, government, and industry. (MIT, Georgia Tech, the Department of Veterans Affairs, and various industry partners)

"Our choice of technologies enables real-time route optimizations and balances dispatch with driver loads, giving us better insight through enhanced data collection and analysis. We can respond to requests within minutes to provide delivery of medical special needs. Our integrated software systems focus on operational excellence and efficiency, allowing us to provide a high quality service while optimizing routes to use less fuel and consume fewer resources. This is only the tool; one of the three legs Caduceus stands on. Without an efficient and effective process as well as good people, the best tools in the world will not make a satisfied customer. Our experienced people using the best tools and processes are our platform and what really set us apart.

"Everyone has real time tracking, data analysis and dashboards at this point. As early optimization adopters, we go a step further utilizing connected, dynamic, load leveling optimization. We work with large, complex datasets such as 1000's of deliveries, and apply algorithms that will consider requirements such as time window, traffic, and special items like refrigeration. Using this type of analysis allows us to go above and beyond and share value back with our customers. For example, our team has provided over $100,000 in annual validated savings for a major nationwide healthcare system while improving service capabilities and user satisfaction."

Opti-mizing all aspects

Optifreight Logistics is a company that is continually dedicated to seeing all areas of freight and shipping, and using innovative insight to develop the best answers.

"Oversight into all areas of shipping spend is critical to ensure program compliance and savings optimization," noted Emily Gallo, Senior Vice President and General Manager at OptiFreight Logistics. "Largely due to staffing constraints and lack of automation, it is difficult for healthcare providers to understand where their gaps are and where they can be more efficient. At OptiFreight Logistics, we are continuously investing in new technology and innovating to better serve our customers, working alongside customers to help them evolve."


Emily Gallo

Gallo shares two key examples of how they are innovating to transform shipping and logistics to support customer needs now and in the future:

TotalVue technology solution provides comprehensive data analytics empowering customers to find new savings, gain new predictive insights, track progress, benchmark performance and maximize discounts.

In order ot help synthesize synthesize and act on the data and analytics, a commitment to combining we also combine the power of our technology with our team of committed experts to uncover innovative ways health systems can standardize and drive value across various sites of care. HPN

Reference:

1. https://www.medspeed.com/?p=2919

Sponsored content

How Cardinal Health™ OptiFreight® Logistics leads with innovation to solve customer challenges

Staying at the forefront of the healthcare supply chain is no easy business. It takes a multifaceted effort that strategically combines technology and logistics expertise.

Cardinal Health™ OptiFreight® Logistics is a recognized industry leader, specializing in efficiently enabling their many healthcare customers to effectively manage their shipping and logistics operations.

HPN recently had the opportunity to interview Jim Dertinger, vice president and chief technology officer at OptiFreight® Logistics and leader at Fuse, Cardinal Health's innovation engine and product development center. Dertinger emphasized his view on the most important parts of successful healthcare logistics operations – first, access to technology that not only provides robust data analytics, but leads to actionable insights; and second, a human touch – a trusted logistics advocate and partner to help translate what these data mean and how they can help save costs and increase efficiencies.

Jim Dertinger

"Without access to the right data, healthcare organizations simply cannot understand where improvements are needed within their operations," Dertinger says. "At OptiFreight® Logistics, we provide our customers with predictive data through our comprehensive analytics solution, TotalVue™ Analytics. This gives our customers greater visibility and control over their shipping spend with on-demand, customized reporting, as well as insights to tell the full story of the effectiveness of their logistics strategy."

While the right technology and analytics are critical, Dertinger says the key to preparing your healthcare organization's logistics program for the future lies within the ability to synthesize and act on that information. For example, every OptiFreight® Logistics customer has access to their committed experts who play a consultative, collaborative role and make recommendations for further driving efficiencies and taking advantage of cost savings.

"Your logistics advocate also needs to be both an expert in healthcare and an innovator of new technology solutions," says Dertinger. "We pair our logistics expertise with the cutting-edge technological expertise of our innovation engine, Fuse, charged with reimagining the future of healthcare."

The complexities of the modern healthcare system are endless, and no two systems are alike. The constant evolution of supply chain and the needs of customers to do more with less require a logistics advocate to tailor solutions for customers to perform at their best. Dertinger highlights how OptiFreight® Logistics utilizes its vast network through Cardinal Health to attain the best insights:

"You need to find a healthcare logistics provider with the ability to tailor solutions to fit your unique needs and, most importantly, a provider that will advocate for your health system and its success. OptiFreight® Logistics, along with the unmatched scale of the Cardinal Health network, can leverage core strengths to create actionable insights. As such, we can innovate with an agile mentality and engage customers in real time to co-create technology solutions that address what is truly needed."

Of course, one aspect that keeps OptiFreight® Logistics ahead of standard expectations is its ability to continually innovate and evolve. The company's TotalVue™ Analytics tool is truly a game changer among the elaborate network of healthcare supply chains, using analytic technologies to provide visibility that healthcare leaders need to identify logistics trends, find cost savings opportunities, and take action.

Dertinger continues, "The greatest example of how OptiFreight® Logistics uses innovation and insights to help customers is through TotalVue™ Analytics. Customers who have utilized this solution have been able to engage with data and monitor their own supply chain performance at a completely new level than customers who do not."

He adds, "Further, our logistics methodologies continually help customers: One health system that used our in-depth supplier analysis cut inbound spend by 21% and, for another system, we created a new auditing process for courier invoices that saved $68,000 annually.* These are just a few examples but, overall, finding ways to help our customers advance their logistics performance is what we do best."

The team at OptiFreight® Logistics is passionate about being the best provider of healthcare logistics solutions that transform the operations of their customers. As Dertinger states, "Health systems can't fix what they can't see, making it difficult to understand where there are gaps and where there can be more efficiency. I firmly believe there is no technology alone that can replace the value of a committed logistics expert acting as an extension of your team. That is why, at OptiFreight® Logistics, we bring our expertise, diverse perspectives and passion as your logistics advocate to not only provide data-driven insights but also help drive action, delivering results year after year. HPN

*According to Cardinal Health™ OptiFreight® Logistics data

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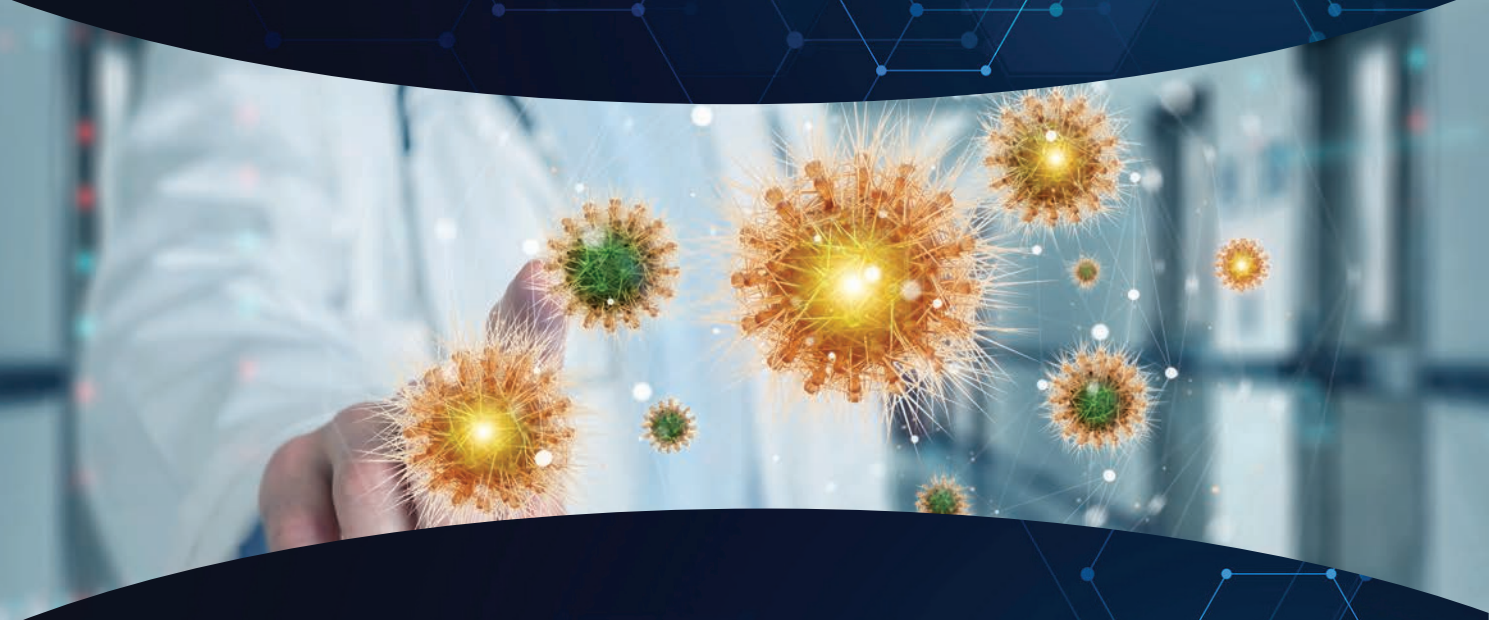

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VALUE. DELIVERED.

BUILDing Blocks to a High-Value UDI System

by Karen Conway, Vice President, Healthcare Value, GHX

When the U.S. FDA published the UDI rule, requiring medical devices to be labelled with a unique device identifier (UDI), the government agency fully expected the healthcare ecosystem (suppliers, providers, payors, etc.) to voluntarily adopt the UDI for multiple purposes, thereby building out a more holistic UDI system. That did not happen, with many still insisting that government mandates are the only way we will see broad adoption of UDIs across the healthcare ecosystem and realization of the benefits, from improved supply chain efficiencies to better data on how products perform in routine clinical practice.

Others, including researchers with the FDA-funded Building UDI into Longitudinal Data for Medical Device Evaluation (BUILD) initiative, have been hard at work documenting what works (and what doesn't) among health systems that have moved forward with UDI despite the lack of mandates. The BUILD researchers recently published two new reports, both of which provide some helpful guidance, while also highlighting what I respectfully consider to be some now out-of-date excuses.

The first publication, Advancing Patient Safety Surrounding Medical Devices: Barriers, Strategies and Next Steps in Health System Implementation of Unique Identifiers, provides perspectives from multiple stakeholders (clinicians, supply chain and IT) at hospitals where UDIs have been implemented in the Cath lab and/or OR. They outlined what they consider to be the barriers to adoption. Several of which are still very real, including:

- **Lack of organizational support**, including not recognizing the time and resources required, often leaving UDI advocates to do extra work on top of their "day jobs"
- **Provider IT Gaps**, primarily around lack of interoperability, including closed loop systems that can accept but not share information
- **Clinical Resistance** to new workflow processes they consider difficult, e.g., knowing which barcode to scan on a product
- **Limitations in manufacturer support**, with providers viewing many manufacturers as just doing the bare minimum to comply, with little consideration for how providers will use the UDI data
- **Gaps in the FDA Global UDI Database (GUDID)**, with providers noting inconsistencies and errors in product data published by manufacturers in the agency's publicly accessible database (another UDI regulatory requirement)

The paper speaks to the importance of continued relationship building and education with those stakeholders that can benefit from UDIs to overcome these challenges.

The interviews also highlighted another barrier that I believe is no longer a valid excuse: IT technology vendor resistance to deploying broad scale enhancements to support the use of standards. The interviews with hospital stakeholders were conducted in 2018, when many hospitals were not yet using the most advanced versions of on-premise ERP systems that had begun to support the use of UDIs. Today, most still using on-premise systems have since made those upgrades, mostly because the major ERP vendors no longer support earlier versions. At the time, most electronic health record (EHR) vendors had also met Office of the National Coordinator for Health IT (ONC) requirements to support UDIs for implantable devices, but there was still relatively little coordination between ERP and EHR vendors. Today, that is all changing, most notably with Oracle's acquisition of Cerner, but all of the major ERP vendors are working more closely with EHR companies. Much of that is driven by the groundswell of hospitals and healthcare systems moving to cloud-based ERP systems that can leverage the capabilities of virtual item masters supported by technology companies that curate product data from multiple sources, including but limited to the GUDID.

The second paper, Multi-institutional distributed data networks for real-world evidence about medical devices, explores the use of a distributed data network (DDN) across multiple health systems to generate more robust data about how specific products perform in routine clinical practice. The three health systems that participated in the research each built their own individual research databases into which they populated data from multiple sources (EHRs, claims and a clinical registry) about the care delivered, including the devices used, for patients receiving one of two different kinds of drug-eluting stents. The data was populated according to a common data model (CDM) that the systems collaborated to create and which includes UDIs for device identification. That data, in turn, was made available to all three systems via the DDN for their respective analysis.

Ultimately, the authors envision a DDN that aggregates data from a substantial number of health systems to provide even more reliable data on product performance. Based on the results of the other paper, there is still work to be done to ensure data from the GUDID is accurate and actively maintained by manufacturers, while providers have more work to do to ensure the completeness of device data captured in EHRs. Despite these problems, there is still room to celebrate movement forward, mostly driven by the willingness of various stakeholders to collaborate to build a more complete UDI system that can address our individual and collective objectives. HPN

Karen Conway works to advance the role of the supply chain as a critical enabler in the pursuit of a value-based healthcare system. As Vice President, Healthcare Value for Global Healthcare Exchange (GHX), Conway explores how the supply chain and improved data quality and visibility can support understanding of what increases value for patients and to those organizations that develop and deliver healthcare products and services.

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