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The Third Great Awakening

For the last few months, the novel COVID-19 coronavirus and our response to it have been nothing short of a pain in the assets.

Through it all, we recognize that COVID-19 has generated 19 good things:

1. Everyone seems to "deliver" these days. In fact, the burgeoning "delivery" industry has been tested thoroughly and has flourished.
2. The so-called "gig economy" populated by contractual and/or "freelance" workers now possesses considerable street cred.
3. People apparently *can* work from home after all! And be productive!
4. Sales and marketing campaigns for home-office set-ups have been creative – including the one where you can build a see-through cubicle in your living room!
5. We see just how important those "invisible" professionals are. You know them – when something goes wrong you're pointing fingers at them first, but when everything's running smoothly (which means they're doing everything right) you look right through them. Who are the invisibles? Supply Chain, Environmental Services, Sterile Processing, Facilities Management, Housekeeping …
6. For months, ventilators, respirators, masks, face shields, hand sanitizer, disinfectant wipes and even toilet paper have become even more valuable than high-tech medical/surgical devices and equipment.
7. Until now, the use of videoconferencing was confined to corporate boardrooms and government agencies – particularly in those action/adventure, crime, spy and superhero shows and movies. Now, even elementary school children are showing their parents how to Zoom.
8. Drs. Anthony Fauci and Deborah Birx.
9. Our moms taught us how and why we need to wash our hands. Mom was so right, proving just how smart and valuable she is. Never take her for granted. Remember: Scrub for 20 seconds to kill COVID-19 and other germs.
10. Near-immediate access to reliable information never has been more important.
11. Until COVID-19, we all thought the airline, automotive and banking industries were too big to fail. It's really grocery stores, hospitals, restaurants, manufacturers of toilet paper, sanitizing products and PPE and internet service providers.
12. Until COVID-19, stockpile represented a "safe" word for the government, but a "bad" word for managed care and its roots and moorings in cost efficiency. Time to bend without breaking?
13. COVID-19 provided the necessary crisis/disaster-planning wake-up call that predecessors SARS (2003), H1N1 (2009), MERS (2012), Ebola (2014) and others did not.
14. A growing number of businesses and companies – including high schools equipped with 3-D printers – didn't wait for the "Defense Production Act" to marshal support in increasing production of ventilators, masks and face shields. They retrofitted production lines, donating time and energy. This represents American resilience and service-mindedness at its finest.
15. Process and product development has been ignited through this crisis, including an emphasis on how we wash our hands, how we clean and sanitize surfaces and environments and how we conduct ourselves personally.
16. We love our homes but we have a new appreciation for getting out of the house. Thankfully, we don't live on the Moon, Mars or the International Space Station.
17. Clinical/medical waste no longer is largely confined to healthcare facilities but applicable just about everywhere now. Hopefully, this motivates us to improve our judgment and practices when it comes to responsibly disposing of used masks, gloves and other related materials.
18. H.G. Wells told us enough about the strength of the unseen world in his 1898 novel, "The War of the Worlds," in that the greatest threat to mankind is a microbiological organism. One brought the world to its knees, if not a standstill, reinforcing why we should care for one another.
19. Amid the growing emergence of status, self-centeredness and ego, COVID-19 clearly shows people still care for one another even as the jingoistic "we're all in this together" grows stale. That light at the end of the tunnel? Others on our hearts and minds and at the center of our efforts. Thank you.

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FAST STATS

The Strategic Marketplace Initiative (SMI) recently conducted a survey of their provider members to collect key information about the return to elective surgeries as they move into the recovery phase of the COVID-19 pandemic. SMI's members are executives from providers and suppliers in the U.S., and their members are on the front lines providing the critical supplies to help combat COVID-19.

90%

of the respondents answered they would be ready to resume elective cases in May/June, with 10% pushing that timeframe out to August.

100%

selected orthopedic surgery #1 of the top 5 specialties they would start first, with cardiothoracic surgery #2 at 90%, and general surgery #3 at 70%.

70%

said they would resume elective procedures in their ambulatory surgery center and their hospital simultaneously.

10%

anticipated resuming elective procedures in their ambulatory surgery center before starting procedures in the hospital.

75 TO 100%

of hospitals who responded anticipate a gradual ramp-up in elective procedure volume, with volumes approaching or exceeding their pre-COVID-19 baseline by early 2021.

75%

of hospitals anticipate return to baseline capital expenditure in 12 to 24 months. Capital investment in equipment has taken a significant downturn during the COVID crisis and the ramp-up to full capital spending will be slow.

You can find the results in the SMI COVID-19 Toolkit at SMI: https://www.smisupplychain.com/tools

NEWSWIRE

SHEA outlines legal considerations for antibiotic stewardship

The Society for Healthcare Epidemiology of America (SHEA) released a white paper outlining strategies for documenting the recommendations of antibiotic stewardship programs (ASP) and clarifying the stewardship team's role in patient care from a legal and quality improvement standpoint. The white paper, titled "Legal Implications of Antibiotic Stewardship Programs," was published in the journal, *Infection Control and Hospital Epidemiology*.

"Antibiotic stewardship has become a critical tool for healthcare systems to slow the emergence of antibiotic resistant bacteria and to improve patient outcomes and safety," said Keith Hamilton, MD, a member of the SHEA Antimicrobial Stewardship Committee and author of the white paper. "However, it is important to address the legal implications of antibiotic stewardship programs, particularly around concerns about professional liability stewards may have to patients that they do not see or examine with the goal of disseminating best practices and reinforcing the essential roles that these programs play in all healthcare settings."

The paper provides strategies to address common concerns and perceptions surrounding the legal implications of stewardship programs with the goal of improving the structure and function of the programs, as well as the benefits they provide to patients and patient care.

The guidance, based on expert consensus and a review of case law, addresses documentation, clinical training of stewardship program personnel, telestewardship, the use of clinical practice guidelines, and antibiotic stop orders. The authors surveyed SHEA members about concerns around the structure of antibiotic stewardship programs, interventions, and documentation to ensure the guidance reflected realities and concerns from the field.

While there have been no specific lawsuits filed involving ASP, the authors note three important components that should be included in hospitals' programs to reduce liability and further advance the goals of ASP strategies.

1. Protocols to communicate and resolve differences with treating teams or other stakeholders to help achieve agreement on treatment strategy whenever possible.
2. Documentation practices in electronic health records to provide the basis of recommendations as well as preserve the record of ASP involvement.
3. Standards for credentialing ASP team members based on experience or formal training to ensure team member roles are aligned with expertise, licensure, and scope of practice regulations.

Visit Shea-online.org for the paper.

Stroke evaluations drop by nearly 40% during COVID-19 pandemic

The number of people evaluated for signs of stroke at U.S. hospitals has dropped by nearly 40% during the COVID-19 pandemic, according to a study led by researchers from Washington University School of Medicine in St. Louis who analyzed stroke evaluations at more than 800 hospitals across 49 states and the District of Columbia. The findings, published in *The New England Journal of Medicine*, are a troubling indication that many people who experience strokes may not be seeking potentially life-saving medical care.

"Our stroke team has maintained full capacity to provide emergency stroke treatment at all times, even during the height of the pandemic," said lead author Akash Kansagra, MD, an assistant professor of radiology at Washington University's Mallinckrodt Institute of Radiology (MIR). Kansagra sees stroke patients at Barnes-Jewish Hospital. "Nevertheless, we have seen a smaller number of stroke patients coming to the hospital and some patients arriving at the hospital after a considerable delay. It is absolutely heartbreaking to meet a patient who might have recovered from a stroke but, for whatever reason, waited too long to seek treatment."

Nearly 800,000 people in the U.S. experience a stroke every year. It is the fifth leading cause of death and the leading cause of long-term disability. With advances in stroke care such as better diagnostic tools, surgeries to remove blood clots or repair broken blood vessels, and clot-busting drugs, people have a better chance of recovering from a stroke today than ever before – as long as they receive treatment promptly. Clot-busting drugs are generally safe only within 4½ hours of symptom onset, and surgeries are only possible within 24 hours of symptom onset. The earlier the treatment is started, the more successful it is likely to be.

Worried by the low numbers of stroke patients being evaluated at Barnes-Jewish Hospital and hearing similar reports from colleagues at other institutions, Kansagra – along with co-authors Manu Goyal, MD, a Washington University assistant professor of radiology and neurology, and statistician Scott Hamilton, PhD, and neurologist Gregory Albers, MD, both of Stanford Uni-

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versity – set out to determine how pervasive the problem was.

When patients arrive at a hospital and are showing signs of a stroke, they often get a brain scan so doctors can identify what kind of stroke has occurred and choose the most effective treatment. Many hospitals, including Barnes-Jewish Hospital, use software known as RAPID to analyze such brain scans. Kansagra and colleagues assessed how often the software was used in February, before the pandemic, and during a two-week period from March 26 to April 8, when much of the country was under shelter-in-place orders.

In total, the software was used for 231,753 patients at 856 hospitals. During February, the software was used for an average of 1.18 patients per day per hospital. During the pandemic period, software use per hospital averaged 0.72 patients per day, a drop of 39%.

"Across the board, everybody is affected by this decrease," said Kansagra, who is also an assistant professor of neurosurgery and of neurology. "It is not limited to just hospitals in urban settings or rural communities, small hospitals or large hospitals. It is not just the old or the young or the people with minor strokes who aren't showing up. Even patients with really severe strokes are seeking care at reduced rates. This is a widespread and very scary phenomenon."

There's no reason to believe people suddenly stopped having strokes. And the drop was large even in places where COVID-19 cases were few and hospitals were not overwhelmed, so patients should not have found it unusually difficult to obtain treatment.

"I suspect we are witnessing a combination of patients being reluctant to seek care out of fear that they might contract COVID-19, and the effects of social distancing," Kansagra said. "The response of family and friends is really important when a loved one is experiencing stroke symptoms. Oftentimes, the patients themselves are not in a position to call 911, but family and friends recognize the stroke symptoms and make the call. In an era when we are all isolating at home, it may be that patients who have strokes aren't discovered quickly enough."

Even during a pandemic, it is critically important for people who may be experiencing a stroke to receive care immediately, Kansagra said. The risk of delaying care for a stroke is much greater than the risk of contracting COVID-19.

WHO commemorates smallpox eradication

On May 8, 1980, the 33rd World Health Assembly officially declared: 'The world and all its peoples have won freedom from smallpox.' The declaration marked the end of a disease that had plagued humanity for at least 3,000 years, killing 300 million people in the 20th century alone. It was ended, thanks to a 10-year global effort, spearheaded by the World Health Organization (WHO), that involved thousands of health workers around the world to administer half a billion vaccinations to stamp out smallpox.

The US $300 million price-tag to eradicate smallpox saves the world well over US $ 1 billion every year since 1980.

Speaking at a virtual event hosted at WHO-HQ, involving key players in the eradication effort, WHO Director-General, Dr. Tedros Adhanom Ghebreyesus said, "As the world confronts the COVID-19 pandemic, humanity's victory over smallpox is a reminder of what is possible when nations come together to fight a common health threat."

Dr. Tedros highlighted that smallpox eradication also offers hope for efforts to eliminate other infectious diseases, including polio, which is now endemic in just two countries. To date, 187 countries, territories and areas have been certified free of Guinea worm disease, with seven more to go. And the fight against malaria has so far resulted in 38 countries and territories certified as malaria-free. In the case of Tuberculosis (TB), 57 countries and territories with low TB incidence are on track to reach TB elimination.

Premier Inc. survey shows hospitals' COVID-19 testing must triple before surgeries resume

Premier Inc. has released survey results finding that healthcare facilities need to expand their current COVID-19 testing capacity by at least 211 percent in order to even partially resume full services, including elective procedures and diagnostic services.

While survey data indicates that 80 percent of respondents would like to increase their ability to conduct on-site COVID-19 testing, the main factors limiting these efforts are shortages of chemical reagents needed to perform the test (cited by 41 percent of respondents) and shortages of viral swabs (cited by 40 percent).

According to survey data, 81 percent of respondents intend to screen all employees for symptoms of COVID-19, including temperature and other symptom checks before resuming non-emergency procedures. However, given the limitations on testing supplies, only 32 percent said they will be able to proactively administer COVID-19 tests to all front-line healthcare workers, and only 22 percent will be able to test all ancillary employees such as foodservice workers or janitors. Until supplies are more readily available, 44 percent said they would have to limit testing to employees that are symptomatic. Further, 59 percent of respondents said they would have to limit re-testing of front-line workers to only those that show symptoms of having contracted COVID-19.

"A core component of any reopening strategy is broad testing capacity to minimize resurgence of COVID-19," said Premier President Michael J. Alkire. "However, current restrictions on capacity and shortages of swabs and reagents force health systems to limit testing, prioritizing patients and front-line workers who are symptomatic. Even with these strict conservation protocols, capacity needs to at least triple before enough is available to support even a partial restoration of non-emergency services. This represents a major challenge to patient care, as an inability to offer elective procedures and diagnostics can mean a missed opportunity to detect preventable illnesses early or begin treatments that are necessary for health and wellness."

For patients, 87 percent of respondents intend to proactively administer COVID-19 tests to any patient admitted for an elective procedure, but only 27 percent said they would be able to proactively test patients undergoing a diagnostic service. Most respondents (54 percent) will continue to bar any family members or other visitors from the facility in order to reduce the risk of spreading infection and conserve available testing.

"Without adequate supplies, health systems are having to make hard choices to be as judicious as possible with their COVID-19 testing capacity," continued Alkire. "To reach an ideal state where testing is available for all healthcare workers, patients and caregivers, capacity will need to vastly expand. Premier is working proactively to identify additional sources of swabs and reagents to expand needed capacity. At Premier, our goal is to ensure that all our members have the right test, for the right person, at the right time."

To assist members in their efforts to expand testing, Premier announced the formation of the COVID-19 Testing Advisory Panel. The Advisory Panel is made up of executives from Premier member health systems, large employers and other nationally recognized leaders who will assist in the creation of robust testing plans, assure testing is available for employers, provide recommendations for the best use of available testing technologies, align testing supplies and capacity with anticipated laboratory needs, create best practices and technical assistance to improving testing and surveillance programs, and ensure member access to accurate tests and equipment. HPN

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SPECIAL FOCUS

V is for visibility

Pandemic, epidemic response should drive supply data standards use

by Rick Dana Barlow

For the better part of two decades this century, forward-thinking executives from providers, suppliers and supply data standards service companies have preached the gospel of adopting and implementing supply data standards either incrementally for selected product lines or service lines or in full within healthcare organizations.

These spirited evangelists for such familiar (and they should be by now) acronyms as GLN, GTIN, GDSN, GUDID and UDI have shared the good news on how adopting and implementing supply data standards can help with product tracking and traceability, increased accuracy, inventory visibility and waste reduction, among other benefits. Indeed, all of these justifications have been shown in studies and in practice to generate decreased process and product costs and enable more time for clinicians to devote to patients.

Even so, *Healthcare Purchasing News* has tracked provider and supplier adoption and implementation progress via reader surveys and reporting for at least the last decade with mixed results.

Based on survey data from varying respondent pools, several trends consistently have emerged. Roughly a third of respondents either have implemented supply data standards in part or in full, another fifth are "looking into it or planning to within 12 months," another third haven't or won't and the remainder simply "don't know." Of those who haven't or won't, the top two reasons continue to be that it takes too much effort or work or they don't have enough budget or resources for it, particularly if the majority of providers and suppliers already aren't doing it and the government isn't requiring it with penalties for non-compliance.

Now with the world being whipsawed by the COVID-19 pandemic, can or should providers and suppliers use that as yet another convenient excuse to claim something else has higher priority than supply data standards?

Following a pregnant pause, the logical answer by numerous sources to *HPN* is "nope."

Imagine how the active use of supply data standards could help locate the products necessary for protection from, identification of and treatment for COVID-19?

Nearly a dozen supply chain leaders and professionals with whom *HPN* spoke see enough value in adopting and implementing supply data standards for all the right reasons … or at least make it a higher priority, even now in a pandemic-rattled and riddled world.

V-decrypt

Amid the more obvious industry deficiency in terms of product shortages, the use of standards can spark visibility – as in what's seen right away – followed by tracking and traceability, even though some might interchange the two.

Thad Mac Krell, CEO, PAR Excellence, counts inventory visibility as probably the most important benefit of supply data standards "because it relates directly to consumption and patient care" – justified against the backdrop of the COVID-19 pandemic.

Thad Mac Krell

"Post COVID-19, this obviously takes on new meaning and urgency," Mac Krell told *HPN*. "Our industry has dealt with recalls and counterfeit products in the past ([involving] product tracking, tracing and accuracy) and while messy, sometimes slow and often embarrassing, we can collectively get the job done. The recent large-scale recall of packs is a reasonable example. But this pandemic has created a new long pole in the tent – availability.

"The goal of these standards should be end to end inventory management to ensure availability," Mac Krell continued. "If we can create a framework that ensures end-to-end visibility, from the nurse's outstretched arm back to the manufacturing plant, we can simultaneously address accuracy, traceability, authenticity, etc., using enabling technology like Blockchain, etc."

Mac Krell likens the concept to the framework of "a staircase wherein any participant can see at least one-to-two steps up and down from their position with nearly real-time updates." PAR Excellence historically has focused almost exclusively on the last two steps before patient care is delivered, he noted, which tends to be the storeroom and bin/shelf at the point of use.

"We can access, in real time from our offices in Cincinnati, the status of more than one million PAR scales in hundreds of hospitals," he said. "We can see what item is on the scale, how many there are and even predict when replenishment will be needed." He further added that they've even integrated Amazon's Alexa into the weight-based technology so that the caregiver can ask questions of the PAR system, such as "Where is the nearest location with more of product XYZ?"

Mac Krell laments that without data standards, "we are left to map products across customers to enable our inter-client analytics platform. COVID-19 has taught us that such details are needed in and between hospitals, distributors and manufacturers, especially for some critical but relatively inexpensive items like PPE."

As concerns about the COVID-19 pandemic heightened, inventory visibility – or the lack thereof – has been at the root of supply confusion, product shortages and allocation issues that we have seen in healthcare, according to Siobhan O'Bara, Senior Vice President, Community Engagement, GS1 US.

"In some cases, the products existed, but their whereabouts were uncertain," O'Bara observed. "Not knowing how many N95 masks, PPE gowns, or ventilators are in inventory – or where they are – quickly became a crisis affecting the entire country. Providers scrambled to locate the supplies they needed. Discrepancies came to light. The release of government stockpile and warehoused equipment was backlogged by a dearth of information about where they were needed most. In many cases, the lack of shareable information about products in the inventories of suppliers, distributors

Siobhan O'Bara

and provider facilities just exacerbated the impact of shortages caused by unanticipated demand."

Still, tracking and traceability, as well as accuracy, remain key benefits of inventory visibility, she insisted.

"It is critical for providers to know not only where medical devices are, but also whether they are interchangeable with supplies needed elsewhere," she indicated. "Understanding device interoperability relies on robust attribute information that can be captured in the master data maintained by health systems."

O'Bara cites a ventilator as a prime example. A ventilator made for use in the U.S. is configured to work at 110 volts, but that same machine could not be used in Europe where the standard is 220 volts. The voltage configuration is just one of the attributes that should be associated with the product's GTIN in the hospital's master database, along with other pertinent details, she added.

"Full inventory visibility with complete and accurate data also allows providers to plan for procurement, maintenance and replenishment," she said.

The COVID-19 pandemic has shown the importance of using a single data standard to provide and promote supply visibility, insists John Freund, President and CEO, Jump Technologies Inc.


John Freund

"When the virus hit, hospitals found they were unable to track how much inventory they had, where it was located, when they would run out, and who was using it," Freund said. "Having data standards that emphasize supply chain visibility would make it easier not only to answer these questions for a single hospital, but it would make it easier for an entire health system or government agency to access current inventory data on a city, state and regional basis."

The model extends beyond what happens inside of a facility to what happens between facilities, too.

"Standards are big internally but they are equally important externally," Freund acknowledged. "I think hospitals can work with their current distributors and manufacturers today just fine as there are data standards in place for that level of communication. Standards become much more important when trying to communicate externally beyond your current integrated supply chain. When and if another pandemic hits, the entire healthcare supply chain needs to be able to communicate using the same 'language,' or in this case, data standards. If I am in need of N95 masks and want to see what is available around me either from a distributor, manufacturer, other hospital or government agency, we all need to be calling an N95 mask the same thing. So if I could look up a single item number that indicated that this was an N95 mask, it would make it very easy for me to have visibility into all N95 masks in my hospital, IDN, city, state, region or country."

Inventory Optimization Solutions' (IOS) Vice President, Business Development, Jeff Lawrence, concurs that visibility within a single facility or across a nationwide enterprise should be the ultimate goal.


Jeff Lawrence

"Data standards can act as the Rosetta Stone to inventory management, helping achieve new levels of accuracy that aren't based on inconsistent product descriptions or an inventory clerk's recall," Lawrence said. "Why is this important? You'll always know how much [and] what you have where, and combined with better insight to usage, you'll improve management of on-hand inventory, which is how we can reset supply levels, reduce spend, eliminate waste, and most importantly, improve cash flow."

Yet Karen Conway, Vice President, Healthcare Value, GHX, points out that supply-data-standard-enabled visibility should not be limited to inventory.


Karen Conway

"One of the most important benefits of standards is that it enables multiple parties to speak the same language, or in other words – as I like to say in highly technical language – to call the same thing, the same thing, regardless of what we are doing with the thing," she said. "This, in turn, helps functions and organizations across the healthcare ecosystem to share, analyze and act upon the data for multiple purposes, including but not limited to inventory management, product tracking and tracing, waste reduction and visibility into how products are performing in routine clinical practice."

Connecting the dots

Product tracking and traceability likely will take center stage within many organizations in a post-COVID-19 world because of the benefits to both internal and external business processes within a healthcare provider, according to Melissa Amell, Director, Healthcare Industry & Solution Strategy, Infor.


Melissa Amell

"Standardization allows for data to be defined, categorized, connected and interpreted more easily. By adopting standards, the entire internal and external supply chain will be communicating the same way, and this will allow for a consistent identification and cross collaboration across all industries involved in the support and delivery of healthcare in a timely and efficient manner, Amell said.

"Product tracking and traceability is the pinnacle of utilizing data standards in supply chain," said Carl Henshaw, Director, Standards Implementation, Vizient Inc. "The ability to track products brings increased accuracy, waste reduction and inventory visibility. Additionally, within health care, this enables another critically important benefit, which is the ability to track outcomes and manage product recalls, which in some cases is a matter of life and death. The FDA put in place unique device identification (UDI) requirements to track products all the way from the manufacturer to the electronic health record. The UDI has the ability to tie the entire supply chain together."


Carl Henshaw

These efforts migrate to reimbursement as well with financial implications, according to Jean Sargent, Principal, Sargent Healthcare Strategies, a veteran supply chain leader and healthcare supply data standards evangelist.


Jean Sargent

"CMS is working to update the billing form to capture the UDI," Sargent indicated. "This information will be included in the Merit-Based Incentive Payment System (MIPS). When this information is not included, the reimbursement will be effected. The better argument is for recall, evidence-based outcomes [and] registries. If a patient has a total hip [procedure] in California, is now traveling to Florida and has an issue, the physician must know what type, brand etc. of the current implant. Until then, there is a delay in surgery, which may have an impact on the patient's health. If the UDI is in the American Joint Registry by UDI, the time to surgery is lessened by up to days."

Health Information Exchange requirements under Meaningful Use Stage 3 play an important role in the regulatory tract, according to Carl Gomberg, Lead Solution Analyst, Premier Inc. "Providers are required to include UDI for implantable

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devices in the [electronic health record], which has been the primary reason that Premier's customers have adopted data standards in recent years," he said.


Carl Gomberg

From a surgical theater standpoint, accuracy is paramount with tentacles extending into tracking and traceability, visibility and waste reduction, urges Trent Pierce, Clinical Advisor, Kermit software, PA & Associates Healthcare.


Trent Pierce

"My 28 years of clinical, technical and administrative experience in the OR has taught me that the single most important benefit for driving adoption and implementation of data standards is for increased accuracy," he said. "Without increased accuracy, product tracking and traceability is inaccurate. Inventory tracking will be inaccurate, and consequently documentation will be inaccurate. If you start with bad or inaccurate data, everything else relying on that data throughout the life cycle of the item being traced will be just as inaccurate as not having the data to begin with." Before joining PA & Associates Healthcare, Pierce served as Implant Coordinator, Shock Trauma Operating Room, University of Maryland Medical Center.

Ken Cyr, Senior Director, Supply Chain Consulting, CSI Specialty Group, an Intalere subsidiary, agrees that standards are vital for accuracy but that accuracy is necessary for standards with system integration being essential.


Ken Cyr

"One of the biggest barriers to the final evolution of the healthcare supply chain is the lack of seamless integration in healthcare informatics, Cyr said. "In most cases clinical departments have implemented the suite of clinical systems provided through the larger clinical Electronic Health Record (EHR) platform. The supply chain organization (SCO) on the other hand has implemented one of a handful of Materials Management Information System (MMIS) providers. The 'integration' of these systems through various interfaces is mandatory to unlock the core benefits of a clinically driven supply chain."

This stems from a unified item master shared between each system that "requires establishment of hospital-wide item/data naming and product category standards that are clinically accurate and meet both supply chain and clinical needs" as shared between Supply Chain and Perioperative Services, he noted. All of this data can be incorporated into the clinical information system, including for scheduling, preference cards/pick tickets and online charting and patient charging of supply items.

All told, data standards are created to ensure accurate operational budgeting, spending and cost analysis, and to ensure synchronization of items across perioperative, financial and supply chain systems, he added. HPN

Visit https://hpnonline.com/21137775 for sidebar: Nudging the standards needle forward

Satisfying the COVID-19 effect

How to make standards standard in a pandemic world

by Rick Dana Barlow

When the novel coronavirus COVID-19 emerged last December as an epidemic in China that quickly blossomed into a pandemic around the world, demand for a variety of products necessary to protect oneself from exposure soared to the apex of disrupting the global supply chain.

Could the adoption, implementation and ongoing use of supply data standards and integrated databases have made a difference? Supply chain leaders and professionals offer a cautiously optimistic yes with something of an escape clause. While supply data standards likely would have facilitated the location of much-needed product already in storage, in transit or even in various stages of production, it would have done little to factor in consumer demand spikes without more complex forecasting algorithms in place for planning.

Looking back as healthcare organizations and the world continues to slog through COVID-19's wake, 11 supply chain experts share their initial lessons learned in battling a pandemic that many clinicians believe is far from over.

Running lean can upset routine

"Although data standards would have helped to identify functional equivalents and potential availability of products more easily, the supply shortages created by this world-wide pandemic and the enormity of the situation was too much for any supply chain to handle. Many hospitals run very lean by keeping minimum stock on hand for disposable products and do not have the capital funds to maintain extra idle equipment. This, coupled by the fact that many of the needed products are manufactured overseas and healthcare organizations have been on allocation for many PPE products since late last year, contributed to the overall strain on the delivery network. I suspect when healthcare organizations and industry are able to look back at areas of improvement and develop lessons learned, there will be further discussion around product sourcing and production, dependency-manufacturer/distributor relationships, pandemic/emergency planning, and government affairs on the local, state and federal level."

– Melissa Amell, Infor

Vast visibility and extensive consumption/demand tracking

"With consistent, widely-adopted data standards in place, our entire healthcare ecosystem can alleviate some of the supply shortages experienced during the COVID-19 pandemic. How do supply data standards actually change the game? We'd be building visibility to every location where supplies exist within the supply chain. Manufacturers and distributors would know precisely what they have available in current inventories. Provider organizations would be able to look across their entire network of facilities – any types of facilities – and see what they have on-hand that they can transfer to locations experiencing the greatest need. Standalone organizations would know what was in each and every supply location in their facility. I'd build on this thought by adding that understanding consumption, and tracking usage over time, is a huge contributor to understanding what we'll need in the future, especially as we build our data set to incorporate our experience with COVID-19. This deeper knowledge would also be extremely valuable to the supplier community trying to forecast demand. Knowing what will be needed enables a much more efficient operation that benefits all supply chain participants."

– Jeff Lawrence, Inventory Optimization Solutions (IOS)

Sourcing alternative caches

"I don't believe standards could have prevented the shortages we have experienced as

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viable ['vīəb(ə)l]

(adjective) capable of working successfully; feasible

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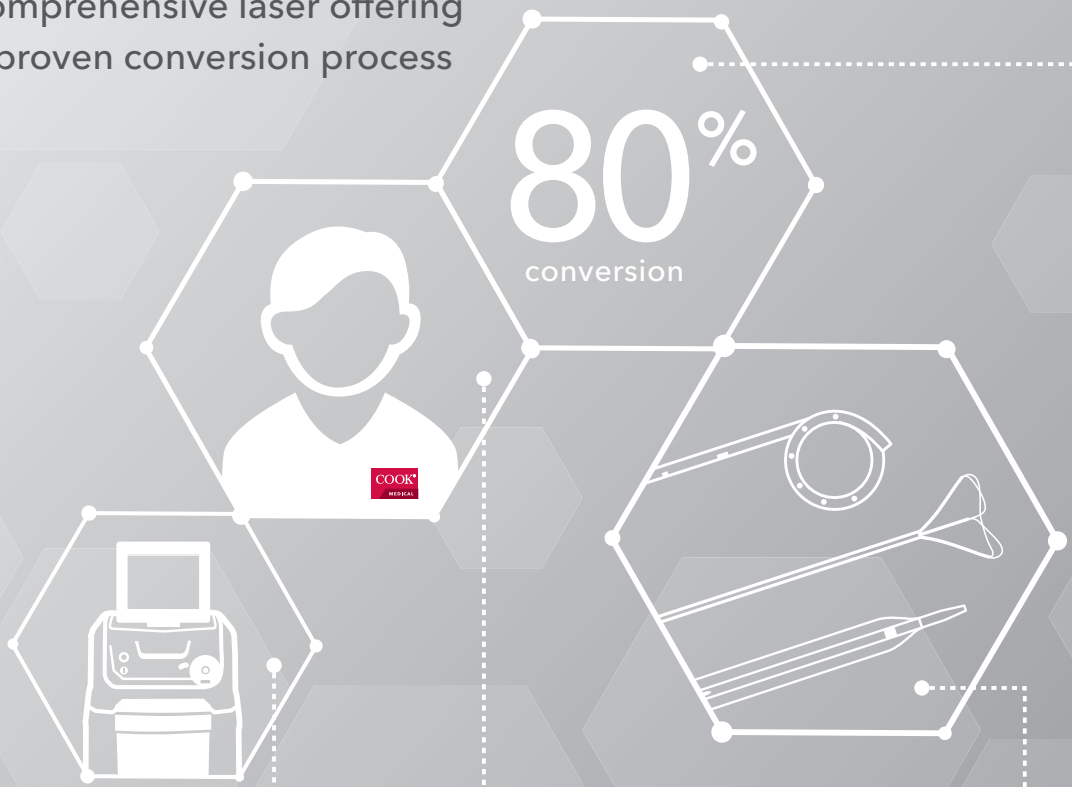

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a result of COVID-19 as there were multiple contributors to the crisis, e.g., simultaneous increases in demand and reductions in production and logistics capacity, coupled with broad adoption of lean manufacturing and inventory practices. I do believe standards could have facilitated the heroic efforts taken by supply chain leaders to find alternative sources of critical products needed to support both healthcare workers and patients.

"As hospitals quickly realized they would not be able to source enough of the products they usually buy from their traditional suppliers, they began to look for the same product from different vendors and/or similar products from different vendors or manufacturers. The combination of a standard identifier, such as the UDI device identifier, in association with a classification schema, such as the Global Medical Device Nomenclature, can facilitate building out lists of products and suppliers within specific essential supply categories. It's worth noting the value of standardizing those lists versus having each organization create their own. The World Health Organization (WHO) develops such lists to support a variety of disease states and is building out a classification schema that can be made available at no charge. GHX leveraged the WHO list, as well as work by the Centers for Disease Control and Prevention and McKinsey, and our product content databases to create complimentary reference lists that we continue to expand as the [virus] progresses and the use of both supplies and pharmaceuticals has increased and evolved. You can access the lists at https://www.ghx.com/covid-19/updates/managing-critical-supply-shortages/.

"Unique device identifiers, if adopted globally in a harmonized fashion, could also help source products certified for use in other countries. For example, as critical supplies, such as N95 respirators, experienced significant shortages, the FDA gave permission for hospitals to source comparable products that had received marketing authorization from regulatory authorities in Europe, Canada, Australia, Brazil, Japan, Mexico and China. If these countries were to establish publicly accessible databases like the FDA's Global UDI Database (GUDID), providers and others around the world could easily access more information about these authorized products from other markets.

"The COVID-19 supply shortages have also raised interest in the value of mapping upstream supply risk to understand where products are produced. In this way, buying organizations can identify if a manufacturer only produces products in limited locations, which raises risk of shortages if something happens to that supply source. This process could be enhanced through use of both product identifiers, such as Global Trade Item Numbers (GTINs), and location identifiers, such as Global Location Numbers, to map risk."

– Karen Conway, GHX

Building a pandemic-motivated product database

"Knowing where critical supplies are at any given moment would certainly help! By entering GTINs and GLNs into a hospital's master data systems, hospitals could gain visibility into their inventories that could alleviate some of the confusion that arose in the U.S. during the COVID crisis. Hospitals should also be building a database that lists the GTINs for every product they buy, along with GTINs for a hierarchy of clinical equivalents and substitutions. This information would enable the provider to quickly source needed products from secondary suppliers if their primary suppliers are unable to meet their need so that patient care is given the highest priority.

"The ability to share and trust reliable data can improve communication between providers and suppliers, facilitating better collaboration to support their mutual commitment to patient safety. The data systems need to be robust enough to dynamically manage an ever-changing inventory and make informed decisions about how to deploy it. Full inventory visibility at the provider level, along with standardized data sharing, enables communication with suppliers so they can plan production and execute against demand."

– Siobhan O'Bara, GS1 US

Follow pharma's lead

"The Drug Supply Chain Security Act has requirements that outline the process needed to safely track prescription drugs from manufacturing to dispenser, and there is work being done to develop the messaging standards for a distributed ledger, but the same approach hasn't been taken for medical products. Adding the country of origin as a requirement to the UDI would increase visibility of potential weaknesses in the supply chain and allow providers to know what supply pipelines could be at risk as a result of geographic disruption. Vizient has recently partnered with OneNetwork to create a resiliency solution that would address this exact issue.

"In addition, the World Health Organization (WHO) has released a set of categories of products needed to diagnose or treat COVID-19 patients. The United Nations Standard Products and Services Code categorization is prevalent in the healthcare Industry and these can be mapped to these WHO categories. Providers and suppliers could then track products used in these categories to match supply and demand across the country."

– Carl Henshaw, Vizient Inc.

Missing links unnecessary

"There are technology applications that can read, parse and even track the physical location of scanned medical devices that are within AccessGudID. Considering that most, if not all, supplies being used within the COVID-19 battle are medical devices, equipment or supplies, all of these devices should be within GudID. Having insight to the quantities and locations of the necessary medical supplies would provide greater and more real-time visibility where the available COVID-19 supplies could be sourced from."

– Trent Pierce, PA & Associates Healthcare

Accuracy needed to thwart expiry

"Hearing that much of the national stock pile had expired product, use of UDI would have allowed for better tracking, specifically when the expiration date is captured in supply systems. Items are not easily trackable today [because] the catalog number is used, which is modified by the end user. Use of the UDI is THE number that would solve that issue. The use of protective attire may be tracked to an employee acquiring an infection due to lack of protection. There is no way to track that in today's time when we are purchasing whatever product we can get our hands on to attempt to protect the employees."

– Jean Sargent, Sargent Healthcare Strategies

Keeping out the counterfeits

"The use of standards, combined with track and trace and claims reporting, can provide much greater transparency and management of the healthcare supply chain, including strategies that could be helpful in managing supply demand around COVID-19. On their own, standards reduce ordering errors and allow for improved inventory management. Providers can better track expiration and lot/serial numbers to manage a local stockpile of PPE that can be effectively used and replenished during the course of normal business. Track and trace would allow suppliers, distributors and providers to prevent the introduction of counterfeit product into the supply chain – something which we're now starting to see in news reports around COVD-19. Finally, including UDI in claims reports to CMS will allow government agencies and health IT companies to better gauge inventory requirements per patient case per day and direct precise levels of surplus PPE to areas with increasing need."

– Carl Gomberg, Premier Inc.

Taking stock of tracking stock

"Like all hospitals in heavily hit areas, many of our customers were caught off-guard when the PPE shortages hit. The good news was that our JumpStock platform allowed them to see where PPE inventory existed within the hospital because it tracks inventory from the loading dock to the patient. One of many major challenges hospitals faced was keeping track of numerous new supply sources in the ERP system – from donated government inventory to community donations. This posed challenges when tracking inventory. The JumpStock system allowed hospitals to easily create new supply sources for these materials that weren't tied to invoices. Customers were able to set up single supply sources for donated materials and track them in the same way as items they purchase. They used the increment and decrement audits available on the platform to match invoices coming in from disparate vendors.

"We have had over 50 hospitals and healthcare systems respond to our offer to help manage their PPE in JumpStock for free. In all cases, these hospitals had visibility of their inventory in their warehouse, but had no idea what happened to inventory once it left the warehouse. They couldn't identify hoarding or shrinkage, they didn't know where anything was. In their words, 'Materials come into the dock and leave 10 minutes later. To where we don't know.' It is obvious that hospitals will very soon need to enhance their workflows and visualization in order to manage critical inventory in the next pandemic."

– John Freund, Jump Technologies Inc.

Armed with access to more information

"Not only are data standards essential to the operational financial and clinical efficacy of the [supply chain organization], they provide critical information to track utilization, substitutions, inventory requirements and logistic parameters. Armed with this information, the healthcare supply chain could have approached the pandemic proactively instead of merely reacting to events that have already occurred."

– Ken Cyr, CSI Specialty Group,

Standards lead to visibility

"In and of [itself], adopting product/location numbering conventions would probably have had a modest impact on supply management during COVID-19. However, standards, once adopted, coupled with visibility, once enabled, will fundamentally change the market relationships between buyers and sellers. The most dramatic will eventually be "Inventory-as-a-Service" (IAAS) in which [third-party logistics] (3PL) service providers – often as an extension of the primary distributor – facilitate inventory management and stock optimization across an IDN for a service fee. A distributor service provider who retains ownership of the product until consumption could even extend their control/reach across different IDNs, optimizing stock of an entire geography. Having product identification and location standards along with inventory level visibility to a third party tasked with optimization would have had a profoundly positive impact on the management of PPE in hard-hit markets like New York City and Detroit. This outsourcing model is well-established in healthcare for both clinical and non-clinical services. Likewise, distributor inventory management as a service is more the norm in many markets like grocery, electronics, etc.

"It will be interesting to see if the experience of COVID-19 is in the end a sufficient motivator for our industry to adopt standards. If so, it is likely that the innovation and service model opportunities such standards would enable will naturally and quickly follow and benefit all."

– Thad Mac Krell, PAR Excellence

OR LEADERSHIP SUMMIT

Meeting of the Minds

Words of wisdom and best practices shared at the 2020 OR Leadership Summit

by Kristine Russell, EVP, Executive Editor, Healthcare Purchasing News

The second annual Endeavor OR Leadership Summit, in collaboration with *Healthcare Purchasing News (HPN)* was held in January in St. Augustine, FL. The attendees for these Summits are invited from the *HPN* subscriber audience of OR Directors who are involved in their hospital surgical centers and OR operations, as well as control inventory of supplies through purchasing and management.

The OR Leadership program provides attendees with the opportunity to network and engage with senior-level decision-makers from healthcare systems that typically serve hospitals with 100 beds or more. The Summit is a unique way for attendees to learn from professionals who are in similar positions at their own facilities.

Before the Summit, *HPN* asked OR Directors to tell us about their major concerns regarding operations, staffing, new technology adoption and visibility that affect their efficacy in delivering quality surgical services and OR results. Based on this information, we created in-depth questions on topics and concerns that were mentioned most frequently by the attendees.

The meeting venue and schedule is designed to optimize the interaction between the attendees, as well vendor sponsors who are able to share meals and conversations with most of the attendees. The attendees have the opportunity to network at numerous roundtable discussions that HPN prepared, as well as meet with solution providers in the industry at Small Group Presentations, One-to-One meetings and multiple networking events.

The biggest difference between our Summit and other meetings is the quality time provided for networking, which results in problem solving and information sharing between peers.

We've shared some of the *best practices from the Round Table discussions:*

Building an effective OR team culture

Is your OR team focused on the task at hand and humming with good energy? If not, why do you think that is? If you answered yes, share your strategy for building a strong OR team culture. Discuss the changes that were made, how they were implemented, and any tools used to create a more positive and collaborative environment.

This group identified a number of elements of culture issues for which OR directors feel support is lacking:

- Leadership changes with no structured communications regarding the changes.
- A toxic culture – bullying among staff.
- Coordinators and charge nurses not leading by example.
- A mentality that holds people accountable, but not for "me".
- Physician behavior.
- Lack of accountability for KPIs.
- Lack of support for OR directors from C-Suite.
- Private practitioners not adhering to best practices.
- Cellphones: The RNs carry the cellphones, but you (OR Director) can't gauge if they are on social media or not. Write the policy that you can carry them, but you can't use them. Use internal way of communication.
- Generation gaps: Older RNs may be challenged by millennials, so consider creating programs that develop crossover between age gaps.

What effective strategies have you tried that received positive results:

- We over me = team building initiative.
- Department leaders taking leadership courses.
- Give staff "core values card" so that all staff make a commitment to the department.
- Follow-up plan development with problem employees.
- Shared governance with guidance.
- Develop employee recognition programs that are meaningful.
- Work improvement plans.
- 'Crucial conversation' classes teach communication skills that may help align and foster agreement around potentially emotional or difficult topics – typically behavior, training, etc.
- Set department guidelines and hold to them.
- Put the right people in the right positions.
- Develop Formal versus Informal teams. Formal teams are structured and created for a specific purpose; a delegated leader and everybody within the team

has a distinct role, for example, to solve a piece of the workflow. An informal team has no structure and equal status among members, for example, to organize a weekly lunch to share ideas.
- Develop shared governance that includes attendants, RNs, and Surgical Technology managers to help facilitate OR operations. Also task RNs from each department to hold monthly meetings to discuss surgical services issues.
- Rebuild trust in your teams through TEAMSTEPPS - (Team Strategies and Tools to Enhance Performance and Patient Safety) which is a systematic approach developed by the Department of Defense (DoD) Patient Safety Programs and the Agency for Healthcare Research and Quality (AHRQ) to integrate teamwork into practice. It is designed to improve the quality, safety, and the efficiency of healthcare. The core of the TeamSTEPPS framework is comprised of four skills: Leadership, Situation Monitoring, Mutual Support, and Communication. The program is rooted in more than 20 years of research and lessons from the application of teamwork principles. https://www.ahrq.gov/teamstepps/index.html
- Assess the Need - Align a CNO, Medical Director.
- Partner with Infection Control, Quality. They need to see the bottom line. An Antibiotic Resistant Organism (ARO) program should be initiated.
- Use SBAR - Situation, Background, Assessment, Recommendation. SBAR can help deliver the Safe delivery of care, which may be compromised in the absence of clear, complete and respectful communication.
- Providing the right care to the right patient at the right time (provide the right care to the right patient at the right time.)
- Periop 202 is essential nurse education for specialty surgical procedures from AORN – good to promote this program.
- Education is the key to self-promotion.

Preventing employee burnout while increasing engagement

Burnout is a fact of life for most surgical employees but there are ways to lessen the burden and keep staff engaged in their work. Is your leadership style conducive to making staff feel comfortable discussing burnout? Share some of the programs or incentives that you've introduced to help motivate staff, ease stress and keep them productive.

Suggestions for engagement enhancement while relieving burnout:
- Encourage nurses to find something in the present such as yoga, reading, or any hobby that helps them turn off work.
- Model the work-life balance.
- Give employees accountability, autonomy; let them own their practice.
- Review your nursing engagement - with the NDNQI (National Database of Nursing Quality Indicators), a national nursing quality measurement program that allows hospitals to compare their performance and nursing quality with hospitals of the same type and size, down to the unit level.
- Give staff bonuses or other incentives for meeting targets.
- Financial incentive transparency - share the bonus by unit level, or per hospital for larger systems.
- Offer tranquility and reflection rooms.
- Recognition luncheons.
- Celebrate all of the Periop weeks
- Points system–trade for treats, lunch, etc.
- Recognition board. Develop a board that is visible and offer small gifts that tie back to evaluations.
- Vision board – administration visualizes the board with staff.
- Flex shifts to meet department and staff needs.
- Unit practice councils to give input on changes.
- Support services – On-site child care, Free parking, shuttle service.
- Daily huddles.

Overcoming challenges with block schedules and room utilization

The pressure is always on to keep cases moving – and the more the better. Unfortunately, procedures are frequently delayed, and rooms underutilized. What disrupts your flow? Today's scheduling systems have been shown to help avert these issues for many facilities. Are you happy with your system – why or why not – and what has your team done to improve scheduling and utilization problems?

Challenges of Block Scheduling:

Surgeons -
- Under scheduling cases and then running over block time.
- Looking at scheduling system – accurate data.
- All MDs wanting to work on same day.

Anesthesiology -
- Limiting factor to run rooms at the end of the day.
- Co-management and financial incentives.

Solutions:
- Evening and night shifts to help scheduling.
- Physicians required to show utilization prior to being awarded block time.
- Physician Utilization scores posted publicly to their block schedules.
- Consider Saturday schedules.
- For underutilized block schedules – consider freezing or eliminating block schedules for that physician.
- Add pay-per-performance metrics.
- Add additional anesthesia locations – for endoscopy, EP/cath lab, etc.
- Triad/Triumvirates – Delegate a leader team to work together with anesthesia/nursing/surgeons on decisions such as block time rules and data gathering, analyzing, sharing.
- Get together on staffing alignment. For example, anesthesia and nursing shifts may need to be 10 or 12 hours each to close cases.

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Improving operating room turnover and workflow efficiency

Strong interdepartmental relationships are key to successful room turnover and workflow success. How well does your OR and environmental services staff work together to achieve greater efficiencies? Are you familiar with the tasks they perform? Do you understand their processes and how certain products are used to disinfect rooms and prep for the next case?

Solutions:

- EVS – allocate staff to various specialties and focus on the training needed for that specialty.
- Take a Swim lane approach by delineating tasks for the staff who clean and for additional staff to understand that role and where to help. Developing a swim lane workflow can provide a sense of order to a busy OR (aka Pool). A swim lane diagram organizes the information and places that data in categories and develops a flowchart that can provide additional clarity by placing process steps into 'swim lanes' or lines of action.
- Education programs, for example, AORN offers certification for "turnover techs."
- A Surgeon who leads and inspires the team during setups.
- Clinical Monitoring program for the OR. Consider an organizational program that shows the room times; when cases are finished, when next patient is scheduled in that same OR, etc. Alerts EVS when to come to room. There are "Cockpit" programs available that provide visibility, and modules to show timing of events in OR.
- Use Turnover Kits but review the one your team uses to ensure it is beneficial and economical. There are a number of different types.

Challenges:

- Silos with staff duties – "I don't touch that…"
- Different EVS people are assigned roles that frequently aren't involved with OR turnover due to short staff. Training is needed.
- Supervisor of staff in EVS not visible.
- No Turnover time per case specialty identified and it varies greatly.
- PACU (post-anesthesia care unit) pulls patients in real time and prepares beds for them before they are ready to move onto the floors. At one hospital doing total joints, the PACU RN came to get patient, which they found to be the best practice.
- Clearly identify roles of any available personnel and their role in the turnover process.
- PACU backup from floor bed space (biggest challenge).
- Parallel processing is imperative.

Innovative tools and strategies for enhancing patient satisfaction

Keeping surgical patients safe and satisfied before and after a procedure can be challenging. How have patient expectations changed in recent years? How well does your department score on patient surveys? Has the HCAHPS initiative made your job harder – why or why not? Can you point to any particular products or clinical practices that have helped you to enhance patient satisfaction?

Enhancements:

- Are we meeting your expectations? Use HCAHPS that are visible to all staff to view. The HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey is a national, standardized, publicly reported survey of patients' perspectives of hospital care. HCAHPS, also known as the CAHPS Hospital Survey, is a survey instrument and data collection methodology for measuring patients' perceptions of their hospital experience. While many hospitals have collected information on patient satisfaction for their own internal use, until HCAHPS there was no national standard for collecting and publicly reporting information about patient experience of care that allowed valid comparisons to be made across hospitals locally, regionally and nationally. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalHCAHPS
- HRO huddles—Create a high reliability organization (HRO) that is able to consistently reduce the number of expected or "normal" accidents. This happens through culture change, technology-despite a highly unpredictable hospital environment.
- Offer Clear carbohydrate drinks to patients.
- Keep the patients involved in education process on their status with hourly rounding.
- Change nonverbal communication by nurses. Talk about mission, vision and values to patient.
- Pharmacy delivery service through the hospital pharmacy or pharmacy delivery services.
- One-stop shop – 24/7 scheduling center to find appointment.
- Use staff who are not afraid to share help.
- Use scripting to train nurses and discharge nurses so communications are complete.
- Loop anesthesia into training and patient satisfaction.
- Discharge calls for post-op patients to follow up.

Keeping up with changes in equipment, technology and standards

Are you working in a state-of-the-art surgical theater or still wishing you were? If you could choose five pieces of equipment, surgical devices, instrumentation or any other innovative technology, what would you request and why? If you already work with the latest technologies, are they worth the hype? How do they help to improve outcomes, efficiencies, job satisfaction, etc.? Were there any challenges during implementation? Was staff adequately trained, and do they feel confident in their ability to operate the technology properly?

Product Evaluation:

- New products, technology come out everyday. Do facilities have a person

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dedicated to keep up with changes, recommendations, etc.?

- Have someone or teams go to conferences, trade shows to see products and decide if a trial or cost effectiveness would benefit.
- County/VA-run hospitals have a greater challenge with more hoops to jump through because of who the decision makers are for their hospitals.
- GPOs can be a challenge getting products on contract.
- When agreements are made on new products or equipment, meet with the vendor on training and set up a schedule for vendors to come in on a scheduled, regular basis for proper training. Schedule in-services to cover all shifts.
- Ensure IFUs come with products
- Check all details of service contracts
- If videos are available, make them available for staff
- IT issues can be challenging

- Having IT do the extra work of installing – scheduling issues
- Interoperability - systems that will work together
- WIFI issues when going wireless
- Firewall issues
- IT department untrained and not able to get all the functionality working

- Develop a system that includes a checklist for all entities involved (physician, nursing, CS/SPD, IP, etc.) and send out for discussion on the product prior to purchasing.

Cleaning Concerns:

- Check AORN guidelines and IFUs used for new equipment
- If an IFU is unavailable or an in-service on cleaning an instrument isn't available, don't put that product into use.
- Involve infection control in the beginning of the product evaluation for cleaning procedures and chemicals to be used.
- Military hospitals, VA, County, Corporate hospitals all have different chain of command for bringing in different equipment and getting approved.
- Develop a system that includes a checklist for all entities involved (physician, nursing, CS/SPD, IP, etc.) and send out for discussion on the product prior to purchasing.

Effective strategies and tactics for reducing waste, loss and costs

Cost-containment efforts are a universal undertaking in healthcare systems everywhere and efforts to reduce costs can be made in dozens of areas using a variety of best practices and technology. Where is spend highest in your OR? Can you pinpoint what's causing it? What do you think is needed – and where is it needed – to curb unnecessary spending?

Is it needed?

- Review Preference cards
- Instruments – are they all necessary, used?
- Packs – Reduce the amount of items by reviewing what comes back unused.
- Develop programs to decrease loss of scrubs such as; no scrubs allowed to leave the building, RFID tags, Scrub vending machines.
- Consider eco-friendly reprocessing programs. Any unused, non-contaminated items can be sent to places like animal shelters – low cost to organization and gives back to the community
- Use an instrument tracking system to track usage, and for future preventive maintenance scheduling.

Strategies for recruiting and retaining quality staff

Are you having difficulty attracting and keeping highly-qualified surgical staff or have your recruiting efforts been a success? What do OR staff want and need to feel satisfied? If this is a pain-point for you, consider some small steps you could take right now to improve retention, as well as ideas that might need to be further developed into a formal policy requiring C-suite buy-in.

Top tips – more money, more flexibility:

- Bonuses for sign-on: RN – up to $12k (2-year commitment); CST – up to $15k (2-year commitment).
- Bonuses for retention : RN - $7k (2-year commitment); CST – 5k (2-year commitment).
- Lifestyle call. Develop a Sunday night to Friday morning shift. Consider establishing a 7 pm - 7 am separate team that covers late cases and early setups.
- Consider a shift crew that covers weekends or a weekend crew paid incentive.
- Add a Cafeteria on the same floor as OR to help with staff satisfaction, and the problem of short breaks.
- For late case completion, consider a bonus of $25.00/hour for an RN that stays extra hours, consider a bonus for surgical techs also.
- Offer a new grad OR internship
- Add Educators but they must be visible ½ circulator / ½ admin
- Bring new staff together after they are off orientation for 1 month to renew and network.
- Give $500 bonus to a nursing preceptor who helped train a new orientee who stays six months.
- Offer Clinical ladders that offer additional clinical interest areas and cross training incentives.
- RN residency program
- Tuition reimbursement – 2 year commitment
- Consider a temp Agency to support team until new staff oriented, trained.
- Encourage nurses with strategies to further education when talent is recognized

Wrap it up till next year

There were many more questions and discussions that covered outreach, safety and cleaning, adoption concerns, just to name a few. The OR Directors voiced happiness with the conference value. Many said they learned more in 2 days than many other events. The sponsors said they were happy with the quality of the interaction with OR Directors and in particular with their ability to have One-to-One meetings. Our next Annual Lab Directors Summit will be in January 2021.

We're also launching an Infection Prevention Directors Summit in September 2020. Let us know if you are interested at krussell@hpnonline.com. HPN

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Onsite versus offsite reprocessing

by Kara Nadeau

It has certainly been an interesting time for central sterile/sterile processing departments (CS/SPD) with surgical volumes drastically reduced due to a hold on elective procedures. In some cases, healthcare organizations have laid off or furloughed their CS/SPD professionals, and in other cases, they have reallocated department staff to other tasks related to the pandemic, such as reprocessing of N95 respirators.

When the dust from the COVID-19 pandemic settles down, health systems and hospitals will likely take a step back to evaluate their processes to understand what works and what doesn't work both during times of "business as usual" and during infectious disease outbreaks as we are experiencing right now.

One area that healthcare organizations might evaluate in the months ahead is whether onsite reprocessing of surgical instruments still fits their needs or if a move to offsite reprocessing is the way to go.

In this article, we speak with industry experts for their insights on the pros and cons of onsite versus offsite reprocessing, key considerations when considering a move offsite, and best practices for ensuring quality and safety when reprocessing is performed outside the four walls of a hospital or other healthcare facility. We also present their thoughts on whether the COVID-19 pandemic presents any specific risks or opportunities when taking an offsite approach.

Onsite, centralized or offsite reprocessing

Healthcare organizations have a few options from which to choose when exploring a new sterile processing strategy. There is the traditional method of using an in-house CS/SPD where the sterile processing team and operations reside under the same roof as the operating rooms (OR) and other clinical department customers.

For health systems with more than one facility performing procedures that require the reprocessing of instruments, another option is to centralize CS/SPD operations within one location, such as the main hospital campus. The central CS/SPD receives instruments after use from the other facilities, reprocesses them and then transports them back sterile for reuse.

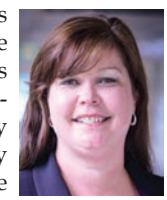
Prior to joining Healthmark Industries, Seth Hendee, CRCST, CIS, CHL, CFER, CSPDT, CFER, Clinical Education Coordinator for the company, spent 13 years as a CS/SPD educator for a health system in the Northeastern U.S. His healthcare organization took the centralized CS/SPD approach, consolidating operations within its main hospital campus. Hendee explains how the decision was driven by a number of factors:

Seth Hendee

"The health system performed environment of care (EOC) audits and found its main campus CS/SPD scored highest when it came to factors critical to reprocessing success and safety, such as the accuracy of sterilization records. The main campus also had the largest CS/SPD space, and was centrally located in relation to the health system's seven other hospitals, with the furthest facility two hours away."

A third option is to move CS/SPD operations to an offsite location that is either owned and operated by the health system or a third party. In this scenario, after instruments are used in a case, they are transported offsite to a centralized location where CS/SPD professionals (either employed by the health system or a third-party service supplier) reprocess them and then send them back to their respective facilities.

Gabrielle Cox, Director of Education and Training, STERIS Instrument Processing Solutions, explains how the company's offsite sterile processing facilities and Mobile Sterile Processing Units are fully compliant with industry regulations to meet the needs of healthcare facilities, whether they have a temporary need for supplemental CS/SPD resources, or chose to permanently transition operations offsite.



Gabrielle Cox

"Because elective surgeries have been postponed due to COVID-19, many hospitals have laid off or furloughed their CS/SPD team members. In the coming months as hospitals begin performing these procedures again, they will experience a surge in volume, which means a correlating demand for sterile processing," said Cox. "Our offsite facilities have the capability to supplement a facility's CS/SPD operations as they ramp back up. Another option is our Mobile SPDs, which offer an onsite solution for supplemental support."

Offsite reprocessing locations must follow the same regulations as the central sterile instrument processing areas in the hospitals, and these regulations remain unchanged with the COVID-19 pandemic, Ruhof Clinical Consultant Janet Pate, JD, MHA, BSN, RN Director, Environment of Care, Safety Officer, University of Alabama Health Service Foundation Alabaster, Ala., explains. She states:

Janet Pate

"There are guidelines that must be followed for transporting the sterile instruments back to the healthcare facilities. The guidelines for processing and transporting the instruments have not changed with the COVID-19 pandemic. The guidelines should be adhered to at all times. There is no published literature regarding how long the COVID-19 virus can remain on hard surfaces at this time, therefore, caution should be taken with all containers that enter into the healthcare facility. If deemed necessary, hard surfaces and plastic containers entering healthcare facilities may be disinfected with products such as Ruhof's Biocide as a precautionary measure."

Onsite or offsite? Key considerations

We asked industry experts to offer their advice to healthcare organizations that are considering a move to offsite reprocessing, including key considerations to take into account when weighing the pros and cons of both approaches. We also asked specifically for their thoughts on whether the COVID-19 pandemic is presenting any particular challenges to reprocessing surgical instruments offsite.

"Offsite reprocessing has a couple of advantages especially given the current state," said Brandon VanHee, Clinical Education Manager, Key Surgical. "We want to be as far removed as possible from the source of contamination and one solution is to create physical barriers, which offsite reprocessing accomplishes.

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Also, centralizing reprocessing to one facility can help in situations where surgical volumes have been severely impacted, as we are seeing with COVID-19, because the healthcare organization can consolidate its CS/SPD workload and still justify the department's full-time employees."


Brandon VanHee

"On the other hand, onsite reprocessing benefits include the ability to rely on internal resources, not having to transport instruments to/from an offsite facility and greater control over your CS/SPD processes," VanHee added. "A key consideration is turnaround times with onsite versus offsite reprocessing. For example, I would think hospitals in areas hit hard by COVID-19 are tasked with reprocessing a high volume of laryngoscope blades for tracheal intubation and turnaround times are critical."

Do your homework

"It's very simple: do your homework and ask a lot of questions," said Mary K. Lane, MHA, CSPDM, CSPDS, CSPDT, MK Lane SPD Consulting. "Some hospitals think (offsite reprocessing) is not very involved and unfortunately it is quite the opposite. Contact other hospitals that have implemented this process and visit them to see it first-hand and understand it. Offsite reprocessing has a huge financial impact to the organization as well as increasing turnaround times at a minimum."


Mary K. Lane

Lane refers to AAMI ST79 as a "great resource" noting how section 6 covers the "handling, collection, and transport of contaminated items" with 6.5.6 and 6.5.7 going into great detail regarding the transportation between buildings and offsite transportation.

Lane said there should not be any additional dangers in transporting instruments offsite during the current pandemic, as long as healthcare facilities adhere to the Centers for Disease Control (CDC) Standard Precautions (2007) for all contaminated items that they receive, this includes practicing proper hand hygiene and use of personal protective equipment (PPE).

"However, in reality COVID-19 likely has some impact simply because it has instilled fear in some due to all of the unknowns surrounding the virus," Lane added. "Mitigating the fear in people is tough; however, positive supporting attitudes from leadership of SPD; as well as hospital leadership will go a long way."

Don't skimp on the pre-planning

Kevin Anderson, BSN, RN, CNOR, CRCST, CHL, CIS, CER, Clinical Education Coordinator, Healthmark, says one of the drivers behind consolidating reprocessing, either within a health system or out to a third-party provider, is the opportunity to standardize and streamline CS/SPD processes. Before making the transition, a healthcare organization should examine current processes and practices within different sites to determine what does/doesn't work, and then carry best practices to its new reprocessing model.

"In many cases the CS/SPDs within the health system's hospitals will have their own standard operating procedures (SOP), key performance indicators (KPI), and processes related to education, training and documentation," said Anderson. "Some health systems are so large they span the country so it is no surprise that processes are disjointed. Transitioning to a central CS/SPD, whether on or offsite, provides the opportunity to standardize and streamline operations for greater efficiency, efficacy and cost savings."

Healthmark Clinical Education Coordinator Cheron Rojo, AA, CRCST, CIS, CER, CHL, played a central role in transitioning five facilities to offsite reprocessing. He said one of the first steps a healthcare organization should take when considering a move to consolidate reprocessing or move it offsite is to identify all key stakeholders – CS/SPD, infection prevention, operating room (OR), risk management, etc. - and assemble a multidisciplinary team tasked with performing an assessment of current surgical procedures and CS/SPD operations and anticipated future state.


Cheron Rojo

"This team should evaluate current procedures being performed and what procedures they anticipate will be performed in another year or the next five years," said Rojo. "In the case where the healthcare organization plans on leveraging current CS/SPD staff members to facilitate consolidated reprocessing they must understand whether these individuals are qualified, what training must take place and how long that training will take. If current capabilities are inadequate, infection prevention can help justify the need for more FTEs, equipment and instruments."

Evaluate potential reprocessing partners

Lars Thording, PhD, VP of Marketing & Public Affairs at Innovative Health, stresses the importance of evaluating third party reprocessing providers, planning visits to their offsite reprocessing facilities, when possible (see Sidebar: Reprocessing safety strategies).


Lars Thording

"There is inherent danger in transporting instruments offsite and receiving them back from an onsite location, given the possibility of contamination," said Thording. "Healthcare organizations must mitigate this risk by carefully selecting their reprocessing partner, and by weighing the risk against the advantages of stronger supplies. In selecting a reprocessing

Reprocessing safety strategies

Lars Thording, PhD, VP of Marketing & Public Affairs at Innovative Health, explains the three different types of offsite reprocessing, and different safety strategies required for each:

1. *Reusable device reprocessing*, such as endoscope reprocessing: These are devices designed and labeled to be reused, so they are usually very durable. Many companies can offer this service, with limited FDA oversight. For this type of offsite reprocessing, ensure that facilities have a decent quality control system, that they are FDA regulated, and – importantly – that they have an effective means of counting how many times devices have been reprocessed. If at all possible, visit the facility.
2. *Single-use device reprocessing*: This is an entirely different activity, as single-use device reprocessors must have FDA clearance for each device they offer to reprocess. This industry has very few suppliers, and they are all tightly FDA regulated and have advanced quality systems. Collection and transportation to the reprocessing plant is managed by highly trained technicians who use biohazard packaging – and devices are returned to the hospital in sterile packaging. Ensure that your reprocessor is a member of the *Association of Medical Device Manufacturers (AMDR).*
3. *Reprocessing under FDA Emergency Use Authorization (EUA):* During the COVID-19 crisis, the FDA has issued EUAs to companies to reprocess single-use devices (N95 respirators, for example). Using an emergency authorization, companies do not have to have quality systems in place and the standards for achieving an EUA are far below FDA's usual clearance process. It is critically important that hospitals carefully evaluate transportation, reprocessing, sterilization and return shipping processes.

ReadySet Coordinate: Advanced vendor notification and case coordination for OR and Sterile Processing departments

partner, examine the instrument journey and identify points of weakness. Additionally, look at quality systems as well as the source and nature of the authorization granted to reprocess instruments during the coronavirus crisis."

Assess your procedures and map your processes

Whether reprocessing is performed on or offsite, successful and safe CS/SPD operations require the team to carefully assess their quality procedures and map out their processes to ensure they adhere to industry guidelines (e.g. AAMI, AORN).

Anthony Shimkin, MBA, MS, MA, Chief Marketing Officer, ReadySet Surgical, recommends that healthcare organizations leverage quality procedures, documentation, teamwork and technology where applicable to prevent contamination of processed instruments and devices offsite.

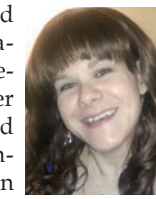
"Procedures should be regularly reviewed and match industry standards to ensure that chain of custody processes are adhered to, especially at offsite locations," said Shimkin. "Documentation that supports compliance with sterile procedures is critical as instruments and devices arrive and depart offsite facilities. Checklists, for instance, are used effectively in other industries like airlines for quality control and to mitigate risk."

Consider your containment solutions

As David Phillips, Marketing Manager, Hänel Storage Systems, points out, threats of possible contamination are everywhere. Therefore, he says the only way to maintain sterility offsite is to keep supplies and instruments within complete containment, so they are protected from every direction and contaminants cannot reach them. Phillips recommends use of an automated vertical carousel, which is a six-sized box that ensures that sterilized items remain sterile.

"Supplies and instruments can't be touched by human hands or by airborne droplets that contain germs," said Phillips. "Tiny droplets in a cough or sneeze can travel as far as six feet and land on nearby surfaces, but there's no danger of these droplets landing on sterile supplies while they are protected inside a sealed carousel. The chances of contamination to sterile product enclosed within is dramatically reduced, which decreases the cost of replacing contaminated product."

To protect instrumentation from contamination, Amanda H. Coss, BBA, CRCST, CIS, CER, CHL, National Education Coordinator, Mobile Instrument Service & Repair, recommends that facilities use OSHA bio-hazard compliant transport containers with solid sides, bottom and lids; tray belts, guards and silicone feet to help prevent tears and rips during transportation; and a versatile sterility maintenance cover to help keep sterilized products from environmental contamination such as tears, bacteria, moisture and dust.



Amanda Coss

Hänel's Rotomat automated carousel

When asked specifically about containment considerations during the current COVID-19 pandemic, Phillips states:

"There are inherent dangers to transporting anything offsite. While in transit to the hospital, sterilized items can become compromised during a traffic accident just as easily as they can be exposed to COVID-19. That being said, the best way to mitigate any dangers en route is to package sterilized items inside containers that have themselves been sterilized, and then package everything inside yet another protective container. This must be done using only the staff that are authorized to do so, with a corresponding team at the hospital. If the hospital is unable to coordinate the transportation internally, then the work should be done through a certified transport service, so that there are fingerprints of each transaction at all times."

Evaluate methods of transport

Industry experts agree that transport is one of the most challenging aspects of offsite reprocessing, whether healthcare organizations are operating under business as usual, or during a crisis situation as we are currently facing with COVID-19.

"Develop policies and procedures in accordance to regulatory agencies and standards that limit exposure of instruments to dust, moisture, sunlight, temperature and humidity fluctuations as these elements increase the potential for contamination," said Coss.

Coss stresses the importance of providing a comprehensive training program for all transportation employees that includes proper handling of contaminated and sterile items.

With regards to COVID-19, Shimkin says lack of knowledge around the virus and its ability to survive on surfaces makes it a particular concern when transporting instruments.

"One key challenge is there is still so much we don't know about the virus," said Shimkin. "A New England Journal of Medicine study found that COVID-19 can live on surfaces for up to three days. The CDC found RNA from COVID-19 on a cruise ship 17 days after passengers

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departed. The CDC also found that the virus can travel 13 feet through the air and is transported on shoes."

"To mitigate COVID-19 risks, healthcare organizations should rely on updated guidance and adapt policies and procedures accordingly," Shimkin added. "Staff should also be given adequate resources including protective equipment, as well as time to manage any increased demand for supplies and devices while reducing the chance for errors."

To address the potential risks of COVID-19 when engaging in offsite instrument reprocessing, Coss recommends healthcare facilities conduct a risk assessment with their infection prevention teams, follow policies and procedures for transport of soiled instrumentation, follow standard precautions, maintain U.S. Department of Transportation (DOT) rules and regulations for transportation of soiled instrumentation, and create the most direct path to get the instrumentation from point of use to processing.

"The possible danger in transporting instruments with COVID-19 is the novel virus can live in the air for several hours and on some surfaces for as long as two to three days," said Coss. "Careful handing and care of any soiled equipment must be meticulously followed to avoid risk of infection."

Another potential issue related to transport is lost or damaged instruments. Mike Cowan, Inside Sales Specialist, Scanlan International, recommends that healthcare facilities utilize the same policies and procedures they would have if they were processing instruments and devices onsite.

"As with any process which is new, there is a danger in not following policies and procedures," said Cowan. "There is also the possibility that things can get lost or damaged in transport. Keep everything organized and use communication tools to accurately label and list what is in your sets/equipment and how they should be processed. Scanlan International's Easy-Tag can be a great communication tool for this."

"Keeping your instrument sets wrapped after sterilization and transporting them with our Tip-Guards to protect instrumentation can be one way to make sure that your instruments remain sterile and protected as they move locations," Cowan added.

Assess staff safety

"Without question, transporting surgical instruments generates concerns of cross-contamination and magnifies the high priority of staff and patient safety," said Andy Petrovich, President & CEO, Petriss. "Healthcare facilities need to consider the importance of training and developing a plan for all distribution staff, drivers and receiving personnel to assure safety for their staffing and others. Proper planning, training and quality assurance (QA) monitoring should not be taken lightly. Once contaminated items

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Tips for offsite reprocessing and COVID-19 considerations

Daniel Lartey, System Director of SPD, LeeSar, offers the following best practices for offsite reprocessing.

- **Transportation**: It is of paramount importance that SPDs, including offsite campuses, adhere to the Principles of Asepsis to ensure that clean items are kept separate from dirty items when collecting and transporting to clinical staff. Regulations from the Department of Transportation (DOT) at local, state and federal levels must be followed. Transportation carts should effectively contain bioburden, prevent items from falling or getting damaged, and prevent cross contamination.
- **Environmental risks:** Temperature, humidity and air pressure of the vehicles and the building should be monitored and recorded, and any deviations should be remedied immediately. Walls and floors must be constructed using the right materials, to withstand daily scrubbing with chemical agents to prevent infections.
- **Pre-treating of surgical instruments:** All stakeholders, especially the clinical teams, must be incorporated in instrument care by providing point-of-use instrument cleaning per manufacturers' instructions. Additional enzymatic moisturizing spray should be applied to ensure bioburden does not dry.
- **Industry standards and IFUs:** Consult documents such as ANSI/AAMI ST79, ST 91, the facility's policies and procedures, and more importantly, the manufacturers' instructions for use (IFU). Educate and train associates to ensure competencies.

With regards to special considerations related to COVID-19, Lartey comments on LeeSar's approach:

"The day-to-day operations of any sterile processing department is characterized by the possible exposure to pathogens such as bacteria, fungi, virus, etc. Because we follow universal and standard precaution to treat reusable medical devices as potential sources of transmission, any outbreak including COVID-19 should have a minimal effect on daily operations."

During the current pandemic, Lartey says the following mitigation measures must be strictly re-echoed, refreshed and emphasized:

- **Follow CDC standard precautions**: Every associate needs to observe the standard precautions of distancing whenever possible, hand washing, masks, self-quarantine etc. as directed by the Centers for Disease Control and Prevention (CDC).
- **Allocate resources**: Resources, both human and time, are provided to properly reprocess medical devices.
- **Take time to train**: Task-specific training, including implementing refresher training to reinforce procedures and making sure manufacturers' IFUs are organized.
- **Adhere to industry guidelines**: Follow OSHA, DOT, infection prevention and control measures and organizational policies and guidelines in the handling and transporting of soiled and sterile instruments.

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CS CONNECTION

are received within the offsite facility, the sterile processing professionals are expected to exercise universal precaution and adhere to the validated instructions for use (IFU)."

Petrovich refers to the importance of CS/SPD staff exercising universal precautions, also known as standard precautions, whether they are operating onsite or offsite.

"Sterile processing professionals battle viruses, biofilm, bacteria spores, organisms, fungi, lipids and more on a daily basis," Petrovich added. "They already understand the alarming concern associated with these dangers and have been trying to communicate the severe impact these microscopic parasites and organisms can cause. SPD professionals have attempted for years to convince the C-level within healthcare facilities of the importance of sterile processing. It is truly unfortunate that COVID-19 was needed to educate the world. It is my opinion that every healthcare employee involved with transporting surgical instruments needs to practice safety and execute social distancing to protect themselves and their family members."

Specific device considerations:
Ultrasound probes and endoscopes

When it comes to transporting devices offsite for reprocessing, Nicole Felderman, Associate Product Manager-High-Level Disinfection at CIVCO Medical Solutions, said the role of transport in the reprocessing of ultrasound probes is often under-looked. She says transport can pose significant infection control and probe safety challenges for the department depending on the distance between the procedure, reprocessing and storage rooms.

"Within ultrasound, transesophageal echocardiography (TEE) probes pose unique challenges for transport. When the probe is high-level disinfected, only the transducer end can be soaked in HLD chemical per the manufacturer instructions," said Felderman. "The cord and connector must be low-level disinfected with wipes. This means the high-level disinfected transducer must not come in contact with the cord and connector during transport, as it risks cross-contamination."

With regards to COVID-19, Felderman references the American Society of Echocardiography (ASE), which released a statement with special considerations for healthcare workers when performing TEE examinations on patients. It states:

"Transesophageal echocardiography (TEE) examinations

CIVCO's TEE Probe Transport and Enzymatic Sponge Bundle

carry a heightened risk of SARS-CoV-2 spread in non-intubated patients due to possible direct droplet transmission and/or viral aerosolization and inhalation during insertion/removal of the probe and/or coughing."

When transporting contaminated TEE probes from the point of care to a reprocessing site, the ASE recommends that:

"The TEE probes should also be thoroughly wiped (including handle, cable, and connector), placed in closed containers and transported in those containers to the cleaning facility."[1]

John Whelan, BSN, RN, Clinical Education Coordinator, Healthmark, worked with a health system to centralize all flexible endoscope reprocessing and other devices requiring high-level disinfection to a central location on the main medical campus. He cautions that this process cannot happen overnight as it requires careful consideration and planning.

John Whelan

"Even though our CS/SPD historically processed flexible endoscopes it was not their priority mission," said Whelan. "And don't assume the centralized location and existing staff have the expertise. We spent a long time educating and training staff to learn all of the different devices they would be reprocessing so they became the best practice standard bearers."

According to Whelan, education was also required on the part of clinicians. They discovered clinicians not consistently performing the necessary pre-cleaning of endoscopes before sending them to processing. The move to a centralized location could exacerbate that problem as the scopes could potentially sit for a longer period of time before decontamination.

"You can factor in routine extended soaking but that isn't best for the scopes either. It would constitute moving away from what is considered best practice and flexible endoscope reprocessing is already high risk," said Whelan.

Where is offsite reprocessing headed?

John Kimsey, National Director, Professional Services, STERIS, says he is seeing increased interest from ambulatory surgery centers (ASCs) as they expand their procedures into orthopedics and other procedures that have typically been hospital-based. Some of these procedures require 10 trays per case, which ASCs are not designed to handle from a sterile processing perspective.

John Kimsey

He adds that both hospitals and ASCs are increasingly turning to offsite reprocessing of vendor trays, stating:

"Every hospital has the same answer when we ask how they can benefit most from offsite reprocessing – vendor trays. Moving vendor trays offsite helps free up hospital CS/SPDs to handle their normal, in-house processing of instruments."

The STERIS offsite reprocessing centers receive vendor trays on behalf of the healthcare facility, clean and sterilize them, deliver them to the facility for use, then take them back after they are used to reprocess.

"With our offsite services, the facility receives sterilized instrument trays, thus reducing the workload on their internal sterile processing departments," said Kimsey. "We can also store vendor trays to free up space for healthcare facilities." **HPN**

References:

1. ASE Statement on Protection of Patients and Echocardiography Service Providers During the 2019 Novel Coronavirus Outbreak, April 1, 2020 https://www.asecho.org/wp-content/uploads/2020/03/COVIDStatementFINAL4-1-2020_v2_website.pdf

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by Susan Klacik, BS, AS, FSC, ACE, CHL, CIS, CRCST

June 2020

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LEARNING OBJECTIVES

1. *Explain the differences of the sterility assurance levels for HLD as opposed to sterilization.*
2. *Discuss recommendations for the disinfection and sterilization of flexible endoscopes.*
3. *Explain the difference in storage time between high-level disinfected and sterilized scopes.*
4. *Discuss steps to take when transitioning from HLD to sterilization of flexible endoscopes.*

The objective of healthcare is to provide the highest level of quality outcomes for patient care. Seeking this higher level often occurs with the introduction of research and new technology. Often this new technology includes medical devices that are complex and difficult to clean and sterilize or disinfect. Flexible endoscopes are among this category. Through the use of scopes, patients can be diagnosed and treated with minimally invasive techniques and experience a reduced recovery time.

Many flexible endoscopes have a complex design and are processed using HLD. Based on recent investigations of patient outbreaks related to flexible endoscopes, it is time to look into moving from high-level disinfection (HLD) to sterilization. This article will examine the benefits of moving from HLD to sterilization for flexible endoscopes that are used directly or secondarily to enter normally sterile tissue. Regardless of the disinfection or sterilization modality used, it is important that scopes are thoroughly cleaned before being subjected to a disinfection or sterilization process. Without adequate cleaning, sterilization or disinfection cannot occur. Performing a cleaning verification test after cleaning and before disinfection or sterilization verifies the effectiveness of the cleaning process, ensuring the scope is prepared for the next critical step.

Sterility assurance levels for HLD vs. sterilization

The decision of whether to use HLD or sterilization to reprocess a particular device is based on the Spaulding classification scheme. There are distinct differences between HLD and sterilization. The biggest and most important distinction is sterility assurance level or SAL.

Spaulding divided medical instruments and equipment into three categories (critical, semicritical, and noncritical) on the basis of the risk of infection from contamination on the item (Spaulding, 1972). The Centers for Disease Control and Prevention (CDC) uses this scheme to describe the level of disinfection or sterilization needed after decontamination and before patient use:

a) Critical devices are instruments or objects that are introduced directly into the human body, either into or in contact with the bloodstream or other normally sterile areas of the body, and products with sterile fluid pathways. Critical items present a high risk of infection transmission if contaminated and must be sterile at the time of use. (*Note: Unless contraindicated, steam sterilization is the preferred processing method. Low-temperature processes (e.g., ethylene oxide (EO) sterilization and other processes with exposure temperatures lower than steam sterilization) can be used to sterilize some heat-labile devices when time between uses allows such processes to be used.)*

b) Semicritical devices are instruments or objects that contact intact mucous membranes or nonintact skin of the patient during use, but do not usually penetrate the blood barrier or other normally sterile areas of the body. Semicritical devices should be sterilized, if possible. However, if sterilization is not feasible, the device, at a minimum, must be subjected to a HLD process that would be expected to destroy all microorganisms except for small numbers of bacterial spores. In most cases, meticulous physical cleaning followed by HLD provides reasonable assurance that enough pathogens have been eliminated and the device is safe for patient use.

c) Noncritical devices are instruments or objects that usually contact only the intact skin of the patient. Depending on the particular item and degree of contamination, cleaning with a detergent and warm water could be appropriate.

Disinfection is a process that kills pathogenic and other microorganisms by physical or chemical means. Disinfection destroys most recognized pathogenic microorganisms but not necessarily all microbial forms, such as bacterial spores. Sterilization results in an instrument free from all viable microorganisms including bacterial spores.

The Food and Drug Administration (FDA) defines the performance requirements of both HLD and sterilization. According to the FDA, high-level disinfecting chemicals and processes must be able to demonstrate the ability to kill 6 logs (1 x 10^6 or 1,000,000 organisms) of various test organisms under the specified use conditions, including exposure time, defined by the manufacturer. Sterilization is a validated process used to render a medical device free from viable microorganisms. Sterilization processes are required to kill all types of microorganisms including the most resistant bacterial spores. During the sterilizer validation process, sterilizers are tested and validated using viable resistant bacterial spores. This validation process, commonly referred to as the "overkill" process, is performed by determining the amount of exposure time required to kill 6 logs of bacterial spores, then doubling this exposure time resulting in the equivalent of 12 logs of kill (1,000,000,000,000 spores) to provide a large margin of safety.

The overkill sterilization method is based on the concept that the sterilization process will be able to kill a known resistant microbiological challenge plus provide an additional safety factor, and can be used to demonstrate an SAL. Said another way, an SAL is a value indicating the probability of a single viable microorganism survivor after a sterilization process. For example, an SAL of 10^{-6} is the probability that one in one million bacteria will survive after exposure to a sterilization process.

HLD processes are required to kill 6 logs of less resistant test organisms, while sterilization processes are designed to kill 12 logs of more resistant bacterial spores. According to ANSI/AAMI ST58 and the FDA's guidance document *Reprocessing Medical Devices in Health Care Settings: Validation Methods and Labeling*, "Disinfection processes do not ensure the margin of safety associated with sterilization processes."

Recommendations for disinfection, sterilization of flexible endoscopes

Flexible endoscopes have been classified as semicritical devices according to the Spaulding Classification since they are instruments that contact intact mucous membranes of the patient during use, but do not usually penetrate the blood barrier or other normally sterile areas of the body. As explained in ANSI/AAMI ST79, according to the Spaulding classification "Semicritical devices should be sterilized, if possible. However, if sterilization is not feasible, the device, at a minimum, must be subjected to a HLD process that would be expected to destroy all microorganisms except for large numbers of bacterial spores. In most cases, meticulous physical cleaning followed by HLD provides reasonable assurance that the items are free of pathogenic microorganisms." Over the years, flexible endoscopes have undergone HLD. Based on outbreaks and research, the sterilization of flexible endoscopes that are used directly or secondarily to enter normally sterile tissue needs to be considered. Sterilization of certain flexible endoscopes is possible with EO and other low temperature sterilization modalities.

ANSI/AAMI ST91 Flexible and semi-rigid endoscope processing in health care facilities

The ANSI/AAMI ST91 Flexible and semi-rigid endoscope processing in health care facilities standard provides guidance on how to process flexible and semi-rigid endoscopes for patient use. Section 8 on terminal sterilization by gaseous chemical sterilization processes recommends sterilization of these scopes. "With the infection risk that endoscopes present to the patient, terminal sterilization is the preferred method of microbial inactivation and the only option in sterile environments. Terminal sterilization is recommended for flexible and semi-rigid endoscopes that enter sterile body cavities. Terminal sterilization is required for all endoscope accessories that penetrate mucosa, such as biopsy forceps, sphincterotomes, etc. Steam sterilization is often not compatible with flexible and semi-rigid endoscopes, but should be used on compatible endoscopes whenever possible. Other compatible methods are ethylene oxide (EO), hydrogen peroxide (HP) gas, and ozone sterilization."

AORN Guideline for processing flexible endoscopes

The *2016 AORN Guideline for processing flexible endoscopes* recommends assembling a multidisciplinary team to conduct a risk assessment to determine if instruments that secondarily enter sterile tissue or the vascular system should be sterile. This guidance document provides evidence of the effectiveness of sterilization over HLD. Research has shown reduced bacterial susceptibility to high-level disinfectants and that sterilization is the only reprocessing method that has demonstrated effectiveness. This research includes the importance of thoroughly cleaning the scopes.

Gastroenterology-Urology Devices Panel of the Medical Devices Advisory Committee Meeting

On May 14-15, 2015, the FDA held the Gastroenterology-Urology Devices Panel of the Medical Devices Advisory Committee Meeting to address the effectiveness of reprocessing duodenoscopes and to further form rigorous, practicable reprocessing protocols that would enhance the safety margin of procedures using duodenoscopes. The purpose was to seek expert scientific and clinical opinion related to reprocessing of duodenoscopes based on available scientific information. The panel members were made up of healthcare, consumer and industry representatives. For two days the panel listened to presentations, testimony and other input. Dr. William Rutala, a renowned expert, discussed how endoscopes can cause healthcare-acquired infections (HAIs). His concerns include the narrow or nonexistent margin of safety associated with HLD of semicritical items due to microbial load and complexity. His suggested solutions to reduce the chance of an infection from these scopes included:

- Modification of the Spaulding classification scheme by the FDA (and professional organizations) to require sterilization of instruments that directly or secondarily enter normally sterile tissue
- Shifting from HLD to sterilization to protect the public health and prevent Endoscopic Retrograde Cholangiopancreatography (ERCP)-related outbreaks
- Implementation of enhanced methods for duodenoscope reprocessing
- Requiring manufacturers that submit instruments that secondarily enter normally sterile tissue to the FDA for clearance to offer a sterilization method

Medical Technology and HAIs Forum

Sterilizing flexible endoscopes was a recommendation from the Medical Technology and HAIs Forum that was held on September 29 and 30, 2016. The purpose of this forum was to continue to find solutions to reduce HAIs. It was a collaborative meeting with the foremost agencies concerned with HAIs, including AAMI, AHA, CDC, IAHCSMM, FDA/CDRH, and The Joint Commission. More than 100 invited stake-

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

holders that have a direct impact on the use of medical devices attended the forum. The objective was to identify the causes of device- and equipment-associated HAI transmissions and to identify solutions to the problem. Dr. William Rutala delivered a presentation that emphasized the risks associated with complex medical devices such as flexible endoscopes, stating that there should be an evaluation of the efficacy of current processing protocols. After a review of our current practices according to the Spaulding classification, which specifies how a medical device such as a flexible endoscope will be disinfected, Rutala suggested that HLD may not be appropriate for endoscopes, based on years of failures. He instead recommended sterilizing devices that pose a significant or potentially significant infection risk, such as gastrointestinal endoscopes and bronchoscopes.

Duodenoscopes

Over the past few years, there have been outbreaks from procedures using duodenoscopes. The organisms associated with these outbreaks were Carbapenem resistant *Enterobacteriaciae* (CRE). The duodenoscopes were used in ERCP procedures. These outbreaks got the attention of the FDA and CDC. Investigations showed the scope processing was performed according to the instructions for use (IFU) and best practices. This led the investigators to the conclusion that the duodenoscopes had the "potential to remain contaminated with pathogenic bacteria even after recommended reprocessing is performed." Positive cultures were found to be associated with the elevator guide wire channel and the elevator mechanism. The complex design of the duodenoscope makes it difficult to clean. When hospitals switched from processing the scopes using HLD procedures to terminal sterilization using EO gas, the infections ceased.

A study on the outbreaks of CRE related to duodenoscopes was conducted by Dr. Zachary Rubin and Dr. Rekha Murthy in 2016. They studied CRE outbreaks associated with ERCP procedures between 2013 and 2015 in the United States and Europe. Their study showed that even though the cleaning and reprocessing were done correctly, the scopes remained contaminated with CRE. They found that the cause of the infection transmission included a low margin of safety for gastrointestinal endoscopic procedures and complex design features of duodenoscopes. Their research concluded that the outbreaks were halted with enhanced cleaning and surveillance measures and by adopting EO gas sterilization methods.

Storage time differences between high-level disinfected scopes and sterilized scopes

Flexible endoscopes that have undergone HLD are hung in scope cabinets. Research has shown high-level scopes become contaminated in as little as three hours in storage. Terminally sterilized (i.e., packaged) medical devices can be stored indefinitely so long as the storage is in an area of a healthcare facility designed to store clean and sterile items, and the packs are handled appropriately.

Storage time for flexible endoscopes is addressed in Standards and Guidelines. Previously AORN recommended a storage time for high-level disinfected scopes of five days. The 2016 AORN evidence-based Guideline for Processing Flexible Endoscopes now recommends that flexible endoscopes and accessories are stored in a manner that minimizes contamination and protects them from damage and that a multidisciplinary team establish a policy to determine the maximum storage time.

The storage time for high-level disinfected scopes is dependent upon many factors. In the *ANSI/AAMI ST91 Flexible and semi-rigid endoscope processing in health care facilities Standard,* it is recommended that hospitals perform a risk assessment to determine the maximum storage time for an endoscope before it needs to be reprocessed to use on the next patient. Variables to be included in the risk assessment are the complexity and type of endoscope, whether it is lumened or non-lumened, frequency of use, patient population, frequency, type, results of quality monitoring of processing and quality of final rinse water.

Society of Gastroenterology Nurses and Associates (SGNA) updated and published "Standards of Infection Prevention in Reprocessing of Flexible Gastrointestinal Endoscopes" in 2016. In this standard it is recommended that endoscopes are stored in an area that is clean, well-ventilated and dust-free in order to keep the endoscopes dry and free of microbial contamination. Endoscopes should be stored in accordance with the endoscope and storage cabinet manufacturers' IFUs. SGNA recommends that endoscopes can be stored for seven days if they have been effectively reprocessed to remove all pathogens and almost all other microorganisms, and are stored in a way that keeps them completely dry and free from environmental and human contamination.

Transitioning from HLD to sterilization of flexible endoscopes

For a healthcare facility to transition from HLD to sterilization for scopes that directly or secondarily enter normally sterile tissue, the first step is to develop a multidisciplinary team. The first step for this team is to review how each scope is used. For any scopes that are going to be used to directly or secondarily enter normally sterile tissue, the next step is to check with the scope manufacturer's IFU for validated methods of sterilization. There are a variety of low temperature sterilants and sterilization cycles, and it is important to select the correct sterilization modality and cycle. The sterilizer IFUs must be reviewed to assure compatibility. Packaging selection should be compatible with both the sterilizer and the scope IFUs. Quality monitors must be validated and labeled for the sterilization modality.

Healthcare facilities that are adopting sterilization should review the IFUs of new scopes before they are purchased, to assure they are compatible with the sterilization modalities available at the healthcare facility.

Conclusion

Flexible endoscopes are complex medical devices and the decision about whether to perform HLD or sterilization has traditionally been based on the Spaulding classification scheme. Because of the complex design of flexible endoscopes, recent outbreaks and new research, it is time to re-assess this model and shift this paradigm to sterilization of flexible endoscopes that directly or secondarily enter normally sterile tissue. There are some scopes that can undergo sterilization today. Future advancements and technology may produce more scopes that can be sterilized. Healthcare facilities should assemble a multi-disciplinary task force to review scope-processing practices and make recommendations for sterilization or disinfection. HPN

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2. Association for the Advancement of Medical Instrumentation. Chemical sterilization and HLD in health care facilities. ANSI/AAMI ST58:2013.

3. Association for the Advancement of Medical Instrumentation. Comprehensive guide to steam sterilization and sterility

assurance in health care facilities. ANSI/ AAMI ST79: 2017 https://my.aami.org/aamiresources/previewfiles/1709_ST79Preview.pdf.

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Susan Klacik BS, FSC, ACE, CHL, CIS, CRCST *is a Clinical Educator for The International Association of Healthcare Central Service Materiel Management (IAHCSMM). She is the IAHCSMM voting member for the Association of the Advancement of Medical Instrumentation (AAMI), a role she has held since 1997. A member of the Association of perioperative Registered Nurses (AORN) Guidance Advisory Board. Klacik has authored numerous articles and served as a contributing author to the IAHCSMM textbooks.*

CONTINUING EDUCATION TEST • JUNE 2020

Scopes require higher level of disinfection

Circle the one correct answer:

1. **An advantage to sterilization is that scopes do not need to be cleaned first.**
   A. True B. False
2. **The decision to use HLD or sterilization is based on the Spaulding classification.**
   A. True B. False
3. **According to the Spaulding classification, semicritical devices should be sterilized, if possible.**
   A. True B. False
4. **HLD must show a 6 log reduction of test organisms, whereas sterilization must show a 12 log reduction of bacterial spores.**
   A. True B. False
5. **Ethylene oxide (EO) cannot be used to sterilize endoscopes.**
   A. True B. False
6. **Methods to sterilize scopes include EO, vaporized hydrogen peroxide (HP) and ozone sterilization.**
   A. True B. False
7. **The reprocessing method that had the most successful elimination of CRE from duodenoscopes was EO.**
   A. True B. False
8. **The standard time for storing high-level disinfected scopes is 10 days.**
   A. True B. False
9. **When determining whether to sterilize or disinfect endoscopes, a multidisciplinary team should be assembled.**
   A. True B. False
10. **Before sterilizing endoscopes, the IFUs for the endoscope, sterilizer and packaging must be reviewed.**
    A. True B. False

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Ensuring automated instrument cleaning, sterile packaging and surgical mask disposal

by Ray Taurasi, Principal, Healthcare CS Solutions.

Q I understand that hinged, ring-handled and movable part instruments are supposed to be left opened during the cleaning process, however, for many devices like roggeurs, this isn't feasible or possible when using automated washers. Manufacturers' instructions for use (IFU) state the devices should be opened but they provide no directions as to how this can be done. If we don't follow the IFU we are liable if the instruments aren't clean. Since there is no way to keep these instruments opened in a washer, we are spending far too much time on manual precleaning measures and often this leads to inadaquate cleaning. Do you have any suggestions?

A When instruments are closed, they are closed to cleaning. Water and detergent cannot reach all the surfaces of the instruments. It is these more complex instruments that are more likely to harbor organic matter, which can lead to cross-contamination and possible infection. Device manufacturers, AAMI, AORN and others, strongly recommend that instruments be kept in an open position when being cleaned. Open instruments will allow for the maximum exposure to cleaning agents and the mechanical action that dislodge and remove soil. There are various instruments spreaders available, which are designed to keep such instrumentation open during the automated cleaning process. (see figures 1 and 2)

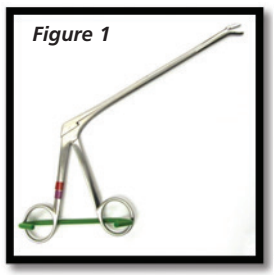

Figure 1

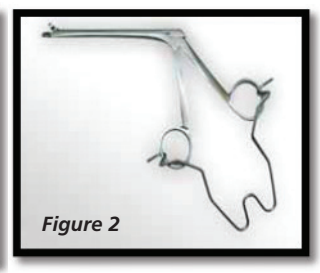

Figure 2

Q Our packaging wrappers have an expiration date on the box they come in. Our department follows an event related sterility maintenance policy. Do we need to follow the expiration date on the box?

A As you know, event related sterility maintenance (ERSM) means that a sterilized item will remain sterile until an event occurs that compromises the sterile integrity of the sterile package. Common examples of such events include package damage, tears, holes, wetness, mishandling, suspicious staining, broken closures and locks. Professional guidelines, such as AORN, state that an expiration date (when applicable) should also be considered an event.

It is imperative that you fully understand what the date on the manufacturer's box means. Does it mean that once the packaging material has been utilized to contain an item that has been sterilized, that the package will maintain sterility forgoing any adverse events until the expiration date on the box? If that is the case, then each package would require an expiration date on it.

It is important to note that shipping cartons or internal storage boxes may have an expiration date on them. That date may be a best-use date, which relates to pre-sterilization shelf life. It is essential that you obtain and follow the manufacturer's IFU and that you obtain documentation of all validations relating to sterilization performance, sterility maintenance, and sterile shelf life/ERSM.

Q I am the nurse manager for Sterile Processing Services for a large acute care hospital. We sometimes find tiny tears that penetrate one layer of the instrument set wrapper. Some of the OR and SPS staff feel that it is okay to use the set if the tear hasn't penetrated all layers of the wrapper. Others believe that if any tears are found, the set must be considered contaminated and not used. Those in favor of using the set argue that it is similar to using the inner package of a peel pouch that is double pouched. I frankly am undecided. I can see the rationale of both arguments. What are your thoughts?

A I believe that if any compromise in sterile packaging integrity is found, that the set must be considered unsafe for use, broken down and completely reprocessed. You cannot compare the peel pouch scenario to flat wrap. Packaging materials are class 2 medical devices and for FDA clearance, they must demonstrate specific bacterial barriers, sterilization compatibility and the ability to maintain sterility until the point of use. Your IFU for the flat wrap gives specific directions for wrapping and use of the product in accordance with product validations. The appropriate use ensures that the packaging material will provide the required barrier to microbial penetration; that means that all layers must be intact. For FDA clearance, peel pouches have demonstrated that their maternal composition provides the specified and validated microbial barrier with single pouch packaging. If there was a tear or hole in a peel pouch, you would consider the contents contaminated. For cases in which you might double pouch with the intent to dispense the inner pouch onto a sterile field, if the outer pouch is compromised or if the inner pouch has a tear, then the inner pouch must be considered unsterile and should not be passed off to the scrub nurse or placed on a sterile field.

Q I am the nurse manager at a doctor-owned ambulatory surgery center. We have a few surgeons who leave their face mask hanging off their neck when they finish a case. They go to the lounge while the room is being turned over for their next case, and then they return to the OR wearing the same mask. They feel it's an unnecessary waste of money to change their mask between cases, unless it's visually soiled. Clinically, I do not agree with this, but I have been unable to locate anything in writing to support my concerns. Do you have any references?

A The first place you might want to look for support is the mask manufacturer's IFU. You will find the disposable surgical mask identified as a single use item. Standards state that a single use item, such as a surgical mask, can only be used once, for one patient, at one time. Professional standards specifically note a mask should be changed between cases and not worn dangling around the neck. HPN

References:

- AORN's recommended practice on surgical attire: 2019 edition, page 1014-1015
- American College of Surgeons: https://www.facs.org/about-acs/statements/87-surgical-attire
- From the Association of Surgical Technologists: http://www.ast.org/uploadedFiles/Main_Site/Content/About_Us/Standard_Surgical_Attire_Surgical_Scrub.pdf

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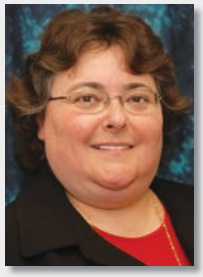
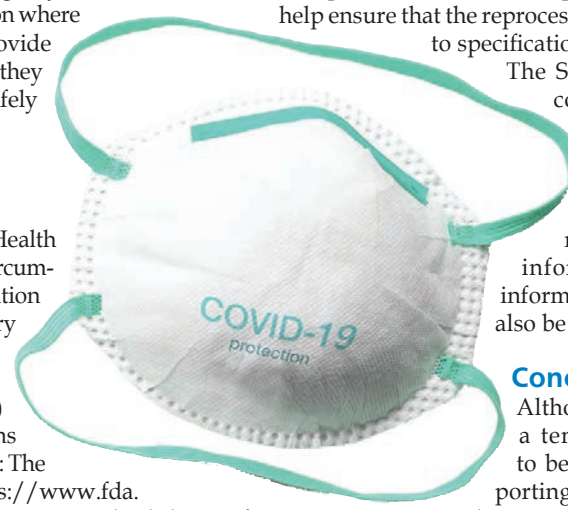


Maintaining records on COVID-19-related policy/practice changes

by Natalie Lind, CRCST, CHL, FCS

The COVID-19 pandemic has forced many Sterile Processing departments (SPDs) to change some of their policies and practices to adapt to their facilities' changing needs. Shortages of personal protective equipment (PPE) placed many facilities in a position of not being able to provide protective gear -- specifically N95 face masks -- to frontline workers. That lack of required PPE made it necessary for many healthcare facilities to consider the possibility of reprocessing N95 masks.

Reprocessing a single-use device (SUD) is contrary to all that SP professionals have been taught regarding the reuse of SUDs; however, the pandemic created an emergency where there was no choice. It placed many SPDs in a situation where they needed to reprocess SUDs to provide critical items to the hospital staff -- and they needed to find a method to do it as safely as possible.



FDA Emergency Use Authorizations

In February 2020, the Department of Health and Human Services determined that circumstances existed justifying the authorization of emergency use of personal respiratory protective devices (N95 masks) during the COVID-19 outbreak. As a result, the Food and Drug Administration (FDA) issued Emergency Use Authorizations (EUA) for N95 mask reprocessing. Note: The FDA's EUA page can be found at: https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations#coronavirus2019.

The EUA page includes the processes that have been approved (through an EUA) for emergency reprocessing of N95 masks. It includes links to documents to help facilities better understand processes and requirements and determine processes that may be achievable for them. These documents include:

- A fact sheet for healthcare personnel;
- Instructions for healthcare facilities; and
- Instructions for healthcare personnel.

Risk assessment essentials

The planning for reprocessing SUDs begins with a thorough risk assessment to determine if an alternative process is necessary and, if so, what that alternative process will be. That risk assessment should involve SP, Infection Prevention, Risk Management and other identified stakeholders.

Once the need for reprocessing is determined, EUAs, manufacturers' instructions for use (IFU), safety guidelines and other pertinent information should be reviewed and well documented. A process should be determined based on available facts.

It's important to remember that "pandemic" does not mean "pandemonium." Basic rules still apply. The SPD still needs to abide by standards and guidelines and follow standard operating procedures. For example, implementation of a new process requires written policies and procedures, and dedicated, documented training. Employees should be well trained on the new process and basic competencies should be completed to help ensure that the reprocessing is being performed according to specifications.

The SP manager should keep on file copies of the risk assessment and all other pertinent documentation. This includes, for example, IFU (if available), information on the new process from equipment manufacturers, FDA EUA information and any other related information. Staff competencies should also be kept on file.

Conclusion

Although reprocessing N95 masks is a temporary situation, the decision to begin the process (along with supporting documentation, policies, procedures, training and the performance of the process itself) must be recorded. Every department should be able to show how they made their decision, which plan was implemented, how staff was trained, and which other quality measures were made.

These are hectic times and when a review of the SPD's response to the pandemic is conducted or a future surveyor asks what was done and why over the course of that time period, proper documentation will be critical. HPN

Note: This article is meant to serve as a brief overview of the process. Sterile Processing professionals should check with their Risk Management department to determine which specific information and documentation they should be keeping on file.

Natalie Lind, CRCST, CHL, FCS, serves as IAHCSMM's Education Director.

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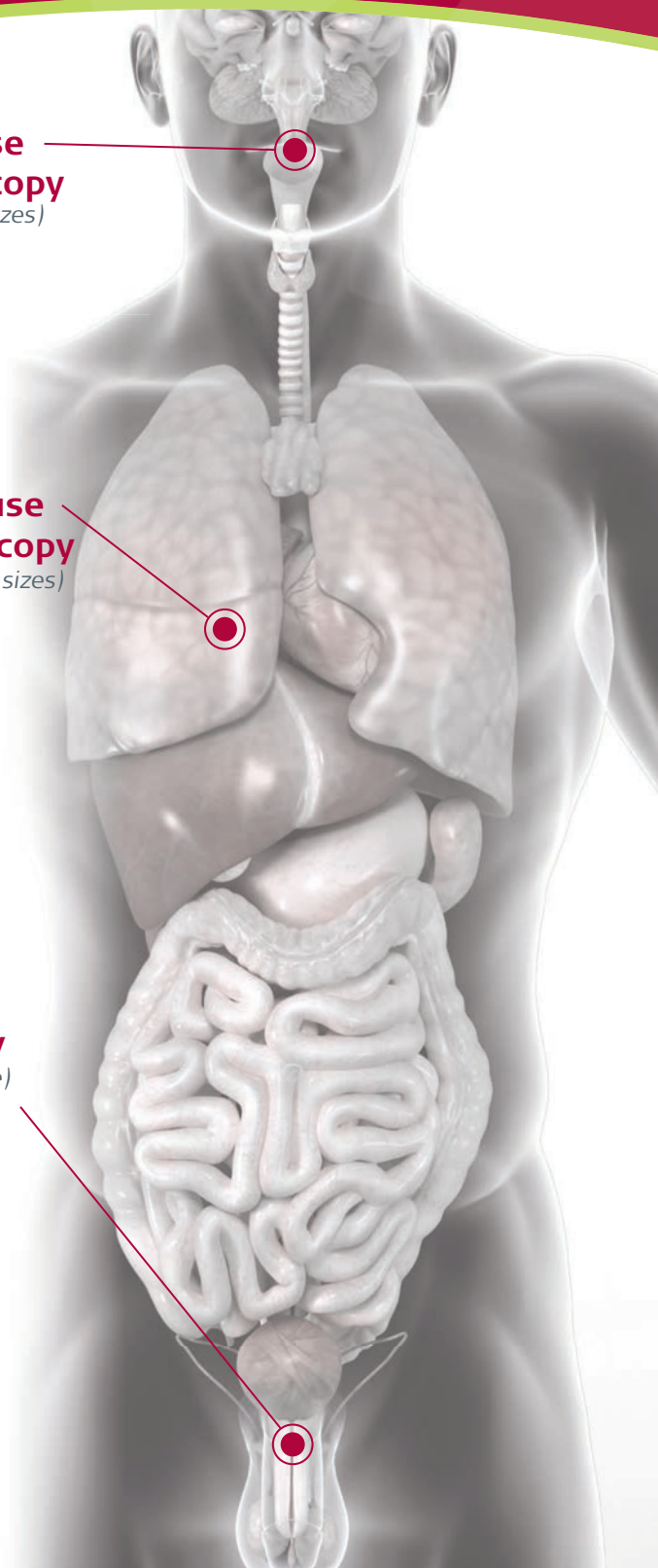

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Working together to knock out infection in the healthcare arena

by Ebony Smith

As the COVID-19 pandemic continues to hit communities, healthcare workers continue to show up, suit up and treat scores of infected patients. At the same time, they must also care for the medical needs of many other patients.

The entire hospital workforce – from clinical, environmental services (EVS), central service (CS), infection prevention (IP) and other personnel – put the safety of their patients above all. This means taking several precautionary measures throughout care, including donning and doffing personal protective equipment (PPE), handwashing, disinfection, cleaning and decontaminating equipment and rooms and tracking and preventing infections.

University of Miami Health System reports, "Across the U.S., hospital emergency rooms and urgent care facilities are following enhanced protocols for managing cases of COVID-19 while protecting other patients and healthcare workers. These efforts include disinfecting surfaces, ventilating airspaces, and wearing effective protective gear. At UHealth, staff wear masks, gowns, gloves, and face shields. Masks are supplied to incoming patients. ER nurses are assigned to certain zones. Those caring for COVID-19 patients do not also handle non-COVID-19 patients."[1]

Healthcare supply, disinfection, sterilization, device and technology manufacturers share with *Healthcare Purchasing News* what hospitals and facilities are using and doing for staff hygiene, patient care, device and room cleaning and monitoring and preventing COVID-19 and healthcare-associated infections (HAIs).

PPE support

Masks, respirators, gowns and other medical supplies come in high demand as COVID-19 furthers its course. Hospitals should plan and communicate appropriately for the needs of staff and care, addresses the American Thoracic Society. "Hospitals facing a growing population of COVID-19 cases need a coordinated approach with a multidisciplinary team to increase efficiency, conserve PPE and protect staff."[2]

PPE, cleaning and other protective interventions made on a facility-wide level support the fight against COVID-19 and other infections, observes Caitlin Stowe, MPH, CPH, CIC, CPHQ, VA-BC, Clinical Affairs Research Manager, PDI Healthcare.

"Since the beginning of the COVID-19 pandemic, we've seen healthcare workers come together like never before to protect themselves, patients and visitors. This extraordinary teamwork is occurring through implementing enhanced cleaning protocols, adhering to strict hand hygiene, ensuring appropriate use of PPE and safely distancing patients and visitors, while prioritizing patient care. All of these efforts are ensuring that the risk of contamination of surfaces with SARS-CoV-2 and pathogens is greatly decreased," Stowe said.

Ansell Healthcare Global Business Unit is ramping up PPE production to meet the demand for frontline workers, informs Gina Gilbert, BSN, RN, Senior Director, Professional Education & Clinical Affairs.

"Because our products are critical to protecting the lives of healthcare providers, emergency responders and other essential workers, we are working non-stop to expand our manufacturing and distribution capacities to ensure essential PPE gets where it needs to go. Ansell is also focused on providing education on COVID-19 recommendations and the proper use of PPE products (https://www.ansell.com/us/en/the-new-coronavirus). The new guidelines for PPE protection with COVID-19 will likely become standard practice for the foreseeable future. Healthcare facilities will focus on maintaining necessary reserves of essential equipment and the demand for disposable products will continue. Protection may also become more commonplace for the general population," Gilbert explained.

STERIS provides solutions for decontamination and sterilization to help achieve safe environments for care.

"Mitigating risk is a primary responsibility for all healthcare professionals," said Tamara Behm, MSN, RN, CIC, Clinical Education Specialist, STERIS Infection Prevention Technologies division. "Following CDC and OSHA guidelines regarding proper hand hygiene and wearing facemasks provides a strong foundation. Beyond that, we've been speaking to customers about: decontaminating compatible N95 or N95-equivalent respirators, requiring facemasks for those with respiratory symptoms and considering expanding hours of operation to limit crowding during peak hours. In addition, we are recommending customers look at their processes and re-evaluate workflow in reprocessing spaces to ensure there is no risk of cross contamination."

The widespread shortages of PPE during COVID-19 prompted the U.S. Food and Drug Administration (FDA) to work with relevant sterilization/decontamination companies and grant emergency use authorization (EUA) to decontaminate N95 or N95-equivalent respirators in the U.S. for reuse by healthcare workers in hospital settings.[3]

Dominic Ivankovich, President of ASP, declared, "On 4/11/20, ASP received EUA from the FDA for the use of STERRAD Sterilization Systems to decontaminate compatible N95 respirators. Our STERRAD systems are already available onsite in many U.S. hospitals and could collectively decontaminate millions of masks. ASP is confident this newly available option will help mitigate PPE shortages in the event of future outbreaks."

STERRAD Sterilization Systems by Advanced Sterilization Products (ASP)

Hand hygiene and infection monitoring

Healthcare and hospital staff keep a constant pulse on hand hygiene, cleaning,

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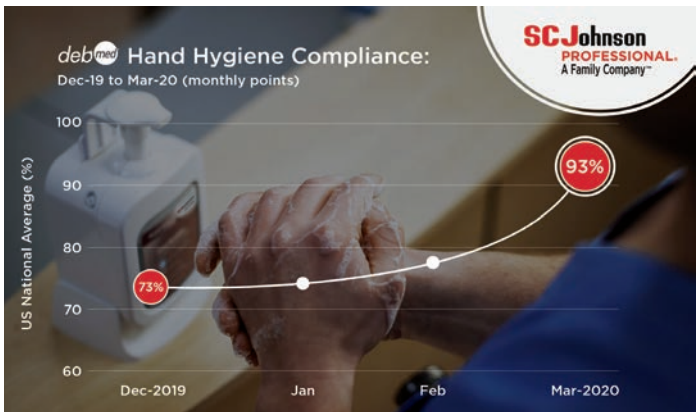
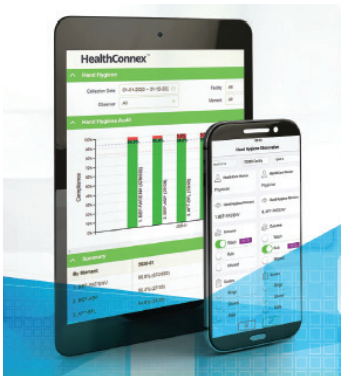
sterilization and protection against patient infections. Martin McGonagle, General Manager, Healthcare, SC Johnson Professional, calls out routine handwashing, hand disinfection and hand hygiene compliance.

"One of the best ways to prevent the spread of germs is frequent handwashing with soap and water. In addition, healthcare institutions are ensuring hand sanitizer is readily available and educating users to help protect staff and patients. The Alcare Extra Foaming Hand Sanitizer uniquely contains 80% Ethanol, which is now recommended by the WHO.[4] This ABHR product can eliminate up to 99.9999% of tested organisms in 15 seconds – information about the specific microorganisms is available on file," McGonagle stated.

"Since the arrival of COVID-19, we've seen a steady increase in hand hygiene compliance rates in many hospital units utilizing the DebMed Hand Hygiene Monitoring System, according to the WHO 5-Moments. To reduce the risk of comorbidities, healthcare facilities will implement improved methods for monitoring staff hand hygiene compliance. A greater emphasis will be placed on hand sanitizer formulations that include 80% Ethanol and set a higher standard for reducing HAIs and preventing HAC penalties," he added.



DebMed Hand Hygiene Monitoring System by SC Johnson Professional



HealthConnex infection control software

Digital systems, like the HealthConnex cloud-based infection control software used in skilled nursing and assisted living facilities, help track and report infection cases in real time, said Alex Hunter, Senior Manager, HealthConnex Inc.

"As a result of COVID-19 our clients are increasing hand hygiene audits and education, conducting increased symptom checks on residents and staff, conducting contact tracing where needed and reporting and tracking cases through our software dashboard. The software alerts staff of suspected infection cases and potential outbreaks in real time," Hunter said. "Staff can quickly report on infection cases, laboratory results, hand hygiene audits, ARO/MDRO history and more. When COVID-19 is over we imagine there will be stricter infection control practices and increased reporting will be required, especially in the long-term

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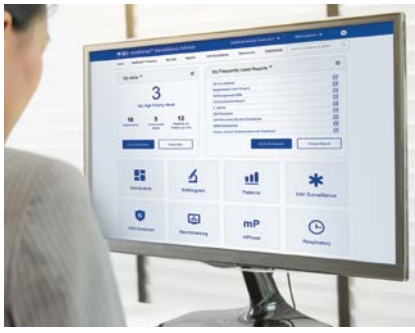
1. Altavita Village, Time and Waste Reduction Study, June – December 2016. Data on file.

care industry. Our clients are eager to continue to work with us, leading to less paperwork and more real-time reporting from software to local and state healthcare authorities."

Juan-Carlo Cruz, an infection control practitioner, appreciates the HealthConnex product. "The software helped us improve our infection control practices resulting in significantly reduced outbreaks. The app was able to present a clear picture of infection cases on my units. I really like being able to view live updates on floor plans and run multiple reports in graph and tabular formats in seconds."

Helping to monitor HAIs in facilities and increase efficiency in care is the BD MedMined Surveillance Advisor, explains Clint Pridgen, Platform Leader, MedMined for BD.



BD MedMined Surveillance Advisor

"BD MedMined Surveillance Advisor, part of the HealthSight analytic suite, combines ongoing clinical surveillance of HAIs with clinical support and educational tools. This solution helps hospitals optimize their workflows, streamline regulatory reporting and enhance day-to-day infection prevention. As a result, clinicians are empowered to spend less time on administrative tasks and more time on patient care," Pridgen said.

Fighting surgical site and healthcare-acquired infections

Healthcare teams take many steps to provide safe care for patients and block pathways for surgical site infections (SSIs) or healthcare-acquired infections (HAIs). Not only do these infections strike a dangerous blow with patients' health, they also increase costs of care, length of stays and chances for deaths.

The WHO looks at curbing these infections as a priority around the world, pointing out its "Global Guidelines for the Prevention of Surgical Site Infection" in a news release.

"Surgical site infections are caused by bacteria that get in through incisions made during surgery. They threaten the lives of millions of patients each year and contribute to the spread of antibiotic resistance. In low- and middle-income countries, 11% of patients who undergo surgery are infected in the process. But surgical site infections are not just a problem for poor countries. In the United States, they contribute to patients spending more than 400,000 extra days in hospitals at a cost of an additional US $900 million per year."[5]

The release continued, "The guidelines include 13 recommendations for the period before surgery, and 16 for preventing infections during and after surgery. They range from simple precautions such as ensuring that patients bathe or shower before surgery and the best way for surgical teams to clean their hands, to guidance on when to use antibiotics to prevent infections, what disinfectants to use before incision, and which sutures to use."

One Syracuse, NY-based healthcare system developed new processes and education in care to reduce their numbers of HAIs, reported the Association for Professionals in Infection Control and Epidemiology (APIC).

"Looking to decrease healthcare-associated infection (HAI) rates across their healthcare system, infection control practitioners in Syracuse, NY identified chlorhexidine gluconate (CHG) bathing as a means of reducing infection rates. After conducting thorough staff training, hospital-wide use of CHG bathing for every patient was implemented, leading to significant results: a 65 percent reduction in central line-associated bloodstream infection (CLABSI), a 30 percent reduction in catheter-associated urinary tract infection (CAUTI), a 100 percent reduction in Methicillin Resistant Staphylococcus Aureus bacteremia (MRSA), and a 28 percent reduction in *Clostridioides difficile* (C. diff). Estimated total cost savings fell just shy of $515,000 between April 2017 and March 2018."[6]

The report added, "In addition to bathing the patients, staff implemented Agency for Healthcare Research and Quality (AHRQ) recommendations to clean patient devices with CHG during the process, including cleaning external catheters six inches down from the patient, as well as lumens of central lines. Educating staff about the CHG bathing was key to ensuring compliance. To alleviate concerns about potential skin side effects using this bathing method, the team incorporated a skincare bundle, including lotions, in the process."

What are the latest products and practices used in surgical care and infection prevention in hospitals and other healthcare settings? Here are a few examples:

Ventilator and respiratory care

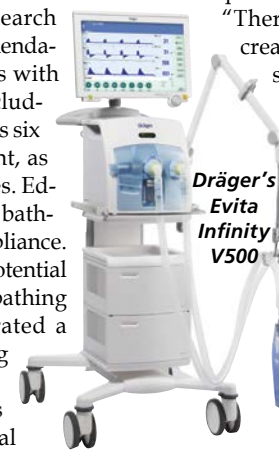
Dräger's portfolio of ventilators provides respiratory monitoring and vital breathing support for patients in care.

"The Savina 300 family, with integrated turbine technology, provides high quality ventilation therapy in areas of the hospital where no central air supply is available. The Evita Infinity V500, with an integrated compressor and external battery, enables safe transport in and out of the ICU. To improve workflows, the V500 can adapt to patient demands, such as invasive and non-invasive ventilation, and high-flow O_2 therapy," according to the Dräger website.[7]

With the ongoing spread of COVID-19, Dräger makes several recommendations on the reprocessing and disinfection of anesthesia equipment to help keep patients safe from infection in an online letter to customers.

"The novel coronavirus (SARS-CoV-2) belongs to the category of enveloped viruses that in principle can be removed with disinfectants with limited virucidal effectiveness. However, for a higher safety level it is also possible to use locally registered hospital disinfectant with a label claim for a non-enveloped virus (e.g. norovirus, rotavirus, adenovirus, and poliovirus). Reprocessing of products, components and surfaces potentially contaminated can be achieved by following the standard procedures described in the Instruction for Use (IFU) and the usage of suitable disinfectants with at least limited viricidal effectiveness."[8]

Additionally, Dräger is ramping up production of its masks and ventilators to help meet the rising needs of protection for healthcare workers and care for patients, states the company's online frequently asked questions.



Dräger's Evita Infinity V500

"There has been a significant increase in global demand for personal protective equipment, especially FFP masks, half masks, particle filters, safety glasses and protective suits. We produce our masks in Sweden and South Africa. Our production capacities are currently fully utilized and we naturally have the relevant back-up stocks to cushion short-term fluctuations. In our Medical Technology division we are currently producing almost

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Dräger

The average cost of an SSI incident per US hospital is $11,874 - $34,670*

product design award 2013

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*Scott R. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. US Centers for Disease Control, 2009. http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf

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twice as many ventilators as before. We are working flat out to expand our production capacity even further. In times of pandemic, we are doing everything in our power to meet our social responsibility to provide for society – worldwide."[9]

Wound care

The emergence of drug-resistant microorganisms and recent outbreaks like COVID-19 are bringing a sharper focus on infection prevention, notes Melanie Waddell, Vice President Marketing, Entrotech Life Sciences, Inc. The company's Prevahex[CHX] Antimicrobial Dressing helps protect wound and catheter sites for up to seven days and helps ward off infections.

Prevahex[CHX] Antimicrobial IV Securement Dressing from Entrotech Life Sciences, Inc.

"I believe now, more than ever, healthcare professionals are taking the highest precautions to prevent infections. When it comes to HAIs, like CLABSI and SSI, there's strong evidence that shows that these are caused by patients' own bacterial flora, particularly from their skin. Newer research has shown that post skin antisepsis, regrowth of bacteria occurs within eight hours. In a recent study at a large urban trauma center in the northeast, Prevahex[CHX] played a huge role in preventing infections at the PIVC site due to its immediate and prolonged suppression of bacterial growth and was significantly more likely to last to therapy completion as compared to a standard dressing," Waddell noted.

Catheter care

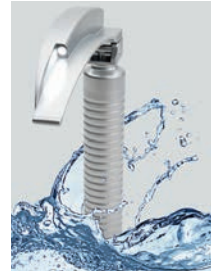
Last year, Dale Medical Products, Inc. (Dale) added its new Hold-n-Place Catheter Securement Devices. They are available as stand alone Engineered Stabilization Devices (ESD) or packaged with transparent dressings or with Entrotech Life Science's PrevahexCHX(tm) Antimicrobial Transparent Film Dressing to protect patients from infection, according to a release from Dale.

Hold-n-Place securement device from Dale Medical

"Like the Dale Hold-n-Place General Purpose Securement Devices, the new catheter securement products are Engineered Stabilization Devices (ESD) and feature a soft, comfortable, flexible design with no hard plastic parts. No skin prep is required for application, and no alcohol is required for removal. The devices are available in two sizes: one for IV, arterial and mid-line catheter securement and another for CVC, PICC and arterial sheath securement. Holdn-Place is the first and only catheter ESD available with the PrevahexCHX dressing. Together, the two products combine the effectiveness of an ESD with the first and only chlorhexidine dressing cleared by the FDA with complete antimicrobial protection throughout the entire transparent areas, and with the adhesive strength and transparency clinicians are looking for in a seven-day securement solution."[10]

Disinfection and protection

Reusable, reprocessed instruments, like the HEINE USA, Inc. EasyClean Handle and Classic+ Blades, are designed to help defend against infections in surgical care, addresses Christian Berling, HEINE USA, Inc.



HEINE EasyClean Laryngoscope handle

"There are no cracks, crevices, threads or plastics in our laryngoscope system that can lead to cross-contamination. We also work closely with sterile processing professionals on IFU documents and processes that ensure effective reprocessing. We have also focused on creating instruments that don't have to be disassembled in order to be reprocessed. I think that hospitals should look toward increasing their use of high-quality reusable products to reduce their costs and insulate them from supply chain disruptions like they have experienced with the COVID-19 pandemic," Berling said.

Nanosonics' trophon EPR and trophon2 provide automated high-level disinfection (HLD) for ultrasound probes to help protect patients and healthcare workers from the risk of cross-contamination, highlights Ken Shaw, President of Americas.

"Upscaling infection prevention practices is the new normal, and this applies to ultrasound too. Ultrasound is a frontline triage and monitoring tool during the COVID-19 pandemic, as it provides actionable information rapidly at the bedside. Lung ultrasound is common, and in severe cases ultrasound guided thoracentesis may be needed to help patients breathe. Critical care and maternal fetal medicine settings are acutely aware of the need to reprocess their ultrasound probes following the Spaulding classification. Some facilities have opted for automated HLD for all probes during the pandemic, for an extra margin of safety in these high-risk settings," Shaw expressed.

Nanosonics' trophon2

PDI Healthcare's Sani-Cloth disinfectant wipes, Profend swabsticks for nasal decolonization and Prevantics line for skin or needleless access device antisepsis, all aid with infection prevention, a topic that should continue to be addressed among healthcare staff, suggests Stowe.

"I think the future of infection prevention will go back to basics. Educating and ensuring that staff are using the appropriate disinfectant, at the appropriate times to clean and disinfect, on the appropriate surfaces, and observing the correct contact time will be key to reducing surface contamination, protecting staff and patients, and preventing infections even after this pandemic is over. This will require increased funding and attention to infection prevention efforts to achieve continued success," she stated.

PDI Healthcare's Sani-Cloth disposable wipes and other cleaners

In addition to PPE, Ansell produces patient care, environmental cleaning and sterile processing supplies and equipment that focus on protection of disease trans-

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For more info go to pdihc.com/tracking-2019-novel-coronavirus-2019-ncov/

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[1] https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

PATIENT CARE INTERVENTIONAL CARE **ENVIRONMENT OF CARE**

Z-Slider Patient Transfer Sheet from Ansell

mission, eliminating cross contamination, and healthcare worker and patient safety and protection, points out Gilbert.

"Ansell manufactures an extensive portfolio of surgical, medical exam and specialty gloves for dental, first responders, food safety, environmental cleaning and sterile processing. We offer lab-safety solutions for chemical, biological and physical hazards, including cleanroom applications. We also offer disposable antimicrobial linens for operating room turnover kits, including disposable mops and straps, and other safety solutions such as positioners for pressure injury prevention, patient transfer and repositioning sheets, and a variety of sharps prevention."

Surface cleaning

Hospitals accommodate many revolving visitors, patients and staff, in and out of many rooms, and in touch with many surfaces prone to contamination – from floors, furniture, computers and more. Matt Schiering, Chief Marketing Officer, Contec Inc., shines a light on the numerous staff assisting with cleaning and disinfection along with the company's pre-saturated IPA wipes and Laundry-Free, disposable microfiber used in cleaning and disinfecting clinical and patient areas.

Contec Inc.'s Premira mop pad

"The hidden heroes right now are the EVS workers and compounding pharmacists who are maintaining the cleanest environments possible during the pandemic. In patient care areas, we see increased disinfectant use. In sterile compounding, IPA and PPE top the list. More confidence in cleaning is the emerging priority. More pre-saturated solutions delivering a metered "dose" through mops and/or wipes is one example. Disinfecting chemistries which clean, disinfect and decontaminate surfaces quickly and without damaging what they're applied to are also in heightened demand," Schiering indicated.

Doe Kley, Senior Infection Preventionist, Clorox Healthcare, believes all staff should be responsible for maintaining clean and safe healthcare environments. She points to the new Clorox Total 360 electrostatic sprayer with Clorox Healthcare Spore[11] Defense Cleaner Disinfectant, which are EPA-approved to kill the top HAI-causing pathogens on hard, nonporous surfaces.

Clorox Total 360 electrostatic sprayer with Clorox Healthcare Spore Defense Cleaner Disinfectant

"It's an all-hands-on deck situation in which everyone (not just the environmental services department) must do their part to ensure the environment is safe and clean for patients, visitors and staff. A recent peer-reviewed study conducted by Curtis Donskey, MD, Infectious Disease Specialist, Louis Stokes Cleveland Veterans Affairs Medical Center, found that using Spore Defense with the Clorox Total 360 System was just as effective as bleach wipes in reducing *C. diff* spores inoculated on wheelchairs, but could be applied in one-fourth of the time, providing healthcare facilities with a rapid and effective means to reduce spore contamination on surfaces like never before,"[12] Kley addressed.

As fingers touch and contaminate keyboards, Deanne VanKirk, National Sales Manager, Key Source International (KSI), stresses the importance of KSI's disinfectant-enabled LinkSmart keyboard and San-a-Key software.

"Maintaining clean keyboards at the healthcare desktop on a 24/7 basis will be more important than ever, now that we know how easily COVID-19 is spread and its impact on patients. Whereas traditional keyboards are breeding grounds for germs and viruses, our LinkSmart keyboard features an integrated cleaning button that enables frontline healthcare workers to temporarily disable keys for proper disinfection. Our companion software, San-a-Key, provides an onscreen, animated cleaning guide, scheduled cleaning, desktop push reminders and analytics that empower administrators to know the who, when and where of keyboard cleaning. Our keyboards feature a smooth, crevice-free silicone surface that prevents collection of dirt and germs," VanKirk noted.

KSI-1801 LinkSmart keyboard

While shoes touch and contaminate floors, Maria P. Garces, Marketing Manager, PathO3Gen Solutions presents its Footwear Sanitizing Station that connects to a standard outlet, requires no additional staff and provides a visible sign of 24/7 continuous protection. A handheld wand using the company's patented Ozone + UVC technology for sanitizing surfaces, objects and more is also in the pipeline.

"We foresee the implementation of preventative measures in practically every industry that has contact with people on a massive scale. Currently, staffing companies in partnership with hotels in NYC have placed the Footwear Sanitizing Station (FSS) in hotel lobbies so that healthcare workers can confidently proceed into their hotel rooms, having eliminated pathogens from the soles of their shoes. Similarly, hospitals and elderly care homes are placing the FSS at every entrance to protect the perimeter and significantly reduce the spread of pathogens that are carried into a facility. Our technology has been proven to eliminate up to 99.999% of deadly HAI-causing pathogens. Additionally, the FSS eliminated the human coronavirus from footwear in just eight seconds, in a three-part study performed by CREM Co. Labs in Canada," Garces said.

PathO3Gen Solutions' Footwear Sanitizing Station

She reported that after six months of implementing the FSS, AdventHealth Connerton, an acute care facility in Florida, saw a 34% reduction in HAIs. Jeffrey Miley, Pharm. D., CPh., Director of Pharmacy Services, AdventHealth, described, "To

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help improve our compliance with USP 797 and minimize the risk of pathogens contaminating our clean room, we added to our department's action plan the PathO3Gen Solutions Footwear Sanitizing Station. The stations are now part of our process that each employee uses prior to entering our clean room. We will continue to utilize the PathO3Gen Solutions Footwear Sanitizing Station in our ante room because the more tools we have to minimize risk for our patients helps us provide safer patient care. Our last air and surface samples were negative for any growth in both rooms."

No-touch room disinfection

COVID-19 and other pathogens persist and operating rooms, emergency rooms and other hospital rooms need to be turned over and cleaned quickly and thoroughly. Sarah Simmons, DrPH CIC FAPIC, Senior Director of Science, Xenex, calls out its pulsed xenon UV disinfection robots, which can deactivate pathogens and work in five-minute cycles, without damaging materials or equipment.

Xenex' LightStrike robot decontaminates N95 respirator masks

"Little has changed in the past 20 years in how we clean and disinfect hospitals. Studies show that less than half of surfaces in a hospital room are disinfected when it's being cleaned and prepared for the next patient, which poses a threat to the next patient or healthcare worker in that room. The coronavirus pandemic is making it evident that more is needed to stop the spread of disease in healthcare facilities. As a result of the pandemic, we've seen increased interest from other healthcare facilities, such as urgent care centers, treatment facilities and medical office buildings. When you're able to disinfect dozens of rooms per day (like you can with a LightStrike robot), it brings the cost down to about $5/room," Simmons stated.

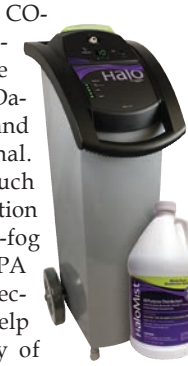
She continued, "We've seen hospitals move their LightStrike robots from the OR to the emergency department so they can immediately disinfect rooms and areas where coronavirus patients are seen/treated. The LightStrike robot was recently proven to deactivate SARS-CoV-2 in two minutes. Our robots are able to quickly disinfect high-touch surfaces where pathogens can linger (bed rails, tray tables, nurse call buttons, grab bars, wheelchairs, etc.) that may be missed during the manual cleaning process. The Mayo Clinic published a study documenting its 47% reduction in *C. diff* infection rates after it began using LightStrike robots to disinfect rooms on targeted units. Other hospitals, like Baptist Health in Jacksonville and United Hospital Center, began using their LightStrike robots to decontaminate N95 respirator masks. 3M determined that our robot's intense pulsed xenon UV light would not damage the fit or filtration of N95 respirators," Simmons explained.

Tru-D SmartUVC robot

Tru-D SmartUVC robots also provide an additional layer of room cleaning and defense against infections, addresses Alice Brewer, Director of Clinical Affairs, Tru-D SmartUVC.

"During outbreaks or pandemics, it is critical to strictly adhere to evidence-based practices for thorough disinfection and infection prevention. This includes manual cleaning with the addition of "no-touch" disinfection whenever possible. "No-touch" disinfection with Tru-D can also be used prior to manual cleaning to provide a cleaner environment for environmental services staff. Studies have shown that up to 50% of surfaces in healthcare settings are not properly disinfected by manual cleaning alone, which increases the risk of infection for anyone entering the room. By adding Tru-D to standard cleaning protocols, all surfaces in a room are disinfected, and the risk to the next patient and healthcare worker is decreased," Brewer expressed.

As SARS-CoV-2, the virus that causes COVID-19, lingers on surfaces and is easily spread, cleaning and disinfecting entire rooms is critical, stressed David St. Clair, Chairman and CFO, Halosil International. Disinfection solutions such as Halosil's Halo Disinfection System, which pairs dry-fog delivery with HaloMist (EPA Reg. No. 84526-6) disinfectant, are imperative to help decrease the possibility of infections.



Halosil International's Halo Disinfection System

"COVID-19 is highly contagious; reports state that SARS-CoV-2 can live up to three days on surfaces. To ensure the safety of workers and patients, healthcare facilities are relying on whole room disinfection solutions that can eliminate tough-to-kill pathogens wherever they lurk. Unlike electrostatic sprayers, which require an operator to continuously deploy the solution, our system is simply turned on and dispenses in touchless mode, limiting operator exposure to deadly viruses, while also eliminating the inherent risk in manual methods of disinfection that may leave some surfaces untreated. I expect tomorrow's new normal in disinfection will extend beyond healthcare into industries such as transportation, education and gyms where infections are prone to spread," he noted. HPN

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Kem Medical Products
www.kemmed.com

Lamiflow Technologies
www.lamiflowtech.com

DECONTAMINATION UNITS/EQUIPMENT

Advanced Ultra-Violet Systems
advanceduvsystems.com

Blickman
www.blickman.com

EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com

Far UV Technologies, Inc.
www.faruv.com

Jamco Products
www.jamcoproducts.com

MOBILE CONTAINMENT SYSTEMS

Jamco Products
www.jamcoproducts.com

KontrolKube by Fiberlock
www.fiberlock.com

NEGATIVE PRESSURE ISOLATION/ROOM AIR PRESSURE MONITOR

Hy-Tape International
www.hytape.com

RGF-BioControls
rgf.com/rgf-biocontrols/

SMOKE EVACUATORS

Hospital Safety Solutions
hospitalsafetysolutions.com

Medtronic
www.medtronic.com

SURGICAL SLUSH MACHINES/CONTAINERS

C Change Surgical
www.cchangesurgical.com

Ecolab Healthcare
www.ecolab.com/healthcare

TOXIC GAS/CHEMICAL DETECTION SYSTEMS

Assay Technology Inc.
www.assaytech.us

ChemDaq, Inc.
www.chemdaq.com

UV EMITTERS/DEVICES

Advanced Ultra-Violet Systems
advanceduvsystems.com

Far UV Technologies, Inc.
www.faruv.com

Getinge
www.getinge.com/us/

Hospital Safety Solutions
hospitalsafetysolutions.com

RD UVC
www.rduvc.com

Skytron
www.skytron.com

Tru-D SmartUVC
www.tru-d.com

WATER PURIFICATION/ FILTRATION/ DISINFECTION SYSTEMS

Case Medical
www.casemed.com

CS Medical
www.csmedicalllc.com

EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com

Pall Corp.
www.pall.com

Sanipur US
www.sanipur.com

ANTIMICROBIAL PRODUCTS & FINISHES

ANTIMICROBIAL SURFACES/FABRICS

AIONX Antimicrobial Technologies
www.AIONX.com

Allied BioScience
www.alliedbioscience.com

Ansell Healthcare
www.ansell.com

Cupron
cupronmedicaltextiles.com

Ethicon
www.ethicon.com

Nexera
www.nexeramed.com

Noble Biomaterials/Xstatic
www.infectionprevention textiles.com

Prime Medical
www.primemedical.com

Seal Shield
www.sealshield.com

UMF Corporation
www.perfectclean.com

Xstream Infection
www.xstreamic.com

ANTIMICROBIAL/ MICROBICIDAL PAINT/ FINISHES/COATINGS

EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com

Jamco Products
www.jamcoproducts.com

KleenEdge LLC
www.kleenedge.com

Sherwin Williams
www.swpaintshield.com

UMF Corporation
www.perfectclean.com

ANTIMICROBIAL-COATED/SEALED FIXTURES/FURNISHINGS/ EQUIPMENT

Allied BioScience
www.alliedbioscience.com

CleanSlate UV
www.cleanslateuv.com

EdgecoAmerica
www.edgecoamerica.com

Jamco Products
www.jamcoproducts.com

Kwalu
www.kwalu.com

Seal Shield
www.sealshield.com

WASHABLE/ ANTIMICROBIAL KEYBOARDS/MOBILE DEVICES

AIONX Antimicrobial Technologies
www.AIONX.com

Datalogic USA
www.datalogic.com

Henry Schein, Inc.
www.henryschein.com

Jamco Products
www.jamcoproducts.com

Key Source International
www.ksikeyboards.com

Seal Shield
www.sealshield.com

CATHETER PRODUCTS & ACCESSORIES

ANTIMICROBIAL PICC LINE COVER

Care + Wear
www.careandwear.com

ANTIMICROBIAL-COATED CATHETERS/ CONNECTORS

B. Braun Medical, Inc.
www.bbraunusa.com

Bard Medical
www.bardmedical.com

Baxter Healthcare Corp.
www.baxter.com

Cardinal Health
www.cardinalhealth.com

Cook Medical
www.cookmedical.com

Henry Schein, Inc.
www.henryschein.com

ICU Medical
www.icumed.com

Smiths Medical
www.smiths-medical.com

Teleflex Medical
www.teleflexmedical.com

CATHETER BARRIER PRECAUTIONS KIT

Cardinal Health
www.cardinalhealth.com

Henry Schein, Inc.
www.henryschein.com

ICU Medical
www.icumed.com

CATHETER SECUREMENT/ BARRIER DEVICES

3M
www.3m.com/medical

B. Braun Medical, Inc.
www.bbraunusa.com

Baxter Healthcare Corp.
www.baxter.com

Cardinal Health
www.cardinalhealth.com

Dale Medical Products
www.dalemed.com

Henry Schein, Inc.
www.henryschein.com

Hy-Tape International
www.hytape.com

ICU Medical
www.icumed.com

Parker Laboratories Inc.
www.parkerlabs.com

CATHETERS, ARTERIAL

Boston Scientific
www.bostonscientific.com

Cook Medical
www.cookmedical.com

Teleflex Medical
www.teleflexmedical.com

CATHETERS, CARDIAC

Boston Scientific
www.bostonscientific.com

Cardinal Health
www.cardinalhealth.com

Teleflex Medical
www.teleflexmedical.com

CATHETERS, CENTRAL LINE

Angelini Pharma
www.angelini-us.com

Cook Medical
www.cookmedical.com

Terumo
www.terumomedical.com

CATHETERS, SUCTION - OPEN & CLOSED

Bard Medical
www.bardmedical.com

Cook Medical
www.cookmedical.com

Medtronic
www.medtronic.com

CATHETERS, TRACHEAL

Cook Medical
www.cookmedical.com

CATHETERS, URINARY

Bard Medical
www.bardmedical.com

Cook Medical
www.cookmedical.com

Neomed Inc.
www.neomedinc.com

Poiesis Medical
www.poiesismedical.com

Teleflex Medical
www.teleflexmedical.com

CHG-IMPREGNATED SPONGE/DRESSING

3M
www.3m.com/medical

Cardinal Health
www.cardinalhealth.com

Entrotech Life Sciences, Inc.
www.prevahexchx.com

Henry Schein, Inc.
www.henryschein.com

DISINFECTION CAPS

3M
www.3m.com/medical

Angelini Pharma
www.angelini-us.com

Cardinal Health
www.cardinalhealth.com

Henry Schein, Inc.
www.henryschein.com

ICU Medical
www.icumed.com

Medtronic
www.medtronic.com

IV FILTRATION

Pall Corp.
www.pall.com

SAFETY I.V. CATHETERS/ CONNECTORS

B. Braun Medical, Inc.
www.bbraunusa.com

Baxter Healthcare Corp.
www.baxter.com

Cardinal Health
www.cardinalhealth.com

Dale Medical Products
www.dalemed.com

Henry Schein, Inc.
www.henryschein.com

Hy-Tape International
www.hytape.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

ICU Medical
www.icumed.com
Retractable Technologies
https://retractable.com/
Smiths Medical
www.smiths-medical.com
Teleflex Medical
www.teleflexmedical.com

CLEANING PRODUCTS, EQUIPMENT & SERVICES

ANTIMICROBIAL CASTERS

Henry Schein, Inc.
www.henryschein.com
Jamco Products
www.jamcoproducts.com

BLEACH DISINFECTANTS

Acute Care Pharmaceuticals
www.pharma-choice.com
Angelini Pharma
www.angelini-us.com
Clorox Healthcare
www.cloroxhealthcare.com
Current Technologies
www.currtechinc.com
Diversey
www.diversey.com
Henry Schein, Inc.
www.henryschein.com
P & G Professional
www.pgpro.com
PDI
www.pdihc.com
UMF Corporation
www.perfectclean.com

CLEANING/ HOUSEKEEPING CARTS

Akro-Mils
www.akro-mils.com
Current Technologies
www.currtechinc.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Jamco Products
www.jamcoproducts.com
Royce Rolls Ringer
www.roycerolls.net
Rubbermaid Commercial Products
rubbermaidcommercial.com

DECONTAMINATION EQUIPMENT/SUPPLIES

AIONX Antimicrobial Technologies
www.AIONX.com
BioQuell Inc.
www.bioquell.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
CIVCO Medical Solutions
www.civco.com
CleanSlate UV
www.cleanslateuv.com
Clorox Healthcare
www.cloroxhealthcare.com
Cygnus Medical
www.cygnusmedical.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Getinge
www.getinge.com/us/
Halosil International
https://halosil.com/
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hubscrub Company, The
www.hubscrub.com
Jamco Products
www.jamcoproducts.com
Key Surgical
www.keysurgical.com
Micro-Scientific
www.micro-scientific.com
Nanosonics
www.nanosonics.us
PathO3gen Solutions
www.patho3gen.com
Pure Processing
http://pure-processing.com/
Quality Processing Resource Group LLC
www.qprgllc.com
Ruhof Healthcare
www.ruhof.com
Serim Research Corporation
www.serim.com
Steriliz LLC
www.rduvc.com
TBJ, Inc.
www.tbjinc.com
TOMI Environmental Solutions Inc.
www.tomiesinc.com
Xstream Infection
www.xstreamic.com

ENVIRONMENTAL SERVICES

Acute Care Pharmaceuticals
www.pharma-choice.com
ChemDaq, Inc.
www.chemdaq.com
Clorox Healthcare
www.cloroxhealthcare.com
Daylight Medical
www.daylightmedical.com
HAIGuard
www.haiguard.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Micro-Scientific
www.micro-scientific.com
PDI
www.pdihc.com
Steriliz LLC
www.rduvc.com
UMF Corporation
www.perfectclean.com
Xstream Infection
www.xstreamic.com

FLOOR CLEANING MACHINES/SCURBBERS

Clorox Healthcare
www.cloroxhealthcare.com
Contec, Inc.
www.contechealthcare.com

HAMPERS

Ansell Healthcare
www.ansell.com
EdgecoAmerica
www.edgecoamerica.com
Encompass Group
www.encompassgroup.com
Henry Schein, Inc.
www.henryschein.com

LAUNDRY SERVICES

Curtain Care Plus a division of HAIGuard
www.haiguard.com
Ecolab Healthcare
www.ecolab.com/healthcare
HAIGuard
www.haiguard.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
MEDtegrity
www.medtegrity.us

MICROFIBER MOPS/ PRODUCTS

Ansell Healthcare
www.ansell.com
Contec, Inc.
www.contechealthcare.com
Curtain Care Plus a division of HAIGuard
www.haiguard.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EdgecoAmerica
www.edgecoamerica.com
Encompass Group
www.encompassgroup.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
HAIGuard
www.haiguard.com
Henry Schein, Inc.
www.henryschein.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Royce Rolls Ringer
www.roycerolls.net
Rubbermaid Commercial Products
rubbermaidcommercial.com
UMF Corporation
www.perfectclean.com

PEST MANAGEMENT

Clorox Healthcare
www.cloroxhealthcare.com
Ecolab Healthcare
www.ecolab.com/healthcare
Orkin Commercial Services
www.orkincommercial.com

ROOM DECONTAMINATORS

Advanced Ultra-Violet Systems
advanceduvsystems.com
BioQuell Inc.
www.bioquell.com
Clorox Healthcare
www.cloroxhealthcare.com
Ecolab Healthcare
www.ecolab.com/healthcare
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Far UV Technologies, Inc.
www.faruv.com
Henry Schein, Inc.
www.henryschein.com
Indigo-Clean
www.indigo-clean.com
RD UVC
www.rduvc.com
Steriliz LLC
www.rduvc.com
TOMI Environmental Solutions Inc.
www.tomiesinc.com
Xstream Infection
www.xstreamic.com

SURFACE DISINFECTANTS

Acute Care Pharmaceuticals
www.pharma-choice.com
AIONX Antimicrobial Technologies
www.AIONX.com
Air Clean Systems
www.aircleansystems.com
Angelini Pharma
www.angelini-us.com
Case Medical
www.casemed.com
Certol International
www.certol.com
CleanSlate UV
www.cleanslateuv.com
Clorox Healthcare
www.cloroxhealthcare.com
Current Technologies
www.currtechinc.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EdgecoAmerica
www.edgecoamerica.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Far UV Technologies, Inc.
www.faruv.com
Getinge
www.getinge.com/us/
Halosil International
https://halosil.com/
Henry Schein, Inc.
www.henryschein.com
Hubscrub Company, The
www.hubscrub.com
Key Surgical
www.keysurgical.com
Lonza, LLC
www.lonza.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Nexera
www.nexeramed.com
NEXT Medical Products Company
nextmedicalproducts.com
P & G Professional
www.pgpro.com
Palmero Health
www.palmerohealth.com
Parker Laboratories Inc.
www.parkerlabs.com
PDI
www.pdihc.com
Pure Processing
http://pure-processing.com/
Ruhof Healthcare
www.ruhof.com
Steriliz LLC
www.rduvc.com
TOMI Environmental Solutions Inc.
www.tomiesinc.com
Tru-D SmartUVC
www.tru-d.com
UMF Corporation
www.perfectclean.com

SURFACE HYGIENE TEST

3M
www.3m.com/medical

2020 INFECTION PREVENTION PRODUCT LISTINGS

Ecolab Healthcare
www.ecolab.com/healthcare
Getinge
www.getinge.com/us/
Henry Schein, Inc.
www.henryschein.com
Hygiena
hygiena.com/healthcare

UVC ROOM/DEVICE DECONTAMINATION

Advanced Ultra-Violet Systems
advanceduvsystems.com
CleanSlate UV
www.cleanslateuv.com
Daylight Medical
www.daylightmedical.com
Diversey
www.diversey.com
Far UV Technologies, Inc.
www.faruv.com
Henry Schein, Inc.
www.henryschein.com
Hospital Safety Solutions
hospitalsafetysolutions.com
Hubscrub Company, The
www.hubscrub.com
Indigo-Clean
www.indigo-clean.com
PathO3gen Solutions
www.patho3gen.com
PDI
www.pdihc.com
RD UVC
www.rduvc.com
ReadyDock, Inc.
www.readydock.net
Seal Shield
www.sealshield.com
Skytron
www.skytron.com
Steriliz LLC
www.rduvc.com
Surfacide
www.surfacide.com
Tru-D SmartUVC
www.tru-d.com
Xenex
www.xenex.com

VACUUM CLEANERS

Henry Schein, Inc.
www.henryschein.com

WHEELCHAIR CLEANING, AUTOMATED

Clorox Healthcare
www.cloroxhealthcare.com
Henry Schein, Inc.
www.henryschein.com
Hospital Safety Solutions
hospitalsafetysolutions.com
Hubscrub Company, The
www.hubscrub.com

DISINFECTANTS & CLEANERS

BRUSHES/SPONGES

Acute Care Pharmaceuticals
www.pharma-choice.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
CS Medical
www.csmedicalllc.com
Cygnus Medical
www.cygnusmedical.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Key Surgical
www.keysurgical.com
MediSafe
medisafeinternational.com
Metrex
www.metrex.com
Olympus America
www.olympusamerica.com
Palmero Health
www.palmerohealth.com
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com
Summit Medical
www.instrusafe.com
UMF Corporation
www.perfectclean.com

CHEMICAL STERILANTS

3M
www.3m.com/medical
Allied BioScience
www.alliedbioscience.com
Angelini Pharma
www.angelini-us.com
Henry Schein, Inc.
www.henryschein.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
STERIS, Corp.
www.steris.com

DETERGENTS/CLEANERS

Acute Care Pharmaceuticals
www.pharma-choice.com
ASP
www.asp.com
Belimed
www.belimed.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
Certol International
www.certol.com
Contec, Inc.
www.contechealthcare.com
Crosstex
www.crosstex.com
Current Technologies
www.currtechinc.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Hubscrub Company, The
www.hubscrub.com
Key Surgical
www.keysurgical.com
MediSafe
medisafeinternational.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
P & G Professional
www.pgpro.com
Palmero Health
www.palmerohealth.com
Pure Processing
http://pure-processing.com/
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com

DEVICE/INSTRUMENT DISINFECTANTS

ASP
www.asp.com
BioQuell Inc.
www.bioquell.com
Cantel Medical Corp.
www.cantelmedical.com
CIVCO Medical Solutions
www.civco.com
CleanSlate UV
www.cleanslateuv.com
Ecolab Healthcare
www.ecolab.com/healthcare
Getinge
www.getinge.com/us/
Healthmark Industries
www.hmark.com
Lonza, LLC
www.lonza.com
Micro-Scientific
www.micro-scientific.com
Nanosonics
www.nanosonics.us
Olympus America
www.olympusamerica.com
Pure Processing
http://pure-processing.com/
STERIS, Corp.
www.steris.com
Virox
www.virox.com

DISPENSERS

Acute Care Pharmaceuticals
www.pharma-choice.com
Case Medical
www.casemed.com
Certol International
www.certol.com
Clorox Healthcare
www.cloroxhealthcare.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Knight HC
www.knighthc.com
STERIS IMS
www.steris-ims.com

ECO-FRIENDLY CLEANERS

Allied BioScience
www.alliedbioscience.com
Case Medical
www.casemed.com
CleanSlate UV
www.cleanslateuv.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
MediSafe
medisafeinternational.com
Nanosonics
www.nanosonics.us
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com

ELECTROSTATIC SPRAYERS

Clorox Healthcare
www.cloroxhealthcare.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com

ENZYMATIC CLEANERS

ASP
www.asp.com
Belimed
www.belimed.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
Certol International
www.certol.com
Crosstex
www.crosstex.com
CS Medical
www.csmedicalllc.com
Getinge
www.getinge.com/us/
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
MediSafe
medisafeinternational.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Olympus America
www.olympusamerica.com
Pure Processing
http://pure-processing.com/
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com
Summit Medical
www.instrusafe.com
TBJ, Inc.
www.tbjinc.com

HIGH-LEVEL DISINFECTANTS

Acute Care Pharmaceuticals
www.pharma-choice.com
Angelini Pharma
www.angelini-us.com
ASP
www.asp.com
BioQuell Inc.
www.bioquell.com
Cantel Medical Corp.
www.cantelmedical.com
CIVCO Medical Solutions
www.civco.com
Contec, Inc.
www.contechealthcare.com
Crosstex
www.crosstex.com
CS Medical
www.csmedicalllc.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Henry Schein, Inc.
www.henryschein.com
Hubscrub Company, The
www.hubscrub.com
Key Surgical
www.keysurgical.com
Lonza, LLC
www.lonza.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Nanosonics
www.nanosonics.us
P & G Professional
www.pgpro.com
Palmero Health
www.palmerohealth.com
PDI
www.pdihc.com
STERIS, Corp.
www.steris.com
TBJ, Inc.
www.tbjinc.com

INSTRUMENT PRECLEANING PRODUCTS

Belimed
www.belimed.com
Case Medical
www.casemed.com
Certol International
www.certol.com
CIVCO Medical Solutions
www.civco.com
Clorox Healthcare
www.cloroxhealthcare.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
Knight HC
www.knighthc.com
Lonza, LLC
www.lonza.com
MediSafe
medisafeinternational.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Nanosonics
www.nanosonics.us
Pure Processing
http://pure-processing.com/
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com

WIPES

Acute Care Pharmaceuticals
www.pharma-choice.com
Angelini Pharma
www.angelini-us.com
Ansell Healthcare
www.ansell.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
Certol International
www.certol.com
Clorox Healthcare
www.cloroxhealthcare.com
Contec, Inc.
www.contechealthcare.com
CS Medical
www.csmedicalllc.com
Current Technologies
www.currtechinc.com
Cygnus Medical
www.cygnusmedical.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
Kimberly-Clark Professional
www.kcprofessional.com
Lonza, LLC
www.lonza.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Nanosonics
www.nanosonics.us
NEXT Medical Products Company
nextmedicalproducts.com
Palmero Health
www.palmerohealth.com
Parker Laboratories Inc.
www.parkerlabs.com
PDI
www.pdihc.com
Pure Processing
http://pure-processing.com/
STERIS IMS
www.steris-ims.com

DISPOSABLES

DISPOSABLE KITS & TRAYS

Ansell Healthcare
www.ansell.com
B. Braun Medical, Inc.
www.bbraunusa.com
Choyce Products
www.choyce-products.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hygie
www.hygie.com
Magnolia Medical Technologies
www.magnolia-medical.com
Medtronic
www.medtronic.com
Neomed Inc.
www.neomedinc.com
Ruhof Healthcare
www.ruhof.com
Teleflex Medical
www.teleflexmedical.com

DISPOSABLE MEDICAL DEVICES/PRODUCTS

Aesculap
www.aesculapusa.com
Ambu
www.ambuusa.com
Ansell Healthcare
www.ansell.com
B. Braun Medical, Inc.
www.bbraunusa.com
CIVCO Medical Solutions
www.civco.com
Clean Safety Inc.
www.cleansafety.com
Crosstex
www.crosstex.com
Current Technologies
www.currtechinc.com
Dale Medical Products
www.dalemed.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
Halyard Health
www.halyardhealth.com
Healthmark Industries
www.hmark.com
HEINE North America
www.heine-na.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hygie
www.hygie.com
Key Surgical
www.keysurgical.com
Kimberly-Clark Professional
www.kcprofessional.com
Kyra Medical
www.kyramedical.com
Magnolia Medical Technologies
www.magnolia-medical.com
Malaysian Rubber Export Promotion Council
www.mrepc.com
Medical Indicators
www.medicalindicators.com
Neomed Inc.
www.neomedinc.com
NEXT Medical Products Company
nextmedicalproducts.com
PureWick Corp
www.purewick.com
Ruhof Healthcare
www.ruhof.com
Scanlan International, Inc.
scanlaninternational.com
Technicuff Corp.
www.technicuff.com
Viscot Medical
www.viscot.com

DISPOSABLE PRIVACY/ SHOWER CURTAINS

Construction Specialties
www.c-sgroup.com
Cubicle Curtain Factory, Inc.
CubicleCurtainFactory.com
Curtain Care Plus a division of HAIGuard
www.haiguard.com
EdgecoAmerica
www.edgecoamerica.com
HAIGuard
www.haiguard.com
Henry Schein, Inc.
www.henryschein.com
KleenEdge LLC
www.kleenedge.com
On the Right Track
www.ontherighttrack.com

DISPOSABLE SCRUBS

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com
Contec, Inc.
www.contechealthcare.com
Encompass Group
www.encompassgroup.com
Healthmark Industries
www.hmark.com
Mölnlycke Health Care
www.molnlyckeusa.com
Precept Medical Products
www.preceptmed.com

DISPOSABLE TELEPHONES/TV REMOTES

Henry Schein, Inc.
www.henryschein.com

DISPOSABLE/WASHABLE BLOOD PRESSURE CUFFS/COVERS/ ADAPTERS

GE Healthcare
www.gehealthcare.com/en
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Technicuff Corp.
www.technicuff.com

DRAPES & BARRIER PRODUCTS

ANTIMICROBIAL-IMPREGNATED LINENS/ FABRICS/TEXTILES/ CURTAINS

Ansell Healthcare
www.ansell.com
Construction Specialties
www.c-sgroup.com
Cubicle Curtain Factory, Inc.
CubicleCurtainFactory.com
Cupron
cupronmedicaltextiles.com
Curtain Care Plus a division of HAIGuard
www.haiguard.com
HAIGuard
www.haiguard.com
Henry Schein, Inc.
www.henryschein.com
ICP Medical
www.icpmedical.com
KleenEdge LLC
www.kleenedge.com
Nexera
www.nexeramed.com
On the Right Track
www.ontherighttrack.com
Prime Medical
www.primemedical.com
UMF Corporation
www.perfectclean.com

EQUIPMENT DRAPES/ COVERS

Cygnus Medical
www.cygnusmedical.com
Ecolab Healthcare
www.ecolab.com/healthcare
EdgecoAmerica
www.edgecoamerica.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
ICP Medical
www.icpmedical.com
Kimberly-Clark Professional
www.kcprofessional.com
Kyra Medical
www.kyramedical.com
Palmero Health
www.palmerohealth.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

FLUID CONTROL DRAPES

Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com

GENERAL PURPOSE DRAPES

Curtain Care Plus a division of HAIGuard
www.haiguard.com
Cygnus Medical
www.cygnusmedical.com
Ecolab Healthcare
www.ecolab.com/healthcare
HAIGuard
www.haiguard.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com

MATTRESS PROTECTION/ MAINTENANCE

Ansell Healthcare
www.ansell.com
Cardinal Health
www.cardinalhealth.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
ICP Medical
www.icpmedical.com
Peel Away Labs
www.peelawayshealth.com
Trinity Guardion
www.trinityguardion.com
UMF Corporation
www.perfectclean.com

SURGICAL DRAPES

3M
www.3m.com/medical
Ahlstrom-Munksjo
www.ahlstrom-munksjo.com
Cardinal Health
www.cardinalhealth.com
Ecolab Healthcare
www.ecolab.com/healthcare
Encompass Group
www.encompassgroup.com
HAIGuard
www.haiguard.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Kyra Medical
www.kyramedical.com
Neomed Inc.
www.neomedinc.com
Viscot Medical
www.viscot.com

FLUID/TEMPERATURE/ PRESSURE MANAGEMENT

FLUID MANAGEMENT SYSTEMS

Ansell Healthcare
www.ansell.com
B. Braun Medical, Inc.
www.bbraunusa.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hygie
www.hygie.com
Hy-Tape International
www.hytape.com
Multisorb Technologies
www.multisorb.com

FLUID WARMING SYSTEMS

3M
www.3m.com/medical
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Skytron
www.skytron.com
Smiths Medical
www.smiths-medical.com

IRRIGATION SYSTEMS

Ecolab Healthcare
www.ecolab.com/healthcare
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com

PATIENT TEMPERATURE MANAGEMENT PRODUCTS

3M
www.3m.com/medical
Bard Medical
www.bardmedical.com
C Change Surgical
www.cchangesurgical.com
Cooper-Atkins Corp
www.cooper-atkins.com
Ecolab Healthcare
www.ecolab.com/healthcare
Encompass Group
www.encompassgroup.com
Exergen
www.exergen.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Smiths Medical
www.smiths-medical.com

PRESSURE MANAGEMENT/ POSITIONING PRODUCTS

Ansell Healthcare
www.ansell.com
Cygnus Medical
www.cygnusmedical.com
Dale Medical Products
www.dalemed.com
Encompass Group
www.encompassgroup.com
Henry Schein, Inc.
www.henryschein.com
Kyra Medical
www.kyramedical.com
Linet Americas
www.linetamericas.com
Mölnlycke Health Care
www.molnlyckeusa.com
Stryker (Sage Products)
www.sageproducts.com

HAND HYGIENE

ALCOHOL HAND RUBS

Acute Care Pharmaceuticals
www.pharma-choice.com
Crosstex
www.crosstex.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Metrex
www.metrex.com
PDI
www.pdihc.com
SC Johnson Professional
www.scjp.com

ANTIBACTERIAL PAPER TOWELS

Henry Schein, Inc.
www.henryschein.com

ANTISEPTICS

CIVCO Medical Solutions
www.civco.com
Henry Schein, Inc.
www.henryschein.com
Lonza, LLC
www.lonza.com
Mölnlycke Health Care
www.molnlyckeusa.com
PDI
www.pdihc.com

AUTOMATED HANDWASHING/ SURVEILLANCE

Clean Hands - Safe Hands
cleanhands-safehands.com
Ecolab Healthcare
www.ecolab.com/healthcare
Excel Dryer
www.exceldryer.com
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Kimberly-Clark Professional
www.kcprofessional.com
SC Johnson Professional
www.scjp.com

DISPENSING SYSTEMS, HANDCLEANERS

3M
www.3m.com/medical
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EdgecoAmerica
www.edgecoamerica.com
Georgia Pacific Professional
www.gppro.com
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Kimberly-Clark Professional
www.kcprofessional.com
Metrex
www.metrex.com
P & G Professional
www.pgpro.com
Rubbermaid Commercial Products
rubbermaidcommercial.com

DISPENSING SYSTEMS, TOUCHLESS

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com
Clorox Healthcare
www.cloroxhealthcare.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Georgia Pacific Professional
www.gppro.com
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Metrex
www.metrex.com
P & G Professional
www.pgpro.com
Rubbermaid Commercial Products
rubbermaidcommercial.com

FOAMING HAND SOAP

Acute Care Pharmaceuticals
www.pharma-choice.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Lonza, LLC
www.lonza.com
Metrex
www.metrex.com
Mölnlycke Health Care
www.molnlyckeusa.com
P & G Professional
www.pgpro.com

HAND CLEANERS/ ANTIMICROBIAL SOAPS

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

Clorox Healthcare
www.cloroxhealthcare.com
Crosstex
www.crosstex.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Kimberly-Clark Professional
www.kcprofessional.com
Lonza, LLC
www.lonza.com
Metrex
www.metrex.com
Micro-Scientific
www.micro-scientific.com
Mölnlycke Health Care
www.molnlyckeusa.com
P & G Professional
www.pgpro.com
Palmero Health
www.palmerohealth.com

HAND CLEANING STATION

Ecolab Healthcare
www.ecolab.com/healthcare
Excel Dryer
www.exceldryer.com
Henry Schein, Inc.
www.henryschein.com

HAND SANITIZERS, WATERLESS

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com
Angelini Pharma
www.angelini-us.com
Choyce Products
www.choyce-products.com
Clorox Healthcare
www.cloroxhealthcare.com
Contec, Inc.
www.contechealthcare.com
Crosstex
www.crosstex.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EdgecoAmerica
www.edgecoamerica.com
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Metrex
www.metrex.com
Nexera
www.nexeramed.com
P & G Professional
www.pgpro.com

SURGICAL HAND SCRUB

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com
Ecolab Healthcare
www.ecolab.com/healthcare
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Mölnlycke Health Care
www.molnlyckeusa.com

TRICOLASAN-FREE HAND CLEANERS

Clorox Healthcare
www.cloroxhealthcare.com
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Micro-Scientific
www.micro-scientific.com
Mölnlycke Health Care
www.molnlyckeusa.com

PATIENT HYGIENE

BATHING SYSTEMS & PRODUCTS

Avadim Technologies, Inc.
www.theraworx.com
Coloplast
www.coloplast.us
Ecolab Healthcare
www.ecolab.com/healthcare
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Mölnlycke Health Care
www.molnlyckeusa.com
Stryker (Sage Products)
www.sageproducts.com

INCONTINENCE PRODUCTS

Choyce Products
www.choyce-products.com
Coloplast
www.coloplast.us
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Stryker (Sage Products)
www.sageproducts.com
UMF Corporation
www.perfectclean.com

NASAL SANITIZER ANTISEPTIC

3M
www.3m.com/medical
Nozin
www.nozin.com
PDI
www.pdihc.com
Stryker (Sage Products)
www.sageproducts.com

ORAL CARE/VAP PREVENTION PRODUCTS

Dale Medical Products
www.dalemed.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Stryker (Sage Products)
www.sageproducts.com

PATIENT HYGIENE PRODUCTS

Avadim Technologies, Inc.
www.theraworx.com
Coloplast
www.coloplast.us
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
Henkel Corportation/ Dial Professional
www.dialprofessional.com
Henry Schein, Inc.
www.henryschein.com
Hygie
www.hygie.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Kimberly-Clark Professional
www.kcprofessional.com
Palmero Health
www.palmerohealth.com
PDI
www.pdihc.com
Stryker (Sage Products)
www.sageproducts.com

PERSONAL PROTECTIVE EQUIPMENT/APPAREL

APRONS/BIBS/ARM PROTECTORS

Acute Care Pharmaceuticals
www.pharma-choice.com
Ansell Healthcare
www.ansell.com
BLOXR Solutions LLC
www.bloxr.com
Choyce Products
www.choyce-products.com
Fashion Seal Healthcare
fashionsealhealthcare.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Palmero Health
www.palmerohealth.com
Tronex Healthcare
www.tronexcompany.com

BOOT COVERS/ OVERSHOES

Acute Care Pharmaceuticals
www.pharma-choice.com
Ansell Healthcare
www.ansell.com
Choyce Products
www.choyce-products.com
Contec, Inc.
www.contechealthcare.com
EdgecoAmerica
www.edgecoamerica.com
Halyard Health
www.halyardhealth.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
Kimberly-Clark Professional
www.kcprofessional.com
Precept Medical Products
www.preceptmed.com
Pure Processing
http://pure-processing.com/
Tronex Healthcare
www.tronexcompany.com

BOUFFANT/SURGICAL CAPS

Acute Care Pharmaceuticals
www.pharma-choice.com
Choyce Products
www.choyce-products.com
Fashion Seal Healthcare
fashionsealhealthcare.com
Halyard Health
www.halyardhealth.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Medgluv, Inc.
www.medgluv.com
Mölnlycke Health Care
www.molnlyckeusa.com
Precept Medical Products
www.preceptmed.com
Tronex Healthcare
www.tronexcompany.com

CLIP-ON/WRAP-AROUND LENSES

Acute Care Pharmaceuticals
www.pharma-choice.com
Henry Schein, Inc.
www.henryschein.com
Palmero Health
www.palmerohealth.com
Precept Medical Products
www.preceptmed.com

COVERALLS/JACKETS

Acute Care Pharmaceuticals
www.pharma-choice.com
Ahlstrom-Munksjo
www.ahlstrom-munksjo.com
Ansell Healthcare
www.ansell.com
Cardinal Health
www.cardinalhealth.com
EdgecoAmerica
www.edgecoamerica.com
Fashion Seal Healthcare
fashionsealhealthcare.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org
Key Surgical
www.keysurgical.com
Kimberly-Clark Professional
www.kcprofessional.com
Mölnlycke Health Care
www.molnlyckeusa.com
Precept Medical Products
www.preceptmed.com
Tronex Healthcare
www.tronexcompany.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

FACE MASKS/SHIELDS

3M
www.3m.com/medical

Acute Care Pharmaceuticals
www.pharma-choice.com

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com

Ansell Healthcare
www.ansell.com

Cardinal Health
www.cardinalhealth.com

Choyce Products
www.choyce-products.com

Crosstex
www.crosstex.com

Draeger
www.draeger.com

Halyard Health
www.halyardhealth.com

Healthmark Industries
www.hmark.com

Henry Schein, Inc.
www.henryschein.com

Key Surgical
www.keysurgical.com

Kimberly-Clark Professional
www.kcprofessional.com

Medgluv, Inc.
www.medgluv.com

Metrex
www.metrex.com

Mölnlycke Health Care
www.molnlyckeusa.com

Nexera
www.nexeramed.com

Palmero Health
www.palmerohealth.com

Precept Medical Products
www.preceptmed.com

Pure Processing
http://pure-processing.com/

Ruhof Healthcare
www.ruhof.com

Tronex Healthcare
www.tronexcompany.com

GLOVES

Acute Care Pharmaceuticals
www.pharma-choice.com

Ansell Healthcare
www.ansell.com

Cardinal Health
www.cardinalhealth.com

Choyce Products
www.choyce-products.com

Clean Safety Inc.
www.cleansafety.com

Contec, Inc.
www.contechealthcare.com

Halyard Health
www.halyardhealth.com

Healthmark Industries
www.hmark.com

Henry Schein, Inc.
www.henryschein.com

Key Surgical
www.keysurgical.com

Kimberly-Clark Professional
www.kcprofessional.com

Malaysian Rubber Export Promotion Council
www.mrepc.com

Medgluv, Inc.
www.medgluv.com

Mölnlycke Health Care
www.molnlyckeusa.com

Pure Processing
http://pure-processing.com/

Sempermed USA
www.sempermedusa.com

Supermax
www.aureliagloves.com

Tronex Healthcare
www.tronexcompany.com

GOGGLES

Acute Care Pharmaceuticals
www.pharma-choice.com

Ansell Healthcare
www.ansell.com

Henry Schein, Inc.
www.henryschein.com

Metrex
www.metrex.com

Palmero Health
www.palmerohealth.com

HOOD FILTERS

Acute Care Pharmaceuticals
www.pharma-choice.com

EdgecoAmerica
www.edgecoamerica.com

Henry Schein, Inc.
www.henryschein.com

ISOLATION GOWNS

Acute Care Pharmaceuticals
www.pharma-choice.com

Choyce Products
www.choyce-products.com

Encompass Group
www.encompassgroup.com

Fashion Seal Healthcare
fashionsealhealthcare.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org

Kimberly-Clark Professional
www.kcprofessional.com

Precept Medical Products
www.preceptmed.com

Tronex Healthcare
www.tronexcompany.com

LAB GOWNS/COATS

Acute Care Pharmaceuticals
www.pharma-choice.com

Choyce Products
www.choyce-products.com

Contec, Inc.
www.contechealthcare.com

EdgecoAmerica
www.edgecoamerica.com

Fashion Seal Healthcare
fashionsealhealthcare.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org

ICP Medical
www.icpmedical.com

Kimberly-Clark Professional
www.kcprofessional.com

Nexera
www.nexeramed.com

Noble Biomaterials/Xstatic
www. infectionprevention textiles.com

Palmero Health
www.palmerohealth.com

Precept Medical Products
www.preceptmed.com

Prime Medical
www.primemedical.com

Tronex Healthcare
www.tronexcompany.com

N95 MASKS

3M
www.3m.com/medical

Acute Care Pharmaceuticals
www.pharma-choice.com

Choyce Products
www.choyce-products.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Kimberly-Clark Professional
www.kcprofessional.com

Medgluv, Inc.
www.medgluv.com

Nexera
www.nexeramed.com

Precept Medical Products
www.preceptmed.com

Ruhof Healthcare
www.ruhof.com

Tronex Healthcare
www.tronexcompany.com

PPE DISPENSING SYSTEMS/ORGANIZERS

Acute Care Pharmaceuticals
www.pharma-choice.com

Ansell Healthcare
www.ansell.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org

Kimberly-Clark Professional
www.kcprofessional.com

RESPIRATORS

3M
www.3m.com/medical

Acute Care Pharmaceuticals
www.pharma-choice.com

CleanSpace Technology
cleanspacetechnology.com

Crosstex
www.crosstex.com

Draeger
www.draeger.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Kimberly-Clark Professional
www.kcprofessional.com

Tronex Healthcare
www.tronexcompany.com

SCRUBS

Acute Care Pharmaceuticals
www.pharma-choice.com

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com

Encompass Group
www.encompassgroup.com

Fashion Seal Healthcare
fashionsealhealthcare.com

Halyard Health
www.halyardhealth.com

Henry Schein, Inc.
www.henryschein.com

Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org

Kimberly-Clark Professional
www.kcprofessional.com

Mölnlycke Health Care
www.molnlyckeusa.com

Precept Medical Products
www.preceptmed.com

Prime Medical
www.primemedical.com

Tronex Healthcare
www.tronexcompany.com

SURGICAL GOWNS/ APPAREL

Acute Care Pharmaceuticals
www.pharma-choice.com

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com

Cardinal Health
www.cardinalhealth.com

Encompass Group
www.encompassgroup.com

Fashion Seal Healthcare
fashionsealhealthcare.com

Halyard Health
www.halyardhealth.com

Healthmark Industries
www.hmark.com

Henry Schein, Inc.
www.henryschein.com

Hygienically Clean Linens and Uniforms
www.hygienicallyclean.org

Kimberly-Clark Professional
www.kcprofessional.com

Medtronic
www.medtronic.com

Mölnlycke Health Care
www.molnlyckeusa.com

Nexera
www.nexeramed.com

Ruhof Healthcare
www.ruhof.com

Tronex Healthcare
www.tronexcompany.com

SURGICAL MASKS

3M
www.3m.com/medical

Acute Care Pharmaceuticals
www.pharma-choice.com

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com

Crosstex
www.crosstex.com

Halyard Health
www.halyardhealth.com

Healthmark Industries
www.hmark.com

Henry Schein, Inc.
www.henryschein.com

Kimberly-Clark Professional
www.kcprofessional.com

Medgluv, Inc.
www.medgluv.com

Mölnlycke Health Care
www.molnlyckeusa.com

Nexera
www.nexeramed.com

Precept Medical Products
www.preceptmed.com

Prime Medical
www.primemedical.com

Tronex Healthcare
www.tronexcompany.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

QUALITY CONTROL & TESTERS

BIOLOGICAL INDICATORS

3M
www.3m.com/medical
ASP
www.asp.com
BioQuell Inc.
www.bioquell.com
Crosstex
www.crosstex.com
Getinge
www.getinge.com/us/
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hygiena
hygiena.com/healthcare
Mesa Laboratories
www.mesalabs.com
Propper Manufacturing Co. Inc.
www.proppermfg.com
STERIS, Corp.
www.steris.com

CHEMICAL INTEGRATORS

3M
www.3m.com/medical
Crosstex
www.crosstex.com
Getinge
www.getinge.com/us/
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Propper Manufacturing Co. Inc.
www.proppermfg.com
Serim Research Corporation
www.serim.com
STERIS, Corp.
www.steris.com

CHEMICAL/GAS MONITORS

3M
www.3m.com/medical
ChemDaq, Inc.
www.chemdaq.com
CS Medical
www.csmedicalllc.com
Henry Schein, Inc.
www.henryschein.com
Kem Medical Products
www.kemmed.com
Propper Manufacturing Co. Inc.
www.proppermfg.com

CLEANING PROCESS VERIFICATION

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com
Case Medical
www.casemed.com
Clarus Medical
www.clarus-medical.com
Henry Schein, Inc.
www.henryschein.com
Hygiena
hygiena.com/healthcare
Petriss LLC
www.petrissinc.com
Propper Manufacturing Co. Inc.
www.proppermfg.com
Ruhof Healthcare
www.ruhof.com
Serim Research Corporation
www.serim.com
STERIS, Corp.
www.steris.com

GLUTARALDEHYDE MONITORS

3M
www.3m.com/medical
CS Medical
www.csmedicalllc.com
Henry Schein, Inc.
www.henryschein.com
Kem Medical Products
www.kemmed.com
Micro-Scientific
www.micro-scientific.com

RESPIRATOR FIT TESTERS

Cardinal Health
www.cardinalhealth.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com

STERILITY ASSURANCE PRODUCTS/TESTERS

3M
www.3m.com/medical
Acute Care Pharmaceuticals
www.pharma-choice.com
Crosstex
www.crosstex.com
DGSHAPE Corporation
dgshape.com/product/eirthemis
Getinge
www.getinge.com/us/
Henry Schein, Inc.
www.henryschein.com
MediSafe
medisafeinternational.com
Propper Manufacturing Co. Inc.
www.proppermfg.com
Ruhof Healthcare
www.ruhof.com
STERIS, Corp.
www.steris.com

SCREENING/TESTING

C. DIFFICILE TEST/ASSAY

Abbott
www.alere.com
Bio-Rad
www.bio-rad.com
Hardy Diagnostics
www.hardydiagnostics.com
Henry Schein, Inc.
www.henryschein.com

COVID-19 SEROLOGY TESTS

Abbott
www.alere.com
Roche
diagnostics.roche.com

COVID-19 DIAGNOSTIC TESTS

Abbott
www.alere.com
Roche
diagnostics.roche.com

MRSA TEST/ASSAY

Abbott
www.alere.com
Bio-Rad
www.bio-rad.com
Hardy Diagnostics
www.hardydiagnostics.com
Henry Schein, Inc.
www.henryschein.com

POINT-OF-CARE SCREENING

Abbott
www.alere.com
BioFire Diagnostics
www.Biofiredx.com
Cepheid
www.cepheid.com
Hardy Diagnostics
www.hardydiagnostics.com

RAPID FLU TEST KIT

Abbott
www.alere.com
BioFire Diagnostics
www.Biofiredx.com
Cepheid
www.cepheid.com
Hardy Diagnostics
www.hardydiagnostics.com
Henry Schein, Inc.
www.henryschein.com
Roche
diagnostics.roche.com

SEPSIS SCREENING

Abbott
www.alere.com

SPECIMEN COLLECTION KITS/CONTAINERS/TRANSPORT/DECAPPERS

Ansell Healthcare
www.ansell.com
Choyce Products
www.choyce-products.com
Henry Schein, Inc.
www.henryschein.com
Magnolia Medical Technologies
www.magnolia-medical.com
Medtronic
www.medtronic.com
Multisorb Technologies
www.multisorb.com

TEMPERATURE SCREENING DEVICES/COVERS

Exergen
www.exergen.com
Henry Schein, Inc.
www.henryschein.com
Medical Indicators
www.medicalindicators.com

SHARPS SAFETY/NEEDLESTICK PROTECTION

DISPENSER BOXES

Henry Schein, Inc.
www.henryschein.com

NEEDLE PROTECTION/SHARPS SAFETY DEVICES

Ansell Healthcare
www.ansell.com
B. Braun Medical, Inc.
www.bbraunusa.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Medtronic
www.medtronic.com
Owen Mumford
www.owenmumford.com
Retractable Technologies
https://retractable.com/
Smiths Medical
www.smiths-medical.com
Terumo
www.terumomedical.com

SHARPS DISPOSAL/CONTAINERS/TRANSFER DEVICES

Ansell Healthcare
www.ansell.com
Cardinal Health
www.cardinalhealth.com
EdgecoAmerica
www.edgecoamerica.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Medtronic
www.medtronic.com
Multisorb Technologies
www.multisorb.com
Red Bag Solutions
www.redbag.com
Smiths Medical
www.smiths-medical.com
Stericycle, Inc.
www.stericycle.com

STERILE PROCESSING

AUTOCLAVES/STEAM STERILIZERS

Belimed
www.belimed.com
Getinge
www.getinge.com/us/
Henry Schein, Inc.
www.henryschein.com
Midmark
www.midmark.com
Skytron
www.skytron.com
STERIS, Corp.
www.steris.com
Tuttnauer USA
www.tuttnauerusa.com

AUTOMATED SCOPE/PROBE/DEVICE REPROCESSORS

ASP
www.asp.com
Cantel Medical Corp.
www.cantelmedical.com
Cardinal Health
www.cardinalhealth.com
CIVCO Medical Solutions
www.civco.com
Henry Schein, Inc.
www.henryschein.com
Nanosonics
www.nanosonics.us
Olympus America
www.olympusamerica.com
Pure Processing
http://pure-processing.com/
STERIS, Corp.
www.steris.com

DEVICE TRANSPORT

Belimed
www.belimed.com
Case Medical
www.casemed.com
CIVCO Medical Solutions
www.civco.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Jamco Products
www.jamcoproducts.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

Ruhof Healthcare
www.ruhof.com
STERIS IMS
www.steris-ims.com

ETO STERILIZING UNITS

3M
www.3m.com/medical
Henry Schein, Inc.
www.henryschein.com

HLD PASTEURIZATION

Henry Schein, Inc.
www.henryschein.com

HYDROGEN PEROXIDE GAS/VAPOR STERILIZERS

ASP
www.asp.com
Henry Schein, Inc.
www.henryschein.com
Nanosonics
www.nanosonics.us
STERIS, Corp.
www.steris.com

LIQUID CHEMICAL STERILIZERS

Henry Schein, Inc.
www.henryschein.com
Micro-Scientific
www.micro-scientific.com
STERIS, Corp.
www.steris.com

LOW TEMPERATURE STERILIZERS

3M
www.3m.com/medical
ASP
www.asp.com
Henry Schein, Inc.
www.henryschein.com
STERIS, Corp.
www.steris.com

MEDICAL DEVICE DRYING CABINETS

Air Clean Systems
www.aircleansystems.com
Belimed
www.belimed.com
Cenorin LLC
www.cenorin.com
CS Medical
www.csmedicalllc.com
Henry Schein, Inc.
www.henryschein.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com

OZONE STERILIZERS

Henry Schein, Inc.
www.henryschein.com

REPROCESSING SERVICES & PRODUCTS

ASP
www.asp.com
Case Medical
www.casemed.com
Clarus Medical
www.clarus-medical.com
DGSHAPE Corporation
dgshape.com/product/eirthemis
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hospital Safety Solutions
hospitalsafetysolutions.com
Key Surgical
www.keysurgical.com
Nanosonics
www.nanosonics.us
oneSource Document Site
www.onesourcedocs.com
Petriss LLC
www.petrissinc.com
Pure Processing
http://pure-processing.com/
Quality Processing Resource Group LLC
www.qprgllc.com
Ruhof Healthcare
www.ruhof.com
Scanlan International, Inc.
scanlaninternational.com
Serim Research Corporation
www.serim.com
STERIS, Corp.
www.steris.com
STERIS IMS
www.steris-ims.com
Stryker Sustainability Solutions
sustainability.stryker.com

STERILIZATION CONTAINERS/TRAYS

Aesculap
www.aesculapusa.com
ASP
www.asp.com
Case Medical
www.casemed.com
Cygnus Medical
www.cygnusmedical.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Innovative Sterilization Technologies
www.iststerilization.com
Key Surgical
www.keysurgical.com
Scanlan International, Inc.
scanlaninternational.com
STERIS, Corp.
www.steris.com
Summit Medical
www.instrusafe.com

STERILIZATION PACKAGING/WRAP/POUCHES

Ahlstrom-Munksjo
www.ahlstrom-munksjo.com
ASP
www.asp.com
Certol International
www.certol.com
Crosstex
www.crosstex.com
Cygnus Medical
www.cygnusmedical.com
Halyard Health
www.halyardhealth.com
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Key Surgical
www.keysurgical.com
Kimberly-Clark Professional
www.kcprofessional.com
Propper Manufacturing Co. Inc.
www.proppermfg.com
STERIS, Corp.
www.steris.com

ULTRASONIC CLEANERS

Belimed
www.belimed.com
Henry Schein, Inc.
www.henryschein.com
MediSafe
medisafeinternational.com
Skytron
www.skytron.com
STERIS, Corp.
www.steris.com
TBJ, Inc.
www.tbjinc.com

WASHER-DECONTAMINATOR CARTS

Belimed
www.belimed.com
Henry Schein, Inc.
www.henryschein.com
LogiQuip
www.logiquip.com
Skytron
www.skytron.com
STERIS, Corp.
www.steris.com
TBJ, Inc.
www.tbjinc.com

WASHER-DISINFECTORS

Belimed
www.belimed.com
Cantel Medical Corp.
www.cantelmedical.com
CIVCO Medical Solutions
www.civco.com
CS Medical
www.csmedicalllc.com
Henry Schein, Inc.
www.henryschein.com
MediSafe
medisafeinternational.com
Skytron
www.skytron.com
STERIS, Corp.
www.steris.com

SURVEILLANCE/SOFTWARE/EDUCATION

ALERT SYSTEMS

Amplion Clinical Communications
www.amplionalert.com
ChemDaq, Inc.
www.chemdaq.com
HealthConnex
https://healthconnex.ai
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
KleenEdge LLC
www.kleenedge.com
Premier, Inc.
www.premierinc.com

ANTIMICROBIAL STEWARDSHIP/DRUG UTILIZATION MANAGEMENT

BD (Becton, Dickinson and Company)
www.bd.com
BioFire Diagnostics
www.Biofiredx.com
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
HealthConnex
https://healthconnex.ai
Premier, Inc.
www.premierinc.com
RLDatix
www.rldatix.com
Vigilanz Corporation
www.vigilanzcorp.com

COMPLIANCE AUDITING SERVICE

Ecolab Healthcare
www.ecolab.com/healthcare
HealthConnex
https://healthconnex.ai
Petriss LLC
www.petrissinc.com
Quality Processing Resource Group LLC
www.qprgllc.com
Ruhof Healthcare
www.ruhof.com

DATA MINING/ANALYTICS

Amplion Clinical Communications
www.amplionalert.com
Centrak, Inc.
www.centrak.com
Ecolab Healthcare
www.ecolab.com/healthcare
HealthConnex
https://healthconnex.ai
KleenEdge LLC
www.kleenedge.com
MedTrainer
www.medtrainer.com
Premier, Inc.
www.premierinc.com
Ready Set Surgical
www.readysetsurgical.com
Vigilanz Corporation
www.vigilanzcorp.com

INFECTION PREVENTION SIGNAGE

Ecolab Healthcare
www.ecolab.com/healthcare
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
KleenEdge LLC
www.kleenedge.com
Multisorb Technologies
www.multisorb.com

INSTRUMENT TRACKING SYSTEMS

Ready Set Surgical
www.readysetsurgical.com
Scanlan International, Inc.
scanlaninternational.com
STERIS, Corp.
www.steris.com

REPORTING/SURVEILLANCE SOFTWARE

Amplion Clinical Communications
www.amplionalert.com
ASP
www.asp.com
CleanSlate UV
www.cleanslateuv.com
DGSHAPE Corporation
dgshape.com/product/eirthemis
Ecolab Healthcare
www.ecolab.com/healthcare
GOJO Industries
www.gojo.com
Halyard Health
www.halyardhealth.com
HealthConnex
https://healthconnex.ai
Healthmark Industries
www.hmark.com
Key Source International
www.ksikeyboards.com
KleenEdge LLC
www.kleenedge.com
MedTrainer
www.medtrainer.com

2020 INFECTION PREVENTION PRODUCT LISTINGS

Petriss LLC
www.petrissinc.com
Premier, Inc.
www.premierinc.com
Seal Shield
www.sealshield.com
Tru-D SmartUVC
www.tru-d.com

TRAINING/EDUCATION/SIGNAGE

3M
www.3m.com/medical
Aesculap
www.aesculapusa.com
Cantel Medical Corp.
www.cantelmedical.com
Case Medical
www.casemed.com
Crosstex
www.crosstex.com
DGSHAPE Corporation
dgshape.com/product/eirthemis
Diversey
www.diversey.com
Ecolab Healthcare
www.ecolab.com/healthcare
EvaClean by EarthSafe Chemical Alternatives
www.evaclean.com
GOJO Industries
www.gojo.com
Healthcare Laundry Accreditation Council
www.hlacnet.org
HealthConnex
https://healthconnex.ai
Healthmark Industries
www.hmark.com
Henry Schein, Inc.
www.henryschein.com
Joint Commision Resources
www.jcrinc.com
Key Surgical
www.keysurgical.com
KleenEdge LLC
www.kleenedge.com
MedTrainer
www.medtrainer.com
oneSource Document Site
www.onesourcedocs.com
Quality Processing Resource Group LLC
www.qprgllc.com
RapidRecalling.com
www.rapidrecalling.com
Stericycle, Inc.
www.stericycle.com

WIRELESS TEMPERATURE MONITORING

Centrak, Inc.
www.centrak.com
Halyard Health
www.halyardhealth.com
Hill-Rom
www.hill-rom.com

WASTE MANAGEMENT

BIOHAZARD/INFECTIOUS WASTE CONTAINMENT

Ansell Healthcare
www.ansell.com
Case Medical
www.casemed.com
Current Technologies
www.currtechinc.com
Cygnus Medical
www.cygnusmedical.com
EdgecoAmerica
www.edgecoamerica.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Jamco Products
www.jamcoproducts.com
Medtronic
www.medtronic.com
Multisorb Technologies
www.multisorb.com
Palmero Health
www.palmerohealth.com
Rubbermaid Commercial Products
rubbermaidcommercial.com

SOLIDIFIERS

Ansell Healthcare
www.ansell.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hygie
www.hygie.com
Multisorb Technologies
www.multisorb.com

SPILL KITS/CONTAINMENT

Acute Care Pharmaceuticals
www.pharma-choice.com
Air Clean Systems
www.aircleansystems.com
CS Medical
www.csmedicalllc.com
Ecolab Healthcare
www.ecolab.com/healthcare
Henry Schein, Inc.
www.henryschein.com
Hygie
www.hygie.com
Kem Medical Products
www.kemmed.com
Medtronic
www.medtronic.com
Multisorb Technologies
www.multisorb.com
STERIS IMS
www.steris-ims.com

SUCTION CANISTER SYSTEMS

Henry Schein, Inc.
www.henryschein.com
Hygie
www.hygie.com

WASTE MANAGEMENT SYSTEMS

Air Clean Systems
www.aircleansystems.com
Akro-Mils
www.akro-mils.com
Henry Schein, Inc.
www.henryschein.com
Hygie
www.hygie.com
Hy-Tape International
www.hytape.com
Jamco Products
www.jamcoproducts.com
Red Bag Solutions
www.redbag.com
Stericycle, Inc.
www.stericycle.com

WOUND CARE

ADHESIVES/ADHESIVE REMOVERS

3M
www.3m.com/medical
Choyce Products
www.choyce-products.com
Ethicon
www.ethicon.com
Henry Schein, Inc.
www.henryschein.com
Hy-Tape International
www.hytape.com
Micro-Scientific
www.micro-scientific.com

ANITMICROBIAL SUTURES

Ethicon
www.ethicon.com

ANTIMICROBIAL/SILVER DRESSINGS/BANDAGES

3M
www.3m.com/medical
Coloplast Corp.
www.coloplast.us
Convatec
www.convatec.com
Henry Schein, Inc.
www.henryschein.com
Medtronic
www.medtronic.com
Mölnlycke Health Care
www.molnlyckeusa.com

BANDAGES & DRESSINGS

3M
www.3m.com/medical
Angelini Pharma
www.angelini-us.com
Cardinal Health
www.cardinalhealth.com
Coloplast Corp.
www.coloplast.us
Choyce Products
www.choyce-products.com
Convatec
www.convatec.com
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Hy-Tape International
www.hytape.com
Medtronic
www.medtronic.com
Mölnlycke Health Care
www.molnlyckeusa.com
Tronex Healthcare
www.tronexcompany.com
Z-Medica
www.quikclotcontrolplus.com

DEBRIDEMENT PRODUCTS

B. Braun Medical, Inc.
www.bbraunusa.com
Coloplast Corp.
www.coloplast.us
Henry Schein, Inc.
www.henryschein.com
Mölnlycke Health Care
www.molnlyckeusa.com

DRAINS/SUCTIONS

Bard Medical
www.bardmedical.com
Cardinal Health
www.cardinalhealth.com
Cook Medical
www.cookmedical.com
Ethicon
www.ethicon.com
Henry Schein, Inc.
www.henryschein.com
Hy-Tape International
www.hytape.com

HYDROGEL ADHESIVE DRESSINGS

Henry Schein, Inc.
www.henryschein.com

PRESSURE ULCER PREVENTION PRODUCTS

Ansell Healthcare
www.ansell.com
Coloplast Corp.
www.coloplast.us
Mölnlycke Health Care
www.molnlyckeusa.com
Stryker (Sage Products)
www.sageproducts.com

SURGICAL SITE SKIN PREP

3M
www.3m.com/medical
Halyard Health
www.halyardhealth.com
Henry Schein, Inc.
www.henryschein.com
Kimberly-Clark Professional
www.kcprofessional.com
Medtronic
www.medtronic.com
Stryker (Sage Products)
www.sageproducts.com

WOUND CLEANSERS

3M
www.3m.com/medical
Angelini Pharma
www.angelini-us.com
B. Braun Medical, Inc.
www.bbraunusa.com
Bard Medical
www.bardmedical.com
Cardinal Health
www.cardinalhealth.com
Coloplast Corp.
www.coloplast.us
Henry Schein, Inc.
www.henryschein.com
Medtronic
www.medtronic.com

WOUND CLOSURE PRODUCTS

3M
www.3m.com/medical
Ethicon
www.ethicon.com
Henry Schein, Inc.
www.henryschein.com
Hill-Rom
www.hill-rom.com
Hy-Tape International
www.hytape.com
Medtronic
www.medtronic.com
Multisorb Technologies
www.multisorb.com

IP PRODUCT SPOTLIGHTS

ANGELINI PHARMA

Angelini Pharma U.S., headquartered in Maryland, is dedicated to delivering relevant healthcare solutions, education, and the highest quality infection control products. Our mission is to inform and empower clinicians to provide superior patient care for one purpose only – saving lives.

Visit www.ksrleads.com/?006hp-027

ASP

STERRAD VELOCITY Biological Indicator (BI)/Process Challenge Device (PCD) Sterility assurance in just 15 minutes.* The only rapid read PCD for STERRAD Systems that meets AAMI guidelines.

*Time to result dependent on Reader software version.

Visit www.ksrleads.com/?006hp-039

GOJO

Smart Technology. Smart Service.

In today's world, Environmental Services and Maintenance Staff are tasked with reducing costs while increasing productivity. PURELL SMARTLINK Service Alerts provide real-time monitoring of dispenser refill status, battery life and system health for proactive servicing that reduces touch-points and improves workflow.

Visit www.ksrleads.com/?006hp-024

MICRO-SCIENTIFIC

Opti-Cide MAX Disinfectant Cleaner Kills tested organisms in 30 seconds to 1 minute, 2 minute TB. Kills ESKAPE and ESKAPE MDRO organisms in 1 minute. Bactericidal, Fungicidal, Virucidal, and Tuberculocidal. Safe on clinical surfaces such as stainless steel, and plastics. Cleans better than high alcohol formulas and won't cloud plastics.

Visit www.ksrleads.com/?006hp-035

HEALTHMARK INDUSTRIES

Protective Covers

Keep your devices safe and germ-free with our protective covers! We offer disposable, zip lock plastic sleeves designed to keep your phones and tablets clean. Our hygienic keyboard covers protect against pollution or contamination with bacteria and germs. Easy to fit and use, these protective covers may be changed as often as needed to ensure clean use anywhere you go! The protective covers come in two sizes: (4.25" x 7.13") or (7.88" x 10.25") and keyboard covers fit all standard keyboard sizes.

Visit www.ksrleads.com/?006hp-034

MREPC

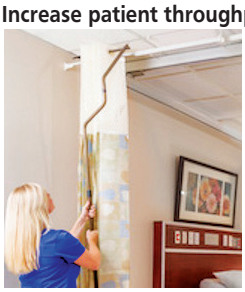
Malaysia: World's No.1 for Medical Gloves

When it comes to protection, quality makes the difference. For decades, Malaysia has been one of the world's most trusted exporters of high-quality rubber products; offering Medical Examination and Cleanroom Gloves, High Risk Medical Gloves, Catheters, Condoms, Breathing Bags, Dental Dams, and Prophylactics.

Visit www.ksrleads.com/?006hp-025

ON THE RIGHT TRACK

Increase patient throughput significantly



OTRT allows an entire privacy curtain to be replaced without a ladder in under 1 minute. Our disposable/recyclable curtains ensure lower risk for infection prevention and maximizing patient throughput. Our chemical-free curtains are the only truly recyclable privacy curtain in the United States. Contact us for further information.

Visit www.ksrleads.com/?006hp-038

HEINE

The HEINE Reusable Laryngoscope System Featuring the EasyClean LED Handle and Classic+ Blades is an innovative system that provides the utmost in performance and safety. HEINE has designed a high-quality reusable laryngoscope that can be effectively and efficiently reprocessed. There are no cracks, crevices, threads, or plastics in our laryngoscope system that can lead to cross-contamination. Through innovative design, careful IFU revisions and quality craftsmanship, HEINE offers the safest laryngoscope system on the market.

Visit www.ksrleads.com/?006hp-031

PDI

At PDI, we never forget who we are all working for. That's why we offer a broad range of evidence-based, market-leading products and solutions, designed to help reduce preventable infections, control healthcare costs, and ultimately help save lives. It's part of our passion to Be The Difference, every day.

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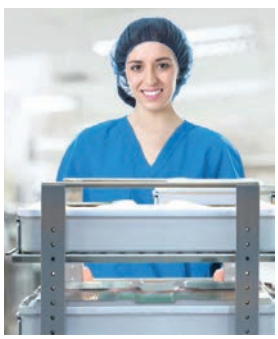

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SPECIAL REPORT

Take aim at costs, quality and outcomes with high-quality medical supplies

The old ways of doing business no longer apply in healthcare. In this era of payment reform, health systems and hospitals must deliver higher quality care at a lower cost. The supply chain accounts for as much as 30 percent of a hospital's total expenses, behind only labor, presenting a significant opportunity for savings. So why not just purchase the cheapest medical supplies available? It's not as simple as it seems.

It all comes down to value. The fundamental principle behind healthcare reform is the shift from volume to value-based care. The volume of care no longer drives healthcare organizations' revenue; rather they are reimbursed based on the value of care delivered. In order to deliver value, the organization must strike a balance between cost and quality. In terms of supplies, this means a purchasing strategy that meets both operational/financial goals (e.g. competitive pricing, contract compliance, less waste) and clinical goals (e.g. high-quality patient outcomes with fewer complications).

This balance is at the heart of the Institute for Healthcare Improvement's (IHI) Triple Aim initiative. The IHI believes that in order to optimize health system performance, an organization must simultaneously address the three dimensions of the Triple Aim:

- Improving the patient experience of care (including quality and satisfaction);
- Improving the health of populations; and
- Reducing the per capita cost of healthcare.

As health systems and hospitals have worked to align their strategies with the Triple Aim, they have established value analysis committees (VAC) tasked with evaluating how product purchases impact these three areas. The result has been a more holistic approach to purchasing, where clinicians, supply chain professionals and other stakeholders (e.g. infection control, risk management) come together to determine how products impact cost, quality and outcomes beyond the initial acquisition and use.

For example, a hospital might choose to purchase the cheapest ventilator on the market as a way to cut its capital supply budget, but that product will only increase costs and lower care quality in the long term if the respiratory therapist's workflow is constantly interrupted. When a patient interface is ill fitting or uncomfortable to the patient it can disrupt his or her therapy. Non-compliance with therapy can lead to intubation or more days in an intensive care unit (ICU) – increasing costs and further exposing the patient to infections, such as ventilator-associated pneumonia (VAP). At a time when the Centers for Medicare & Medicaid Services (CMS) and other payors are penalizing health systems and hospitals for preventable complications, organizations simply can't afford to cut corners.

While most VACs are performing rigorous evaluations of expensive capital equipment, software and implant acquisitions in an effort to align with institutional goals, most have overlooked another product area that significantly impacts cost, quality and outcomes: High-volume, low-cost medical supplies and accessories. This category encompasses everything from IV tubing and wound dressing, to patient monitoring interfaces and breathing circuits.

With their simple designs and low price tags, medical supplies are often viewed as commodities, but these products have a major impact on care quality because they come into close and frequent contact with a high percentage of patients and are repeatedly replaced during the course of care. When these supplies are high quality and highly functioning, they contribute to all three goals of the Triple Aim:

1. ***Improving the patient experience of care***: Supplies designed for quality and comfort enhance patient care and comfort. With CMS providing reimbursements based on patient satisfaction scores (HCAHPS), it is in a healthcare facility's best interest to use supplies that improve the patient care experience. Breathing masks with cushioning gel to reduce pressure ulcers and nasal cannulas to accommodate specific facial and nasal structures are two examples of supplies designed with patient satisfaction in mind.
2. ***Improving the health of populations***: To impact the health of a population, healthcare organizations must transition from addressing specific episodes of care (e.g. physician office visits, hospital admissions) and broaden their focus to how they can impact cost and quality throughout the care continuum. This includes the supplies that clinicians use on patients throughout their journeys. A durable, yet comfortable, blood pressure cuff that is compatible with multiple manufacturers' monitors can travel with the patient from the operating room (OR) to the ICU to the step down unit, providing consistency of care for both patient and caregivers.
3. ***Reducing the per capita cost of health care***: Cost of care in the value-based environment goes well beyond the processes and products used in the initial treatment of a condition. Healthcare organizations must take into account how their choices impact the patient through discharge and beyond. Using a single-use ECG lead may cost more up front, but save money in the long term by reducing the risk for readmission due to a healthcare-acquired infection (HAI). When supplies work as intended, clinicians can focus on patient care, rather than spend time addressing and replacing ineffective or unsatisfactory inventory. Streamlined processes and less waste equates to lower costs across the board. HPN

In subsequent articles in this series, we will provide tips for aligning supply purchasing with Triple Aim goals, starting with the patient care experience:

How high-quality medical supplies improve the patient experience of care

Whereas in the past, patient satisfaction was something that most health systems and hospitals hoped to deliver, today they have no choice but to improve their customers' experiences. With the Centers for Medicare & Medicaid Services (CMS) providing reimbursements based on patient satisfaction scores (HCAHPS) and these scores readily available to healthcare consumers online, healthcare facilities are carefully analyzing what factors play into what patients perceive as a positive versus negative episode of care. That is why "improving the patient experience of care" is a key component of the Institute for Healthcare Improvement's (IHI's) Triple Aim initiative...

More next month.

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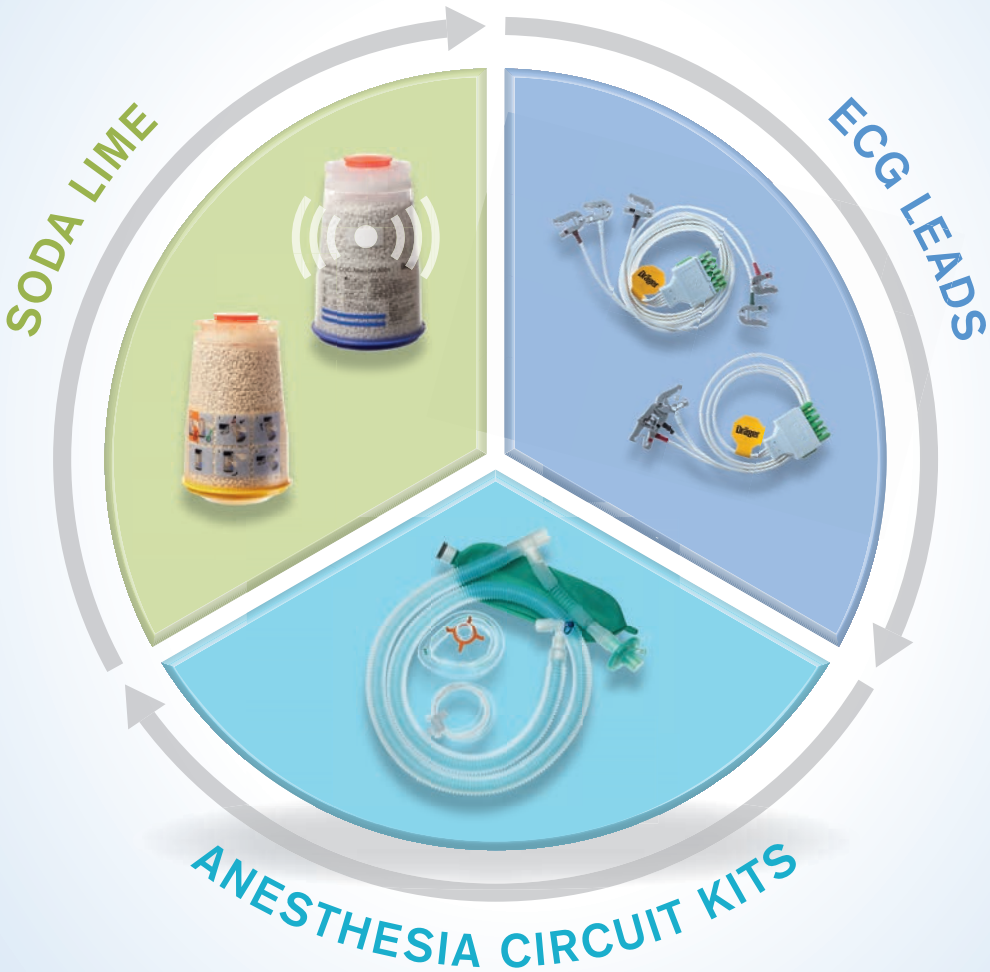
in the operating room



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SUPPLY CHAIN SALARY SURVEY

Surfing Supply Chain's salary wave

Pandemic, product shortages not yet point break for upward momentum

by Rick Dana Barlow

If there's one bit of positive news *Healthcare Purchasing News* readers can take to the bank while battling a pandemic and navigating through product shortages and sourcing options it's this: Compensation levels – at least for now – by and large, offer an affirmation of value.

Here are some welcoming takeaways from *HPN*'s 2020 Supply Chain Compensation Survey.

The overall compensation composite index rebounded this year after slipping in 2019, erasing last year's losses and exceeding even the previous year's gains. (CCI is derived by the average aggregate salary of all survey respondents.) But against the backdrop of the COVID-19 pandemic in 2020 will this turn out to be a ricochet next year? We'll see.

This year's survey achieves a bit of history as the average salary for a Director and Manager of Materials Management/Supply Chain punched through the six-figure ceiling for the first time in all the decades *HPN* has conducted this survey. Department leaders reported an average annual salary of $101,174, a whopping 7.5 percent gain over 2019's average of $94,096.

Not to be outdone, the higher-level Supply Chain leaders also recorded impressive gains. Executive/Senior/Corporate Vice Presidents reported an average $206,000 this year, compared to $153,421 in 2019. At the top of the leadership chain, the Chief Purchasing/Supply Chain Officers recorded $239,500 on average in 2020, up from $187,500 last year, according to the survey.

Two other titles – Value Analysis Director/Manager/Coordinator and O.R. Materials Manager/Business Manager – reported respectable gains in the four-digit realm. The former's compensation increased to $89,500 in 2020 from $67,167 last year; the latter rose to $70,938 this year from $67,167 in 2019. Another noteworthy result with these two titles? Females outpaced males in average compensation, the survey showed.

Of the eight titles that *HPN* typically surveys for compensation data, three reported decreases.

Purchasing Directors/Managers saw their compensation sink to $71,875 this year from $76,484 in 2019. Compensation for Senior Buyers/Buyers/Purchasing Agents slipped to $52,500 in 2020 from $54,868 last year, according to the survey. Meanwhile, compensation for those with MMIS/Supply Chain Informatics Manager titles slid to $62,500 from $78,750.

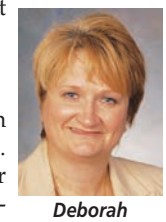
As an ongoing customary cautionary caveat, *HPN* advises readers that survey data and trending perspectives hinges on a variety of demographic elements that include the number and mix of respondents by job title, facility type and location and gender. For example, more senior-level executives who lead centralized integrated delivery network (IDN) operations generally will elevate salary data, while more buyers at community hospitals may push the salary data lower.

Still, *HPN* continues to monitor five key trending areas that make this more than just a numbers game.

Let's start with the most overt statistic.

Gender

Men still make more than women across the board. This has been consistent for decades even as the gap between the two periodically narrowed then widened.



Deborah Petretich Templeton

Deborah Petretich Templeton, R.Ph., Chief Administrative Officer, System Support Services, Geisinger Health, finds this data point to be puzzling and disappointing.

"One thought is that maybe a larger majority of women come in as entry level versus males that may have an edge on experience – longevity in the field – when they advance," she observed. "The disparity is more evident at higher level positions. The concentration of males at higher level positions could be influencing the statistic. Interestingly, the trend is reversed in the value analysis positions. Because of the clinical knowledge desired, many of these positions are filled by nurses whose jobs in nursing probably commanded a higher salary before they moved in to the role, and because there are many more female nurses than male, the females in these positions are seemingly compensated better."

Templeton's organization earned *HPN*'s Supply Chain Department of the Year Award in 2008.

Ed Hardin, Vice President, Supply Chain, Froedtert Health, laments the indication of gender disparity in healthcare supply chain compensation.

Ed Hardin

"In all the organizations I've worked in, it seems that gender neutrality when it comes to [compensation] decisions remains a priority," he noted. "I'd never want to work for an organization and/or be a leader that allowed this sort of thing. Unfortunately, the data doesn't prove this out as an industry-wide practice."

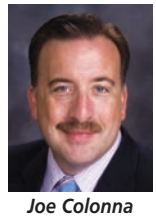
Hardin argues that education foreshadows change, leaning toward parity.

SALARY BY TITLE AND GENDER

	2019	2020	2020-FEMALE	2020-MALE
COO/Chief Purchasing Supply Chain Officer	$187,500	$239,500	$112,500	$271,250
Director/Manager, Materials/Supply Chain Management	$94,096	$101,174	$86,956	$107,885
Executive/Senior/Corporate VP, Materials/Supply Chain Management/Support Services	$153,421	$206,000	$138,333	$212,500
MMIS/Supply Chain Informatics Manager	$78,750	$62,500	n/a	$62,500
O.R. Materials Manager/Business Manager	$67,167	$70,938	$72,955	$71,250
Purchasing Director/Manager	$76,484	$71,875	$61,731	$78,750
Senior Buyer/Buyer/Purchasing Agent	$54,868	$52,500	$52,000	$54,643
Value Analysis Director/Manager/Coordinator	$87,045	$89,500	$97,083	$59,167

"Keeping in mind that supply chain undergrad and graduate programs are a relatively new phenomena, I believe we'll see greater equality as many more women are being educated," he continued. "In fact, I taught last summer at a local university's supply chain program, and nearly half the students were women. Many leaders like myself didn't have such programs, and I believe that in a matter of a few short years that focused education in supply chain will serve as the great equalizer."

Hardin served as the leader of *HPN*'s 2016 Supply Chain Department of the Year, CHRISTUS Health.



Joe Colonna

Joe Colonna, Vice President, Supply Chain, Piedmont Health, continues to find this statistic perplexing.

"I know what we pay our employees, at least on my team, and we just don't see this trend among our team," Colonna told *HPN*. "I am not saying this is not a real issue in the rest of the industry – just that we are not seeing it here. In part it may be that our team focuses on the skill set and characteristics and then the job experience. Is this person a good fit for the role and the organization? Is the organization a good fit for the person? Our H.R. team does a good job as well, looking at the background of the individual. The H.R. [compensation] team makes the recommendations on salary based on market research and, as far as I know, the fact that it is a man or woman, is irrelevant to that research. I know that it has never occurred to me to even think the pay grade should up or down based on a person's gender."

Colonna's organization earned *HPN's* Supply Chain Department of the Year Award in 2018.

Age, Experience, Longevity

This trend seems to indicate that the more experience you gain, which can take years, and/or the longer you stay within an organization, which can generate influence and power, the more you can earn. As a result, supply chain professionals weigh the decision between migrating frequently from organization to organization to advance/elevate a title, compensation and career versus remaining longer with fewer organizations, including spending an entire career in a single place.

Experts remain mixed and somewhat nonplussed that this even should be considered an issue.

"Moving around to move up provides experiences in various organizations that cannot be found in a textbook," contended Jean Sargent, Principal, Sargent Healthcare Strategies. "The move should first provide a solid foundation of knowledge of that organization and how supply chain works within that organization – good or bad. The frequency should occur based on that experience. Finding an environment that works for you is another consideration.

Jean Sargent

Having the respect from your organization for your experience is also invaluable. Moving away from this positive experience to the next step up may not be a good fit, which should also be taken into consideration. The grass is not always greener, and it is not always about money."

Hardin rebuffs any implication that either tactic offers more of an advantage.

"The experience one gains from working in multiple organizations, and subsequently the wide array of experiences, has been truly invaluable in the trajectory of my career," he admitted. "I don't know for [a] fact that I'm paid less but I do know that I'm paid fairly and well above the average. Perhaps longer tenures would have landed me in larger organizations, but I must say that many of my moves have been for reasons that were heavily personal and I would change very little."

Of course, the higher you go the fewer opportunities to move may exist, according to Colonna.

"Typically, the trend is that if you want to see a large pay increase, in a short time, you have to change organizations," Colonna noted. "However, over a long term, you can see a steady increase due to merit or cost of living. It may only be three percent a year but you figure that over 20 years, as your salary grows, so does that three percent number. In senior leadership, for VP and above type roles, there are only a few open every year. If you are already in a senior role and happy, the incentive would have to be pretty good to move."

Templeton agrees that either avenue can provide value.

"The longevity within an organization can be an advantage," she indicated, citing herself as one example. But she adds that a number of factors could influence someone's reason to move around. They include:

- Personal reasons for relocation.
- Culture of the organization. "Do they promote from within or have the idea that new blood is better?"
- Variety of responsibilities that could expand your portfolio and bring value, if this can't be gained within your current organization.
- Average age of those "above" you and impact on opportunity for advancement.
- Opportunity extended from previous boss or mentor.

"I feel you need to stay within a role long enough to make an impact and learn from the experience, rather than 'job hop' just for the title," she added.

Education, Training, Certification

The trend seems to indicate that the higher education you receive – including degrees and learning new skills and thinking – the higher your income trajectory.

Hardin expresses support for the idea but remains cautiously optimistic that quality learning will contribute to the process.

"It should absolutely contribute, but I believe to some degree that we've cheapened our education through the increased level of virtual education," he said. "I've

SALARY BY TITLE AND EDUCATION

	High School	Associate's	Bachelor's	Post-Graduate
COO/Chief Purchasing Supply Chain Officer	n/a	$112,500	n/a	$271,250
Director/Manager, Materials/Supply Chain Management	$74,821	$80,000	$104,800	$124,737
Executive/Senior/Corporate VP, Materials/Supply Chain Management/Support Services	n/a	n/a	$136,875	$252,083
MMIS/Supply Chain Informatics Manager	n/a	n/a	$62,500	n/a
O.R. Materials Manager/Business Manager	$62,500	$56,500	$93,750	$102,500
Purchasing Director/Manager	$54,062	$68,750	$88,333	$81,250
Senior Buyer/Buyer/Purchasing Agent	$48,571	$51,944	$61,250	$60,833
Value Analysis Director/Manager/Coordinator	$75,833	$52,500	$92,500	$97,500

*7% of survey responders opted not to share their gender, but are include in the salary summaries.

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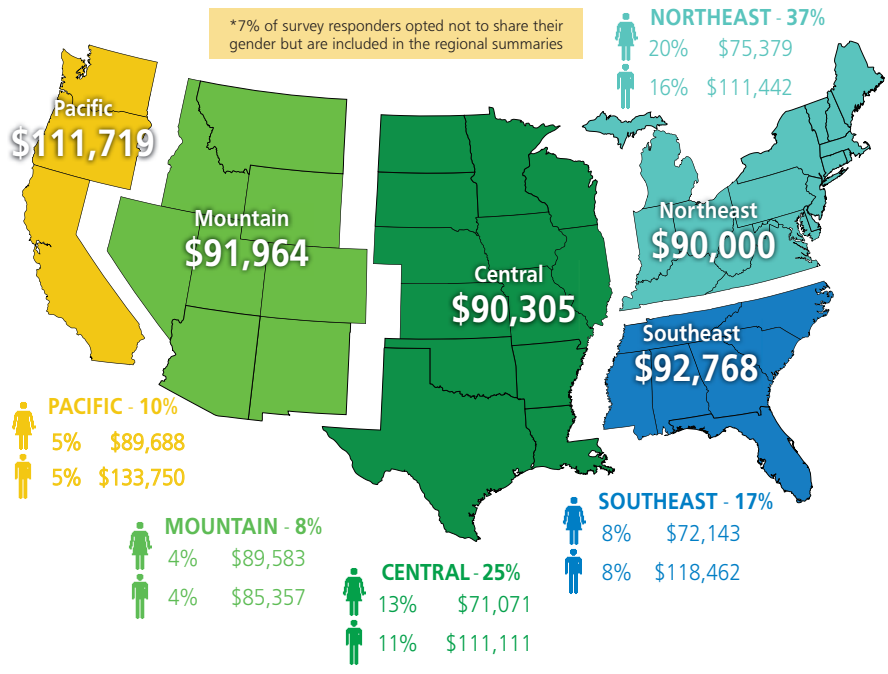
SCM SALARY SURVEY

Non-profit	$100,285
For-profit	$85,116
Government-owned	$73,056
None of the above	$24,999

URBAN	SUBURBAN	RURAL
$100,061	$99,485	$79,363

SALARY BY REGION



Charts above display the average composite salary across ALL TITLES broken out by the factors indicated.

	MALE		FEMALE	
PACIFIC	**2020**	**2019**	**2020**	**2019**
Director/Manager, Materials/Supply Chain Management	$140,625	$124,375	$67,500	$95,833
Purchasing Director/Manager	$117,500	n/a	n/a	$76,250
Senior Buyer/Buyer/Purchasing Agent	$52,500	$117,500	$56,250	$47,500
MOUNTAIN	**2020**	**2019**	**2020**	**2019**
Director/Manager, Materials/Supply Chain Management	$96,250	$87,500	$78,750	$99,167
Purchasing Director/Manager	$82,500	$102,500	$52,500	$54,167
Senior Buyer/Buyer/Purchasing Agent	$62,500	$32,500	$52,500	$42,500
CENTRAL	**2020**	**2019**	**2020**	**2019**
Director/Manager, Materials/Supply Chain Management	$90,500	$109,167	$93,929	$80,682
Purchasing Director/Manager	$70,000	$87,500	$45,357	$74,500
Senior Buyer/Buyer/Purchasing Agent	$52,500	$87,500	$52,500	$49,167
NORTHEAST	**2020**	**2019**	**2020**	**2019**
Director/Manager, Materials/Supply Chain Management	$111,471	$97,941	$90,500	$78,056
Purchasing Director/Manager	$64,167	$92,188	$80,000	$67,500
Senior Buyer/Buyer/Purchasing Agent	n/a	$74,167	$52,500	$51,731
SOUTHEAST	**2020**	**2019**	**2020**	**2019**
Director/Manager, Materials/Supply Chain Management	$115,000	$113,125	$72,500	$74,833
Purchasing Director/Manager	$97,500	$79,167	$90,000	$45,833
Senior Buyer/Buyer/Purchasing Agent	$54,167	$62,500	$44,167	$43,750

taught in higher education environments and consistently receive feedback from students that in-person courses, and particularly my classes, are better received than virtual classes. Point of fact, I'm much more discriminating about candidates for hire that did the majority of their education online. I've seen a strong correlation between intensely online coursework and the lack of capabilities and maturity. So, while I believe that education can serve to positively turn the dial on one's trajectory, I believe it's the type of education one is receiving that can make a difference."

Pandemic-motivated closures of "live" educational events, of course, remain the X factor.

"I feel that those with higher education have more 'polish on the apple,'" Templeton quipped. "The journey to advanced degrees, especially if you are working, forces you to develop skills that become useful once school is over. These include time management, focus, oral and written communication skills, working within teams – if [the] program requires project completion – organizational skills and sharing experiences with others. [It] allows you to expand the way you think, and at the end the satisfaction and pride of completing the journey."

Templeton further acknowledges that many human resources compensation schemes include higher education requirements on a job to be equated with justification for higher pay. "There are some organizations that are driven by 'pedigree' and some candidates would not even pass résumé acceptance without an advanced degree," she added.

But that pedigree can be a crutch as much as a barrier, Colonna warns.

"As H.R. processes and systems become more automated, it becomes harder for candidates to apply for mid-manager and above roles," he said. "Internal recruiters will not consider anyone who does not have a BA or MBA, if the [job description] has those requirements. This is unfortunate because I still believe that much of healthcare supply chain is an [on-the-job-training] profession. I am not saying there is not value in higher education; I am just saying that we may be losing valuable candidates because of basic requirements that we have added to [job descriptions]."

Colonna contends that a degree may represent a rite of passage to some.

"I also think there is this somewhat narrow-minded belief among some leaders, 'if I had to get a degree, you have to have a degree,'" he continued. "I would say that there are long-time supply chain professionals who do not have degrees that

still deserve a shot at leadership positions. Having said that, I do believe and would recommend that younger professionals should seek out higher education and degrees because it will open more doors for them."

Sargent stresses that education and experience can achieve something close to balance when evaluated for leadership positions.

"I contradict myself when I say education is important as I don't have an advanced degree," she admitted. "I do, however, have years of experience that is acquired though a career. I do feel that the need for ongoing learning is foundational to a well-rounded leader. Certification validates your knowledge of the supply chain. The ongoing education required to maintain certification is an advantage to the person who is looking to move up."

Still, education remains profitable, Templeton emphasizes.

"Education is something that no one can ever take away from you once you have it," she asserted. "It is worth the investment in yourself."

Hospital Type, General Location

This trend seems to notate that the higher-compensated Supply Chain executives and professionals entrench themselves at larger urban not-for-profit hospitals, followed by suburban not-for-profit hospitals and then for-profits. Of course, some of that may be attributed to the smaller number of for-profit hospitals within the overall hospital market – they comprise about 15 percent to 20 percent of the total.

Hardin chuckles at the statistics.

"I wasn't aware of the trend but can tell you that my favorite environment thus far is being in an urban, academic medical center," he said. "I place significant value on work-life balance and with that I want my work to be interesting and purposeful. I've found that I can best meet my professional needs by working in an urban setting that's intensely academically focused."

Sargent attributes any disparity to the business and economic models, seasoned with lifestyle elements.

"The not-for-profit organizations focus on generating income for the organizations versus the for-profits generating income for their stakeholders," she surmised. "Salaries in a for-profit dig into the pockets of the stakeholders. The larger urban and suburban areas have a higher cost of living, which generates the need for higher pay. It is also a lifestyle – those that live in these communities rather than in rural areas prefer that lifestyle and vice versa."

Templeton concurs to a point.

"Some of this compensation follows cost-of-living trends that just naturally would just pay more," she said. "Larger organizations come with expanded responsibilities and require you to manage more risk, which is a draw for those that feel they want a larger venue to practice. Also, matching your desired lifestyle could drive the locations and organizations that you target. Just the name/prestige of an organization alone can be a draw to executives that see or realize other benefits that come from that recognition. Generally, the not-for-profit sector allows more autonomy in creating and running a shop than for-profits that dictate and manage from a corporate perspective, and financials are the main driver of performance operations versus a focus on patient care and quality first. Altruistically, there needs to be a match of your mission to the organization mission. That alignment is important for success."

Geography

HPN's annual survey, rather consistently over the years shows that to earn the highest income, Supply Chain executives and professionals typically work in the Pacific region (largely, the West Coast) or in the Northeast (largely, New England down to the Mid-Atlantic states) with the perennial underdog sporadically

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			2020	
	2019	2020	Female	Male
Director/Manager, Materials/Supply Chain Management				
Average Age	49	54	54	54
High School	$67,333	$74,821	$46,000	$90,833
Associate's	$73,056	$80,000	$70,000	$86,500
Bachelor's	$100,786	$104,800	$94,167	$108,000
Post-Graduate	$132,000	$124,737	$111,786	$113,750
Central	$97,115	$93,889	$93,929	$90,500
Mountain	$90,682	$99,286	$78,750	$96,250
Northeast	$91,058	$103,704	$90,500	$111,471
Pacific	$116,591	$116,250	$67,500	$140,625
Southeast	$83,625	$100,833	$72,500	$115,000
Urban	$106,625	$107,000	$100,000	$109,545
Suburban	$100,608	$103,365	$89,000	$108,393
Rural	$80,811	$95,435	$78,889	$106,071
Non-profit	$101,544	$108,000	$86,806	$122,935
For-profit	$75,109	$85,833	$93,750	$83,571
Government-owned	$90,000	$90,833	$62,500	$105,000

			2020	
	2019	2020	Female	Male
Purchasing Director/Manager				
Average Age	48	55	57	52
High School	$53,500	$54,062	$48,000	$42,500
Associate's	$68,125	$68,750	$60,000	$72,500
Bachelor's	$78,056	$88,333	$70,833	$107,500
Post-Graduate	$133,000	$81,250	$76,666	$85,833
Central	$85,500	$53,400	$45,356	$70,000
Mountain	$73,500	$67,500	$52,500	$82,500
Northeast	$85,455	$70,500	$80,000	$64,167
Pacific	$76,250	$117,500	n/a	$117,500
Southeast	$62,500	$92,500	$90,000	$97,500
Urban	$75,000	$83,750	$84,167	n/a
Suburban	$94,250	$79,500	$77,500	$80,000
Rural	$64,643	$60,192	$52,500	$77,500
Non-profit	$81,667	$74,464	$62,857	$83,333
For-profit	$55,357	$87,500	$102,500	$65,000
Government-owned	$85,833	$44,167	$44,167	n/a

			2020	
	2019	2020	Female	Male
Senior Buyer/Buyer/Purchasing Agent				
Average Age	49	58	57	59
High School	$45,978	$48,571	$51,136	$35,000
Associate's	$49,643	$51,944	$51,500	$52,500
Bachelor's	$78,125	$61,250	$50,833	$92,500
Post-Graduate	$87,500	$60,833	$67,500	$57,500
Central	$53,125	$52,500	$52,500	$52,500
Mountain	$39,167	$57,500	$52,500	$62,500
Northeast	$57,222	$52,500	$52,500	n/a
Pacific	$61,500	$55,000	$56,250	$52,500
Southeast	$47,500	$49,167	$44,167	$54,167
Urban	$64,318	$56,786	$57,500	$62,500
Suburban	$55,192	$55,833	$51,875	$65,833
Rural	$46,167	$46,389	$48,214	$40,000
Non-profit	$54,231	$55,326	$53,438	$62,500
For-profit	$44,643	$45,833	$52,500	$35,000
Government-owned	$70,500	$27,500	$27,500	n/a

Will collaboration become a new standard operating procedure?

by Karen Conway, Vice President, Healthcare Value, GHX

In late March, as COVID-19 had taken hold of New York City and the surrounding area, New York Governor Andrew Cuomo called on hospitals across the state to operate not as individual organizations but as a single system united in the fight against COVID-19. Cuomo said he had met with the leaders of hospitals across the state and ordered them to share staff, patients and supplies under the direction of the state government. A few questioned whether the order was a step too far toward socializing healthcare, while most recognized the dire consequences of not combining forces to achieve a common purpose, especially in light of critical supply shortages. VOX News quoted the assistant chief medical officer at one New York City hospital as saying: "If hospital A has resources and hospital B doesn't, it's in the best interest of the patient that hospital A and B work together. Protective equipment should be available to all health care providers, not just those who work at a place with a better procurement officer."

While some of the pushback was no doubt in response to a government mandate, there is no shortage of examples of voluntary collaboration within the private sector to address the threat of COVID-19.

In late April, more than 51 hospitals in Florida announced that they had formed a collaborative to share data on how many patients they are treating for COVID-19 and their respective resources to meet the demand, from beds to ventilators. With access to such data, the hospitals can quickly and easily determine which hospitals have capacity for more patients. Tampa General Hospital noted on its website that the participating hospitals are also ones that typically compete with one another for market share. As the hospital's vice president of care transitions noted, "It breaks down silos between competing hospitals for this collaborative community effort." Less than a week later, seven states in the northeastern U.S. announced they were creating a purchasing consortium to avoid what Governor Cuomo called bidding wars between the private sector, states and the federal government that drive up prices for critical supplies.

One of the more successful (and intriguing) examples of collaboration brought together disparate sectors of an oft-fragmented healthcare system, including two competing manufacturers. At the same time that Governor Cuomo was enacting his "one system" order, global medical device manufacturers Boston Scientific and Medtronic joined forces with UnitedHealth Group (a major player in both insurance and health services), the University of Minnesota Medical Center (a healthcare delivery organization) and the Earl E. Bakken Medical Device Center (a research center within the Institute for Engineering in Medicine at the University of Minnesota) to build a lightweight version of a ventilator. In less than a month, the collaborative effort had yielded not only a design, but the first batch of 500 covetors, the name for the new device. The coveter, which is designed for emergency use during times of ventilator shortages, uses a robotic arm to compress an adult resuscitation bag that normally requires a person – often a paramedic – to do the manual compressions. The plan is to produce and distribute a total of 3,000 devices to where they are needed most, with the balance to be donated to the Strategic National Stockpile. Those involved with the program said these kinds of collaborations are critical, not only due to the critical need for speed but also because individual entities, especially healthcare providers, are not able to solve these challenges alone.

Early in the COVID-19 crisis, I spoke with both hospital and supply chain leaders from several of the major health systems located in the St. Louis area. They were already actively engaged with their peers at the other systems, swapping data on anticipated demand, their respective capacity, and how best to coordinate the response, including allocation of precious resources and supplies if needed.

The St. Louis healthcare community's fast action on collaboration can likely be attributed to having worked together in the past on other matters of common and community interest. In 2018, several of these same hospital systems formed the regional St. Louis Area Hospital-based Violence Intervention program, the nation's first collaborative between hospitals and academic institutions to combat the cycle of violence in the region. Six years earlier, the BJC Collaborative was formed, bringing together health systems from both Missouri and Illinois, and as far west as Kansas City. The participating systems entered into a mutual aid agreement to build out the infrastructure needed to support one another, including sharing of supplies, equipment and pharmaceuticals, in the event of a major disaster.

I first learned about the value of pre-established relationships in times of crisis many years ago, during the time I had left healthcare to work in the energy industry. One of my roles was crisis communications planning. We assembled representatives from government, emergency first responders, hospitals, not-for-profits and the private sector to conduct tabletop exercises to think through various scenarios and outline the roles and responsibilities of each party. Our hope had been to think through difficult decisions in advance in order to respond more effectively and swiftly. We discovered that the most important benefit was getting to know one another, learning to speak the same language, and building the trust that is the lifeforce of any collaborative effort.

From personal experience and the research I have conducted during this pandemic and past emergencies, it is clear that establishing collaborative working relationships in advance is a powerful tool. As we think through the challenges ahead: continuing to manage the virus while returning to some assemblance of normal operations, and preparing for future pandemics, it will be constructive to assess if and how the collaborative efforts forged during the COVID-19 crisis can facilitate our ongoing work to create a more affordable, accessible and high-quality health system.

I welcome hearing more about your collaborative experiences during COVID-19 and if you believe they will have lasting value beyond the current crisis. You can reach me at kconway@ghx.com. HPN

unseating either of the first two being the Southeast (largely led by Florida).

Sargent points to "population density and higher cost of living" as likely causes.

Templeton agrees. "Some of this is driven by higher cost of living and concentration of larger IDNs and academic medical centers in certain geographies that drive greater opportunity," she noted. "The movement across the country could also be influenced by the age of candidates that may cause more migration to a certain sector from time to time."

In addition to cost of living, competition most likely is prevalent, according to Colonna.

"In those areas, there tends to be a large concentration of competitive healthcare providers," he observed. "This likely creates a more competitive market for potential employees."

Hardin expresses contentment with his own geographic choices.

"I never managed to move much beyond middle America, though I tried," he said. "The higher incomes in the northeast are likely driven by cost of living, and the desire to move to Florida is likely a combination of cost of living and warmer weather. I happen to love middle America and can't imagine at this stage in my life living and working anywhere else." HPN

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Incorporate pandemic concerns in supply chain, construction and renovation projects

by Cindy Juhas

The COVID-19 pandemic has been a jolt to the healthcare supply chain. There is struggle and disruption from manufacturing through distribution and onto the customer.

It's not hard to see how this happened. For the last 10+ years healthcare supply chains have purposely become more efficient and streamlined. Our mutual goal has been to reduce costs and save money along the supply chain. Less inventory, less storage and just-in-time product delivery has been the supply chain mantra. We as an industry have been very successful. Most players along the chain did maintain an emergency inventory, but not enough for this level of pandemic.

What about the equipment side of the pandemic, including products needed to outfit temporary ERs, triage areas, ICU patient rooms, and laboratories that were needed to test and treat COVID-19 patients? Although most of the news focused on PPE and ventilators, there have been significant shortages of thermometers, vital signs monitors, beds, cots, stretchers, wheelchairs, IV poles and isolation carts to name a few. As the crisis curve flattens in many areas of the country here are some thoughts about possible next steps and future plans.

How are you dealing with equipment during and after the pandemic, and keeping it ready for the next one?

During the crisis many healthcare systems have purchased excess equipment that will no longer be needed. They have no place to store it and not enough resources to disassemble, tag and identify it as pandemic inventory so that it is ready the next time a pandemic strikes. Some newly acquired equipment may be used to replace older equipment already in use in the healthcare system. There are equipment-focused distributors who do have storage, logistics and biomed solutions, as well as third-party logistics companies (3PLs) and other local storage facilities. Each system needs to figure out what they need and who can best address their issues, including disassembly, pick-up, storage, inventory control, preventive maintenance checks and redelivery when needed again.

How do you keep your equipment supply chain resilient for the next pandemic?

Many healthcare systems have developed long standing relationships with favored equipment manufacturers, and most have a primary or exclusive national distributor partner. Because of manufacturer allocations, many manufacturers and distributors have not been able to meet their customer needs during this recent crisis**.** Healthcare supply chains will need to build in some flexibility going forward by developing relationships with secondary manufacturers and distributors. Look for local and equipment-focused distributors who can be called upon for specific expertise and assistance in desperate times.

How will you create better emergency preparedness in your next new construction project?

Many newer construction projects have focused on green initiatives, aesthetics and improving patient satisfaction, which are all important. Emergency preparedness guidelines also will need to be added to future new construction projects. Here are some things to consider:

- Designate areas that can be used to increase ICU beds and overall capacity, such as lobbies, cafeterias and non-acute patient rooms
- Outfit these areas with appropriate power, gas and connectivity outlets, etc.
- Design rooms for flexible uses with rail or other systems so that any patient room can be converted to an ICU room on demand
- Plan patient rooms for the best possible infection control flow, keeping caregiver and patient safety at the forefront
- When outfitting new facilities, look for equipment that can help with advanced disinfection and infection control, such as copper infused IV poles and stretchers, anti-microbial surfaces, UV light sterilizers and sanitizers, or anything that can keep the spread of a hospital-associated infection (HAI) to a minimum
- Historically hospitals have been quick to discard their old equipment when outfitting new facilities. Perhaps consider repurposing that equipment to be backup inventory for disaster preparedness

There obviously will be a lot of discussion within healthcare supply chains in the next few months that include assessing recent pandemic responses, what was done right and what could have been done better. New emergency preparedness plans will be devised and emergency equipment lists will be created. As this happens keep these observations in mind. With thoughtful preparation and worst-case preparedness, all of us in the supply chain will do better next time. **HPN**

Cindy Juhas is Chief Strategy Officer for CME Corp (CME), a national full-service healthcare equipment distributor, whose mission is to help customers reduce the cost of the new equipment they purchase, and make their equipment specification, delivery, installation, maintenance and disposal processes more efficient. CME offers a full array of logistical, biomedical and technical services to serve their healthcare partners. She can be reached at cjuhas@cmecorp.com.

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