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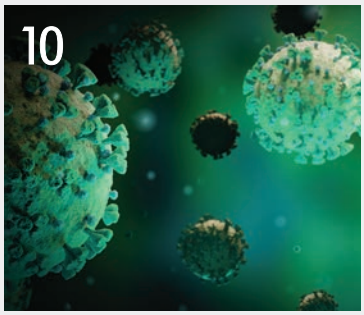

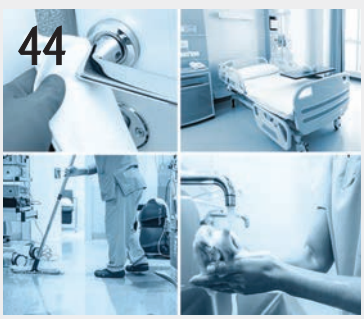

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SKU'd

Czarist rushing

Within a month of highly publicized and emotionally frenzied reports of hospitals running out of medical supplies, thanks to the explosive demands ignited by the COVID-19 coronavirus, the government decided to take charge in its own inimitable – and predictable – ways.

Twin bills – one in the House and one in the Senate – call for the establishment of a centralized Medical Supply Czar to make things right and solve the problems that the private sector apparently cannot.

Quickly now, all of you must recall one of the climatic scenes in "The Sound of Music" when the contest-winning Von Trapp family sang their final number, "So Long, Farewell," before their daring escape to the West.

"So long, farewell…

"Auf wiedersehen, goodnight!"

Now change the lyrics a bit to celebrate the newest nationalized czarist fad.

"A czar! A czar! A czar is what we need!

"He'll stock…"Our shelves…"With stuff at rapid speed!"

Huzzah!

The last time the federal government created a "czar" and a bureaucracy around the office, it had wanted to promote the adoption and implementation of national health/medical records within the healthcare industry, integrating providers, patients, insurers and suppliers. That agency was created more than 16 years ago in late April 2004. How many of the 5,000+ hospitals have fully implemented electronic health records (EHRs) since then?

Before many healthcare organizations were willing to give supply data standards a try (largely via the globally accepted GS1), they demanded case studies, and then more case studies and then even more case studies, to the point that it seemed as if the demand for case studies was a stalling tactic to keep advocates busy so healthcare facilities could continue delaying and procrastinating from taking their medicine to cure inefficiency, risk and waste. Not unlike trying to parent teenagers.

I'm willing to argue more hospitals use group purchasing organizations (GPOs) today than use EHRs. Granted, GPOs began 110 years ago in 1910, but then the government never created a GPO czar.

Intrigued by the premise, I reached out to the media reps for both the representative and two senators for comment on their respective bills. Alas, my repeated requests for comment and my submitted questions (for authenticity, earnestness and legitimacy) went nowhere.

While I appreciate the heart and intent of these Congressional leaders, I feel their legislative plans haven't been fully explored. Any Medical Supply Czar at least should possess some awareness of, if not experience in, healthcare supply chain or supply chain in general. Further, he or she needs to understand how private sector logistics works – including the use of GPOs, distributors and other third-party organizations supplying purchased services to healthcare facilities.

None of this should be foreign to the domestic government. Back in the 1990s, the Departments of Defense and Veterans Affairs converted to a private sector distribution model that succeeded the storied depot system. For these revolutionary efforts, *Healthcare Purchasing News* awarded the DoD's Sara "Sally" Bird with its 1996 Materials Management Leadership Award back when *HPN* honored and recognized individuals versus departments (See July 1996 *HPN*). Bellwether League inducted the long-since-retired Bird into its Hall of Fame for Healthcare Supply Chain Leadership in 2017, followed by her late military colleague and compatriot, Capt. Terry R. Irgens (USN-Ret.) in 2019.

The examples and leadership set by Bird and Irgens raise a better idea: The government should show us how to do it right – mastering supply by managing unpredictable demand during a pandemic – within its own confines.

Set up a Medical Supply Chain Czar that oversees such operations for the DoD, VA and any other agencies involved with healthcare facilities. Based on my latest GPO Headliners (See November 2019 *HPN*), the VA (No. 4) and DoD (No. 8) represent two of the top 10 largest parent GPOs based on annual purchasing volume alone at $17.4 billion and $7.1 billion, respectively. That's nearly $25 billion in an estimated $260 billion industry. Because these governmental agencies represent roughly 10 percent of the estimated total dollar volume of product funneled through GPOs, they would make optimal first movers and case studies in federal efforts show the private sector how to achieve mastery of demand planning.

Just don't misconstrue it as a stalling tactic.

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FAST STATS

JULY TO OCTOBER

are projected to have a sufficient amount of N95 masks to meet the nation's pandemic demand, according to a new White House COVID-19 Supply Chain Task Force report

JULY

is projected to have a sufficient amount of gowns (including reusable ones), surgical masks, nitrile gloves and face shields

SIX

major U.S. medical-surgical distributors' best available data and historical demand data from the industry informs the "high-end demand estimates"

90%

of the U.S. medical-surgical distributors are part of the Big 6 Distributors

$180 MILLION

of N95 domestic production growth is estimated by winter 2020

20 MILLION

DoD-donated masks were included in the April deliveries

55 MILLION

N95 masks per month are estimated from 3M China in June, July and August

ZERO

U.S.-based manufacturing exists for nitrile gloves

References:

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NEWSWIRE

AHIP study finds COVID-19 diagnostic testing costs could reach 44 billion a year

AHIP retained Wakely Consulting Group to explore the potential costs of COVID-19 testing, including both diagnostic (molecular or antigen) and antibody testing considering different frequencies and costs of testing. The study found that diagnostic testing would cost between $6 billion and $25 billion a year, and antibody testing would cost between $5 billion and $19 billion a year.

These estimates include both the cost of the tests, as well as affiliated healthcare services (e.g., provider visit, urgent care visit) for administering the tests.

Wakely developed a range of potential costs associated with outpatient (diagnostic and antibody) testing that may fall under the three common purposes of tests:

- Medical necessary tests, to diagnose or treat COVID-19.
- Public health tests, to collect and analyze the prevalence of COVID-19 in the population on an ongoing basis.
- Occupational health tests, to ensure workplaces are safe and to significantly reduce the risks of exposure to COVID-19.

The analysis does not distinguish between testing that is medically necessary for patient treatment and testing designed for public health or occupational health purposes. As noted in the report, there is still a great deal of uncertainty on how testing strategies will be developed and deployed – including what tests will be used, and how many tests a person might receive per year on average. Given this uncertainty, the total cost of testing will be less than the combination of the costs of diagnostic and antibody tests. There is also great uncertainty on what these tests will cost, as well as the cost to administer them, resulting in a wide range of estimates.

This report is a supplement to a separate analysis that Wakely conducted on estimated COVID-19 treatment costs for 2020 and 2021. That study found that costs to treat COVID-19 for 2020 and 2021 could reach over $200 billion, excluding testing costs and accounting for deferred or delayed care.

Testing strategies need to be part of a holistic public and occupational health strategy. Federal guidance should consider funding for testing in that context, and should clearly articulate the roles of insurance providers, employers and public health officials. Health insurance providers stand ready to work with employers, public health leaders and policymakers to develop and execute robust strategies to reduce the risks of spreading of the virus.

US must prepare for COVID-19-related drug shortages

A paper published in the *Annals of the American Thoracic Society* examines the nation's current shortage of vitally needed medications, and how this dangerous situation is being made worse by the COVID-19 pandemic. The authors provide recommendations on how clinicians and institutions might address potential scarcities of essential medications during the current public health crisis.

In "Preparing for COVID-19 Related Drug Shortages," Andrew G. Shuman, MD, and co-authors discuss how the federal and state governments, as well as healthcare providers, need to develop ethically sound policies that address already perilously low supplies of certain commonly-used medications, which are dwindling further due to resources needed to combat COVID-19.

"It is critical that these conversations occur now due to current shortages, as well as the necessary lead time to plan for future shortages," said Dr. Shuman, co-chief of the Clinical Ethics Service, Center for Bioethics and Social Sciences in Medicine, University of Michigan Medical School. "Drug shortages have been a national emergency for years and are currently exacerbated due to COVID-19. Issues related to supply chain and anticipated increased ICU needs over the course of the pandemic are worsening the problem."

Yoram Unguru, MD, MS, MA, a physician-ethicist at The Herman and Walter Samuelson Children's Hospital at Sinai and Johns Hopkins Berman Institute of Bioethics, who is a co-author of the paper, added, "As of today the American Society of Health-system Pharmacists (ASHP) reports 213 drugs shortages in the United States. It is not just patients with COVID-19 who are affected. One example of a current drug with a critically short supply is Erwinia asparaginase, a life-saving chemotherapeutic agent for both children and adults with cancer."

Among medical specialties severely affected are oncology, critical care and infectious disease. The authors stated that regional communication among hospitals is an important first step — helping determine how local drug supply chains are affected — and that coordination and sharing mechanisms are also critical. This information sharing would ideally occur via a central repository or clearinghouse. Both the FDA and ASHP also maintain databases of current drug shortages, and independent healthcare companies maintain their own databases that can provide invaluable information. There are a number of barriers to this taking place, among others, the need

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IAHCSMM, AHRMM and RSNA go virtual 2020, AORN moves to August 2021

IAHCSMM, AHRMM and RSNA have switched to virtual events this summer and AORN has moved its in-person event to August next year. These decisions were made in careful consideration of the health and safety of all participants, travel and social distancing guidelines, as well as the need to keep essential healthcare workers on the frontlines of care during the COVID-19 pandemic.

IAHCSMM

IAHCSMM is presenting its 2020 virtual IAHCSMM Annual Conference & Expo through July 20. This virtual event is available at no charge to any sterile processing professional who holds a current certification or membership with IAHCSMM. Access includes all the on-demand education, live webinars, exhibitor interaction, poster presentations and more. Credits achieved are complimentary to those who have registered for and participated in this event. Register at https://www.iahcsmm.org/events/virtual-conference-expo.html.

AHRMM

AHRMM will hold its virtual AHRMM20 conference in September 22-October 8, 2020. This virtual event will offer the same top-quality education, networking and resources as AHRMM's in-person events. There will be keynotes, breakout sessions, a virtual exhibit hall, networking in online lounges, learning pavilion sessions and other virtual gathering spots. Watch for email announcements from AHRMM or find more information at https://annual.ahrmm.org/FAQ.cfm.

RSNA

RSNA is planning to hold its virtual RSNA 2020: Human Insight/Visionary Medicine meeting (TBD). This virtual event promises to deliver an outstanding program for radiology professionals from around the world. There are currently more than 11,000 scientific and educational abstract submissions. Registration opens July 22 and will be free to members. Find continued updates at https://www.rsna.org/Annual-Meeting.

AORN

AORN has moved its Global Surgical Conference & Expo 2021 in Orlando from April 2021 to August 7-11, 2021. The Expo Hall will open August 8-10, 2021. The Expo will move from the OCCC West Building to the OCCC South Building and new booth selections will be necessary. More details are anticipated in July. Find more information at https://aorn.org/surgicalexpo/information-and-schedule.

for cooperation among competing health systems, concerns about potential liability, and legal regulations that affect the transfer of drugs.

Erin Fox, PharmD, a co-author who is director of drug information and support services for Utah Health, noted, "Tantamount to this effort is facilitating communication between pharmacists — those tasked with maintaining supplies, as well as those embedded within clinical teams — in order to inform the clinical team how supply may impact care delivery."

She continued, "Pandemic-era strategies for conservation of commonly used critical care agents at risk of shortages should be noted, recognizing that these shortages are often regional and unpredictable, and intensive care protocols and strategies are highly individualized." A list of these commonly used drugs is included in the paper.

The authors noted that communication should not be limited to discussions among pharmacists, hospitals and health systems. Open discussions with patients who are most affected by drug shortages are essential. In the spirit of openness, the authors recommended that hospitals consider publicly posting information about drug shortages.

Dr. Shuman and colleagues called upon stakeholders, from governments to clinicians, to refocus some of their efforts in managing shortages of ventilators during the COVID-19 crisis to develop workflows and rationing criteria for essential medicines. The authors have also identified hoarding of drugs thought to be potential COVID-19 treatments as a problem.

"Once effective treatments and/or vaccines for COVID-19 are available, prioritizing nascent supplies will present a formidable challenge," they predicted. "In the coming days and months, this matter demands global attention. Only with clear lines of communication and a proactive, collaborative approach can we weather this impending storm."

Survey shows 39% of respondents unsafely using cleaning and disinfectant practices

An internet panel survey identified gaps in knowledge about safe preparation, use and storage of cleaners and disinfectants. Thirty-nine percent of respondents reported engaging in non-recommended high-risk practices with the intent of preventing SARS-CoV-2 transmission, such as washing food products with bleach, applying household cleaning or disinfectant products to bare skin and intentionally inhaling or ingesting these products. A recent report described a sharp increase in calls to poison centers related to exposures to cleaners and disinfectants since the onset of the COVID-19 pandemic. However, data describing cleaning and disinfection practices within household settings in the U.S. are limited, particularly concerning those practices intended to prevent transmission of SARS-CoV-2.

Thirty-nine percent reported intentionally engaging in at least one high-risk practice not recommended by the CDC for prevention of SARS-CoV-2 transmission, including application of bleach to food items (e.g., fruits and vegetables) (19%); use of household cleaning and disinfectant products on hands or skin (18%); misting the body with a cleaning or disinfectant spray (10%); inhalation of vapors from household cleaners or disinfectants (6%); and drinking or gargling diluted bleach solutions, soapy water, and other cleaning and disinfectant solutions (4% each).

This survey identified important knowledge gaps in the safe use of cleaners and disinfectants among U.S. adults; the largest gaps were found in knowledge about safe preparation of cleaning and disinfectant solutions and about storage of hand sanitizers out of the reach of children.

Mixing of bleach solutions with vinegar or ammonia, as well as application of heat, can generate chlorine and chloramine gases that might result in severe lung tissue damage when inhaled. Furthermore, exposures of children to hand sanitizers, particularly via ingestion, can be associated with irritation of mucous membranes, gastrointestinal effects, and in severe cases, alcohol toxicity. The risk of ingestion and consequent toxicity from improperly stored hand sanitizers, cleaners and disinfectants can also extend to pets.

Consistent with current guidance for daily cleaning and disinfection of frequently touched surfaces, a majority of respondents reported increased frequency of cleaning in the home. However, approximately 33% reported engaging in high-risk practices such as washing food products with bleach, applying household cleaning and disinfectant products to bare skin and intentionally inhaling or ingesting cleaners or disinfectants. These practices pose a risk of severe tissue damage and corrosive injury and should be strictly avoided.

Although adverse health effects reported by respondents could not be attributed to their engaging in high-risk practices, the association between these high-risk practices and reported adverse health effects indicates a need for public messaging regarding safe and effective cleaning and disinfection practices aimed at preventing SARS-CoV-2 transmission in households. HPN

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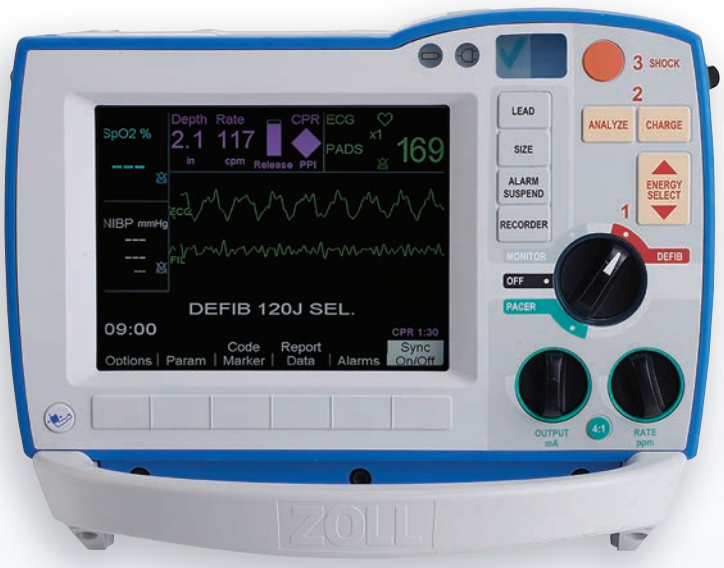

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SPECIAL FOCUS

Saluting the resilience of COVID-19 Changemakers

Providers, suppliers push through pandemic-related logistics clogs and voids

As deserving tributes to doctors, nurses and other clinicians and administrators on the front line battlefields of healthcare delivery rightfully continue, Healthcare Purchasing News (HPN) spreads the good news of creative and innovative ideas and processes behind the front lines that facilitate access to products and services needed to expedite care, comfort and confidence.

by Rick Dana Barlow

The rapid spread of COVID-19 may have depleted the availability of disinfection products, PPE and testing products more quickly than anticipated in any crisis/disaster plan for pandemic response, but that hasn't dampened the resolve of healthcare Supply Chain professionals or the suppliers that fulfill device, equipment and service contracts.

Because Supply Chain touches everyone and everything (in some way or another) the function and profession have endured heavy criticism for the shortages and otherwise lack of availability of certain products needed to cope and deal with the COVID-19 pandemic.

Ongoing debate simmers on whether COVID-19-ignited supply chain problems originated in Supply Chain or perhaps emerged from somewhere else – for example, whoever maintains oversight of the demand chain. Since March, healthcare organizations have come to realize and accept that logistical planning for demand *during* a pandemic now proves to be way more complicated and intricate than planning for demand *after* a weather-driven or terrorist-caused crisis/disaster.

It's no secret that products designed to diagnose COVID-19 (e.g., tests and test kits, etc.), and those designed to protect the healthy from the sick while helping the sick heal (e.g., gloves, masks, respirators and ventilators, etc.) have been depleted by a demand surge from outside the healthcare industry – namely, the consumers who binge-bought pallets of disinfectants, hand sanitizers, gloves, masks, toilet paper, etc.

Going forward, it's conceivable to expect that binge-buying by a panicked public will be incorporated centrally into any crisis and disaster planning protocols going forward.

Even before the Defense Production Act recruited corporations in other industries to switch their production methods to make a variety of out-of-stock items, a fresh option emerged that apparently hadn't resonated on anyone's radar. A growing number of colleges and high schools, awards/trophy retail outlets and others, armed with 3-D printers, started crafting such products as face shields and respirator masks. Others have been sewing and stitching cloth masks. Even breweries and distilleries leapt into action by producing hand sanitizer, sometimes in clever packaging like cans and kegs. Despite the pressure and tension, Supply Chain remains a resilient bunch.

A growing number of supply chain teams creatively have pushed forward through these challenges with innovative ideas and partnerships that have helped clinicians to deliver the care needed for patients to heal, whether it involves evaluating, ordering, storing, distributing, reprocessing or otherwise contributing to the identification, selection, acquisition and efficient usage of products.

Such ideas and partnerships include working with local organizations to make PPE or joining online exchanges to trade for supplies in real-time. *Healthcare Purchasing News* (*HPN*) sought to collect as many of these innovative ideas and partnerships to highlight as examples of ingenuity in action in real time. *HPN* reached out to more than 50 provider and supplier organizations, which added another 25 provider organizations, to share anecdotes, examples or stories in their own words about providers or suppliers finding success and defying defeat. Here are their triumphs highlighted in four ways: Challenge(s) faced; Solution(s) derived; Influential, instrumental leaders; and Prepped for tomorrow.

Ramping up supply tech to amp up clinical delivery

Organization: BD

Nominator: Thomas Utech, Vice President Integrated Solutions and Global Marketing, BD

Many hospitals have been forced to expand rapidly to care for COVID-19 patients, and BD has been there to help. Never has the BD mission to advance the world of health been so critical, as many of our associates are on the front lines helping hospitals and health systems deliver care to the patients and communities they serve.

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- In Chicago, BD supplied BD Pyxis MedStation systems to McCormick Place, the nation's largest convention center, which the Army Corps of Engineers and Illinois National Guard transformed into an alternate hospital.
- In Perth, Australia, BD helped a state government hospital set up, test and train staff on BD Pyxis MedStation systems and BD Pyxis Anesthesia Stations. BD is also relocating BD Pyxis towers, fridge

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monitors and auxiliary units to the new clinics.

- In the UK, BD supported an urgent installation of BD Pyxis MedStation systems for new wards in Birmingham to accommodate the influx of new COVID-19 patients. This work was critical to prepare for the safety of the patients who were expected to become sick.
- These team efforts have produced incredible results. For the McCormick Place COVID-19 field hospital, contracts were negotiated, and BD Pyxis MedStation systems manufactured, shipped and installed in a week.
- In Los Angeles, BD provided necessary equipment to support a surge hospital at the recently closed St. Vincent Medical Center.
- That time was matched for a 250-bed field hospital in Novi, MI, ensuring the facility would have all BD Pyxis MedStation systems ready on April 24 for their first patients.

Influential, instrumental leaders: Many BD associates have worked days, nights, and weekends to complete these projects. They have been helping customers make face shields at home to protect frontline, distribution center and manufacturing site associates from the virus, and performing countless other tasks—large and small—to get these urgently needed facilities up and running.

Regardless of the city or region where these pop-up ICUs and hospital expansions are launching, BD teams have succeeded with determination, innovative thinking and positive attitudes.

BD associates have collaborated closely to provide an unbroken chain of support. Sales and global customer service teams are identifying customer needs and scheduling installations. Product assembly lines are ramping up production to meet demand. Contract teams are developing new processes to reduce complexity, expedite approvals and accelerate shipping.

From there, transportation and logistics teams are pulling all-nighters to plan, pack and transport BD products around the nation. Many trucks are being staffed with multiple drivers to keep them on the road and get these critical supplies to their destinations as quickly as possible.

At the end of the chain, clinical care groups are developing product set-up protocols, and integration engineering and field service teams are overseeing testing, troubleshooting and installation.

Prepped for tomorrow: "Our teams are rapidly implementing new projects – without complaint – with just a few hours' notice. Despite these challenges, they have maintained the highest standards, ensuring all BD technologies are working when patients need them most," said Mike Garrison, BD Worldwide President, Medication Management Solutions. "Regardless of where these pop-up hospitals are located, cross-team efforts ensured their timely launch. Their can-do attitude – inspired by the frontline healthcare workers they are supporting – is helping ramp up the COVID-19 response across the nation."

Demand swell drives manufacturing, production surge

Organization: Clorox Professional Products Co.

Nominator: Chris Tucker, Vice President and General Manager, Clorox

Challenge(s) faced: Due to the COVID-19 pandemic, we faced an unprecedented surge in demand for our essential disinfecting products. In fact, almost overnight, demand surged to 500 percent for some of our disinfecting products.

Solution(s) derived: To meet the unprecedented demand amidst COVID-19, we took the following measures to increase capacity:

- Running our cleaning and disinfecting product plants 24/7
- Re-focusing our plants on manufacturing disinfecting products that can be supplied most quickly
- Accessing additional third-party supply

In addition to these efforts, we prioritized increasing our hospital-grade bleach supply by four times for healthcare facilities in order to serve the critical need among the healthcare community as well as created a new 55-gallon bleach-drum that we delivered to some of the largest healthcare facilities in the U.S. Each 55-gallon drum cleans up to 14,000 hospital rooms.

As a result of these efforts, we have increased our supply of disinfectants by 40 million units, an increase of more than 40 percent versus the same period last year. We are also continuing to identify efforts such as partnering with retailers and making considerable investments to increase capacity for a future surge in demand.

Influential, instrumental leaders: We could not have done this without our global workforce of 8,800 people who make and ship [and support] our essential disinfecting products. We could not be more grateful for their dedication.

Prepped for tomorrow: As a company, we are focused on doing everything feasible to maximize the supply of disinfecting products to serve consumers, healthcare workers and our communities in the face of demand like we have never before seen. We are applying what we've learned from this crisis to be prepared for a surge in demand in the future including considerable investments to increase capacity for the mid-term and beyond.

Deploying 3-D Printing to make essential PPE

Organization: Geisinger

Nominator: Kate Polczynski, Interim Vice President, Enterprise Supply Chain, Geisinger; Joel Lincoln, Senior Regional Director, Premier

Challenge(s) faced: As the crisis created disruption in the market, traditional supply chain channels were strained, and hospitals needed to deploy innovative strategies to meet the new needs COVID-19 presented.

Solution(s) derived: With access to talented minds and innovative technology both at Geisinger and at several prestigious universities nearby, a 3D printing "Maker" community emerged looking for opportunities to help develop creative solutions. These 3D-printed devices, such as masks, face shields and more will be incorporated into the stock available to healthcare providers as traditionally manufactured products are depleted. Some products created through this innovation solved problems we didn't know existed before COVID-19. For example, this community was able to make things like mask straps created to avoid ear irritation due to extended PPE wear immediately available to caregivers.

Influential, instrumental leaders: Led by Dr. Aalpen Patel, Geisinger's system director of radiology, internal staff such as Sarah A. Flora, RT (R)(MR)(ARRT), Program Director, 3D Lab, as well Bucknell University and Bloomsburg University, collaborated to procure raw materials, design solutions, and test developed products with input from Infection Control and the Safety & Industrial Hygiene team.

Prepped for tomorrow: Geisinger has already invested in 3D printing, and our capabilities have only grown during this crisis. The creative solutions this technology can present are endless, and this is a program expected to continue.

Producing healthcare-grade disinfectant on-site

Organization: CHRISTUS Trinity Mother Frances Health System

Nominator: Liz Shelton, Administrative Director, Hospital Operations, CHRISTUS Trinity Mother Frances Health System; R-Water

Challenge(s) faced: Like most healthcare facilities, we faced a shortage of disinfectants, disinfecting wipes, and elevated pricing on the products that were available.

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Solution(s) derived: In December 2018, we implemented a technology that enables us to daily produce 300 gallons of TK60, a one-step healthcare-grade disinfectant on-site. Before the pandemic, we installed a second unit that allowed us to double our daily production of TK60. Having this available on demand allowed us to provide an uninterrupted supply of disinfectant to multiple satellite clinics without incurring additional costs. It also enabled us to significantly reduce the use of expensive Purple Top Wipes.

Influential, instrumental leaders: It was a team effort between Nursing, Infection Prevention, Supply Chain, Environmental Services and Administration. It just made sense, and we have been extremely pleased with our decision.

Prepped for tomorrow: We use TK60 throughout our facilities. TK60 eliminates our two-step disinfection process for C-diff rooms. It has replaced our previous daily disinfectant and *C-diff* products, and it has significantly reduced the use of expensive Purple Top Wipes. The decrease of products used for disinfection, along with TK60's one-minute contact time has significantly decreased patient room and operation room turn times. During a time when reliability and capacity are so important, and supply and distribution networks are closely monitored, it has been comforting to know we can perform crucial tasks quickly and safely without the possibility of a back-ordered product.

Maintaining temporary PPE warehouse

Organization: Advocate Aurora Health

Nominator: Jared Simon, Senior General Manager Wisconsin, MedSpeed

Challenge(s) faced: Advocate Aurora Health's supply chain distribution center quickly reached capacity during the early days of the COVID-19 pandemic.

Solution(s) derived: In less than a week, the Advocate Aurora Health team worked around the clock to set up a temporary warehouse outside of Milwaukee to house all of its PPE, including sterilized N95 masks. The new 60,000-square foot warehouse allowed Advocate Aurora Health to centralize PPE distribution, donations, kitting operations, emergency equipment, as well as N95 Re-sterilization support activities. Advocate Aurora Health collaborated with MedSpeed to transport product from the new warehouse to MedSpeed's Wisconsin and Illinois hubs so that the PPE could be consolidated with normal supply deliveries and transported to all 28 of its hospitals. Using this new facility, the Supply Chain team was able to keep up with the amplified PPE needs of its team in support of care delivery.

Influential, instrumental leaders: Advocate Aurora Health's Supply Chain team and MedSpeed.

Prepped for tomorrow: As the situation changes during this health crisis and any others that follow, Advocate Aurora Health has the playbook to quickly scale to meet the needs of its team and patients.

Creative thinking fulfilled a supply need

Organization: MultiCare Health System

Nominator: Libby Gaspar, Senior General Manager Northwest, MedSpeed

Challenge(s) faced: Washington State was the first U.S. epicenter of the COVID-19 pandemic, and the MultiCare Health System team quickly recognized the need to secure as many ventilators as possible to provide care to patients in the community.

Solution(s) derived: MultiCare worked with a veterinary hospital to borrow its stock of ventilators for the duration of the pandemic. MultiCare's logistics partner, MedSpeed, drove hundreds of miles to locations throughout Washington and Oregon to collect the ventilators and transport them to the main hospital, where they were stored and deployed as needed.

Influential, instrumental leaders: MultiCare and MedSpeed

Prepped for tomorrow: By thinking creatively, MultiCare's team will be able to quickly respond during future crises.

Ramping up infection prevention, disinfection

Organization: Nanosonics

Nominator: Ken Shaw, President of Americas, Nanosonics

Challenge(s) faced:

1. Infection prevention within hospitals is more important than ever, and the proper reprocessing of reusable medical devices helps prevent the risk of cross-contamination. This includes ultrasound probes. Ultrasound is being relied upon heavily in the management and monitoring of COVID-19 patients, as well as being used in almost every healthcare department. Many hospitals have experienced the extra challenge of having dedicated equipment being used in isolation wards, requiring extra resources. Hospitals also have limited capital budgets to purchase all of the equipment needed to address the pandemic on top of everyday care.
2. Prior to the COVID-19 pandemic, in-services, product training and education had been conducted on site, providing hands-on instruction. With hospital access restrictions in place, alternative training solutions needed to be provided so that hospital staff can be properly trained on medical equipment and best reprocessing practices.

Solution(s) derived:

1. Nanosonics provided hospitals the ability to quickly ramp their high-level disinfection efforts with a trophon2 loaner program. This program enabled front line and SPD departments to obtain trophons with-

Nanosonics' virtual in-service training during COVID-19

out incurring any capital budget expense. trophons were provided for three months at no cost, after which they could decide to rent, buy or return them. The only costs for healthcare providers were the related consumables and accessories they used. This program enabled facilities across the globe to help mitigate the risk of ultrasound probe cross-contamination.
Examples Include:

- A major hospital system in Alberta, Canada, utilized the loaner program to install trophon2 in their clinics and MDRD (Medical Device Reprocessing Department) to address the additional needs presented by COVID-19.
- The largest teaching hospital on the Northside of Dublin City, Ireland, installed trophon2 to prepare for patients admitted with complications of COVID-19 infections. Currently, it is caring for the highest number of patients infected with COVID-19 in Ireland.
- A women's healthcare provider in France stepped up their infection prevention efforts by utilizing the loaner program. By adding trophon2 to automatically HLD all ultrasound probes, they not only streamlined their workflow, but the added infection prevention measure is reassuring to their patients and staff.

2. At Nanosonics we believe in education and training. Proper reprocessing of ultrasound probes per federal guidelines helps protect patients from the risk of cross-contamination. Consequently, ensuring that healthcare providers are properly trained on using trophon and how high-level disinfection can help with infection prevention efforts is a core business goal. Since we were unable to conduct on-site training and education, we moved virtual, hosting more than 80 virtual training sessions to educate more than 700 trophon users and industry professionals in the last couple of months and the count continues to grow.

Influential, instrumental leaders: Nanosonics partnered with Infection Preventionists and Department Directors on both initiatives, as well as procurement for the loaner program.

Prepped for tomorrow:

1. Proper reprocessing of reusable medical devices will always play an important infection prevention role. Standardizing ultrasound probe reprocessing across the hospital with an automated solution such as trophon2, improves workflow and helps prevent human error that can happen with manual reprocessing solutions that may compromise HLD efficacy. Providing healthcare organizations with flexible purchasing options will remain a way in which we help our partners standardize their high-level disinfection efforts.
2. Virtual training and education will be a way we continue to support our healthcare partners, be that in-service, CME presentations, one-on-one video conferencing and webinars. As hospital restrictions ease, we look forward to supporting our partners in person with hands-on instruction as well.

Providing the 411 free for IFUs

Organization: oneSOURCE

Nominator: Heather Thomas, Chief Marketing Officer and Executive Vice President, oneSOURCE

Challenge(s) faced: Sterile processing is more important than ever to minimize spread and keep patients and staff safe. At the beginning of the pandemic, oneSource realized that instructions for use (IFU) and service manuals for critical equipment and reusable gowns being used on the frontlines would be imperative as client and non-client providers dealt with the COVID-19 cases. We all saw and heard the news, which inspired the company to create the COVID-19 Document Database (https://www.onesourcedocs.com/covid-19-resources/) and open it up free of charge to all healthcare providers including surgery centers whose beds may have been needed as backup to the main facility.

We continue to work diligently with our partners to help manage this global emergency through preventive measures and to facilitate the demands of our industry during this challenging time.

Solution(s) derived: The Free COVID-19 Document Database was launched as part of the oneSource COVID-19 Resource Center and is constantly updated and added to. Our overall goal was to have the specific IFU and service manuals available to healthcare workers worldwide to keep them and their patients as safe as possible 24/7. The database includes the IFU and service manuals for respirators, ventilators, bypass machines and reusable gowns. Free to all, subscribers of course would have easy access through their subscription but non-subscribers are provided free immediate access to assure that they can refer to the proper cleaning, decontamination and sterilization needed for COVID-19–related items.

The database will be available to subscribers and non-subscribers for the foreseeable future and is only one of the five databases oneSource offers. The other databases for surgical instruments and equipment, Biomedical, Tissue & Implants, Dental and Facilities Maintenance are available through subscriptions. This free e-library is constantly updated and supports those on the frontlines to get the information they need to manage any potential growth of the virus from equipment and protective gear as quickly as possible.

We recognized the severity and struggle our world was facing early on and felt it was our responsibility to arm those on the frontlines of this medical crisis with ways to effectively execute their duties in the safest way possible. As we continue to use our platform's key benefits to address the concerns and needs of our industry, building a database that provides biomedical and sterile processing professionals with the materials necessary to do so was a top priority to our team.

Influential, instrumental leaders: The specifics of involvement included the oneSource Engineering Team, led by Ian Fisher, Director of Engineering; Heather Thomas, Chief Marketing Officer and Executive Vice President; and Lindsay Frkovich-Nelson, Director of Sales & Marketing, along with their marketing agency Hill Aevium. The database features had to be thought through first and then a sweep of all IFU and service manuals related to COVID-19 equipment and reusable gowns was performed and loaded into the new database. Getting the word out was as important as building the database. A marketing plan was developed and deployed that included public relations, direct and e-mail marketing, advertising, direct sales, social networking and website announcements.

Prepped for tomorrow: This database will live on our site ongoing in order to help those practitioners that continue to fight this pandemic on a daily basis and to keep the virus at bay. This database and entire experience has also helped lay the groundwork for other databases that we need to build out and how to prepare for any other pandemics, epidemics or disasters.

As providers begin to reopen for elective surgeries, oneSource realizes COVID-19 will be part of the duality that facilities will be facing for the foreseeable future. The preplanning and preparedness will be ongoing and the safety of our healthcare workers and patients will continue to be paramount.

Lastly, oneSource also launched their Speakers Bureau (https://www.onesourcedocs.com/speakers-bureau/) during the pandemic as we saw that sterile processing departments wanted to keep themselves sharp during the pandemic, be reminded of best practices and, as a bonus,

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earn CE credits. Pioneered in collaboration with David Jagrosse, oneSource quickly moved from arranging speakers in person to virtual educational opportunities running weekly webinars on a variety of topics that included a .5 IAHCSMM CE credit. Experts involved with the Speakers Bureau include Damien Berg, Sharon Greene-Golden, David Jagrosse and many others from the industry. Complete bios and an overview of the speaker's bureau can be found online, and the entire six-week webinar series is available online (https://www.onesourcedocs.com/knowledge-center/) through 2020. Webinars can be viewed and, once completed, CE credits are available by filling out the designated form.

Keeping data, technology front-of-mind during pandemic

Organization: PartsSource

Nominator: Mara Paré, Vice President, Client Solutions, PartsSource

Challenge(s) faced: In the early stages of the COVID-19 pandemic, we saw a lot of concern. Health systems did not know what to expect, and they often did not have the right data to prepare appropriately for the surge of COVID-19 patients or the demand those surges would put on their medical equipment. Customers were looking for accurate inventory and availability of critical equipment and parts. And they were looking for critical supplies like ventilator hoses and patient monitoring devices that were becoming harder and harder to source.

Solution(s) derived: First, as a technology-based healthcare services company, PartsSource developed an early warning system to monitor the supply chain across critical modalities. Our surge capacity and supplier surveillance analytics allowed us to monitor data in real-time and then take immediate action to pre-stock critical parts and equipment and increase access to secondary suppliers. We also processed all the data we were gathering and proactively provided it to our customers so they could make data-driven buying decisions based on the demand for the critical parts we were seeing. The data allowed health systems to actively manage their inventory for the most in-demand equipment. Our state-of-the-art digital command center provided insight across the entire supply chain to proactively identify and communicate alternative options to fill the increasing demand we saw in the market. We also mobilized our forces and implemented a bulk buy hotline and established a daily engagement plan between account management and customers.

Influential, instrumental leaders: The entire PartsSource team played a role in arming our healthcare customers with the data, parts, services, rentals and tools they needed to navigate the COVID-19 crisis successfully.

- During the height of the COVID-19 crisis, Long Island Community Hospital contacted their PartsSource product specialist in desperate need of ventilator hoses that they could not source from any other vendor. The PartsSource product specialist located a supplier with the appropriate tubing in a longer length and asked them to cut it to the proper length to fulfill the hospital's urgent need.
- A large West Coast IDN needed access to critical medical equipment and PartsSource's sourcing team was successfully able to secure bulk purchases for hard to find products.
- The Cleveland.com news story (https://www.cleveland.com/business/2020/05/auroras-partssource-keeps-critical-hospital-equipment-running-during-coronavirus-crisis.html) highlights the critical role our command center played during the COVID-19 crisis. It was a game changer for managing the needs of health systems across the country.
- PartsSource Pro client Dartmouth-Hitchcock Health Care used order data from their CMMS system and compared it to PartsSource data to flag gaps in their inventory for modalities critical to COVID-19 patient care. By analyzing their CMMS order data and comparing it to PartsSource data, Dartmouth-Hitchcock was able to get ahead of potential parts backlogs in the marketplace during the pandemic, ensure ample inventory, and maintain equipment uptime.

Prepped for tomorrow: Looking at data as a leading indicator and practicing active supply chain management continues to be a focus for PartsSource. It is something we educate our customers on every day. We are seeing that coming out of the COVID-19 crisis, our customers are shifting the way they manage healthcare supply chain and equipment maintenance. As hospitals must begin elective surgeries and outpatient procedures, this puts pressure on the healthcare technology management (HTM) departments. HTM departments are facing financial and staffing pressures, but they must increase capacity to service equipment that has been idle or had delayed preventative maintenance. We see HTM departments taking a preemptive stance and seeking out partners to help them practice proactive capacity planning and implement active supply chain management. They are looking for data by modality and asking how they can set up their own surveillance systems to manage their inventory better and prepare for what comes next. They are also looking for partners that can supplement staffing shortages by offering equipment maintenance and repair services. The good news for PartsSource is that all these requests, from the data to the active supply chain management, to the equipment service and maintenance support are all part of the PartsSource service offering, and we are ready to handle the increase in demand.

Exchanging information to combat pandemic

Organization: Resilinc

Nominator: Resilinc

Challenge(s) faced: Hospitals were facing a shortage of 9,000 individual items of PPE and other medical supplies across the nation.

Solution(s) derived: Resilinc invented for free the Exchange at Resilinc, a cloud-based platform created exclusively for hospitals to identify, locate and exchange critical medical supplies due to inventory imbalances. Hospitals list the items they need and trade with a hospital that has too much of those items. It solves imbalances in the supply chain.

For example, a hospital can list N95 masks they need and offer medical gowns they can spare in exchange. Using a single online platform, hospitals can locate and trade the items they need and have the packages shipped at the same time. This helps reduce inventory shortages of medical supplies that are critically needed in areas of the U.S. where patients are facing severe symptoms from the coronavirus.

Influential, instrumental leaders: Resilinc CEO Bindiya Vakil and Stanford Medicine's Amanda Chawla were talking at a conference and discussed a solution: an online trading system to allow hospitals to exchange healthcare supplies. So, with the advice and testing from Stanford hospitals and the software development from Resilinc, as well as the hospital networks of Premier Inc. and Intalere, the Exchange at Resilinc was launched April 15.

Prepped for tomorrow: The Exchange at Resilinc is not an e-commerce site. There are no cash or credit card transactions involved in the trades. Resilinc employees, many of whom are software developers that create supply chain risk monitoring systems, were happy to give back to healthcare providers and help save lives.

Feeding the front-line virus fighters

Organization: UAB, the University of Alabama at Birmingham

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Nominator: Janet Pate, JD, RN, Director, Environment of Care, Safety Officer, UAB; Noreen Costelloe, Director of Marketing, Ruhof Healthcare Corp.

Challenge(s) faced: UAB, the University of Alabama at Birmingham, an internationally renowned research university and academic medical center, and Ruhof Corp. customer, was challenged to feed healthcare providers and administrative staff at UAB hospitals and the remote COVID-19 testing site where hours-long shifts and busy schedules often left them no time to purchase food.

Solution(s) derived: A "Meals for Heroes" campaign raised $76,000 and served 16,000 meals to front-line healthcare workers fighting coronavirus.

Influential, instrumental leaders: Meals for Heroes, which launched April 1, was a collaboration between the service manuals Advancement office and the UAB Department of Food and Nutrition Services. It was created to help feed healthcare providers and administrative staff at UAB hospitals during the height of the pandemic.

"The donation of meals through Meals for Heroes provided meals to lab personnel on April 20, during National Lab Appreciation Week," said Sherry Polhill, Associate Vice President for Hospital Laboratories, Respiratory Care and Pulmonary Function Services at UAB Medicine. "UAB Hospital Labs appreciate the Birmingham community for their generosity and acts of service."

UAB Football Head Coach Bill Clark with his wife Jennifer Clark, along with The Heart of Alabama Chevy Dealers, gave $10,000 to the campaign, which used gifts to place orders with local restaurants and caterers in an effort to help support community partners and bolster Birmingham businesses — many of whom provided in-kind meal donations, including Milo's Tea Co., Jimmy John's, Newk's and many other restaurants. UAB Food Services worked with businesses to ensure specific food safety guidelines were met, and also served more than 5,800 meals to compassionate caregivers.

"The outpouring of support from churches, synagogues, restaurants, businesses and individuals in our community has been amazing," said Charlotte Beeker, Associate Vice President for Food, Nutrition and Guest Services at UAB Medicine. "The donations made by these groups and so many others to support the Meals for Heroes campaign just shows what a great community we live in. Our healthcare workers have been heroic in their efforts during this pandemic, and our community has been equally heroic in their flood of care and encouragement."

Prepped for tomorrow: When the Meals for Heroes campaign closed in early May, the remaining gift balance was $21,000, which Beeker says will be used to continue feeding healthcare workers continuing to care for COVID-19 patients.

Keeping track of essential medications

Organization: Vizient

Nominator: Dan Kistner, Group Senior Vice President, Pharmacy Solutions, Vizient

Challenge(s) faced: Essential medication supplier survey: Transparency downstream in the supply chain is as critical as upstream. Visibility into raw material locations and finished-dose manufacturing yields important data in anticipating and managing potential supply disruptions. This became critical as both Asian and European countries began to shut down during the COVID-19 pandemic. Until now, suppliers often viewed this information as proprietary.

Solution(s) derived: Vizient targeted suppliers of the 200 medications identified by Vizient as essential to the operations of a hospital. In addition, Vizient requested API (active pharmaceutical ingredient), manufacturing location, finished-dose location, insight into current supply, as well as projected supply for the next six-to-nine months.

Influential, instrumental leaders: The Vizient COVID-19 pharmacy task force and our supplier partners who manufacturer these essential 200 medications collaborated in this process.

Prepped for tomorrow: This solution gives us increased transparency that allows us to understand and react better to potential supply chain disruptions. Additionally, the database of information will be useful as additional interruptions occur whether that be a COVID-19 resurgence or another disaster that impacts countries (including the U.S.) that manufacturer pharmaceuticals.

Statewide partnerships link provider, supplier efforts

Organization: The University of Vermont Health Network

Nominator: Charles Miceli, C.P.M., Chief Supply Chain Officer and Network Vice President, University of Vermont Health Network, and Board Member, Patient Safety Movement Foundation

Challenge(s) faced: The challenges grew quickly as the pandemic took hold around the world. Our supply chains, which previously operated smoothly and substantially characterized as indirect procurement, were suddenly breaking down as demand for PPE and other supplies grew exponentially – seemingly overnight. Additionally, frequent regulatory changes on shore, near shore and offshore made securing and establishing logistics for supplies difficult and timely. For example, one shipment arriving from China had to have "Hong Kong" redacted on each box by hand in order to clear Chinese customs.

Solution(s) derived: The UVM Health Network and Dartmouth-Hitchcock are aligned on supplier resiliency efforts in using Resilinc and serving on the board of the Health Care Transaparency Initiative with providers, GPOs and suppliers. On Jan. 21, 2020, we both realized early on that supply chain disruptions were on the horizon. We joined forces to source and procure PPE and other operational supplies. Surgeons gowns were our first joint purchase. In March 2020, a tripartite supply chain pursuit included the State of Vermont.

Influential, instrumental leaders: We worked with the State of Vermont, the Vermont National Guard and companies like Medique USA, Trans-Border Global Freight Systems, STERIS, Medline and others to re-establish supply lines and secure the supplies needed by our frontline workers.

Prepped for tomorrow: Our experience responding to UVM Health Network's supply chain needs during the COVID-19 pandemic has highlighted the importance of leveraging our internal resources and the skills of all of our staff. Additionally, by partnering with others, we were able to divide and conquer the ever-growing list of tasks. These partnerships we established will continue as we move beyond the pandemic.

Unclogging the PPE pipeline

Organization: INTEGRIS Health

Nominator: Micah Parker, Vice President, Supply Chain, INTEGRIS Health

Challenge(s) faced: The limited availability of personal protective equipment has been our biggest challenge, and we are still working to meet the demand as many facilities are reopening elective procedures and trying to ramp up operations. CDC's infection prevention guidelines have changed since prior to COVID-19, requiring many caregivers to wear more PPE with increased protection. In addition, some organizations are requiring universal masking for all caregivers, patients and visitors. So, the demand for PPE really peaked at the onset

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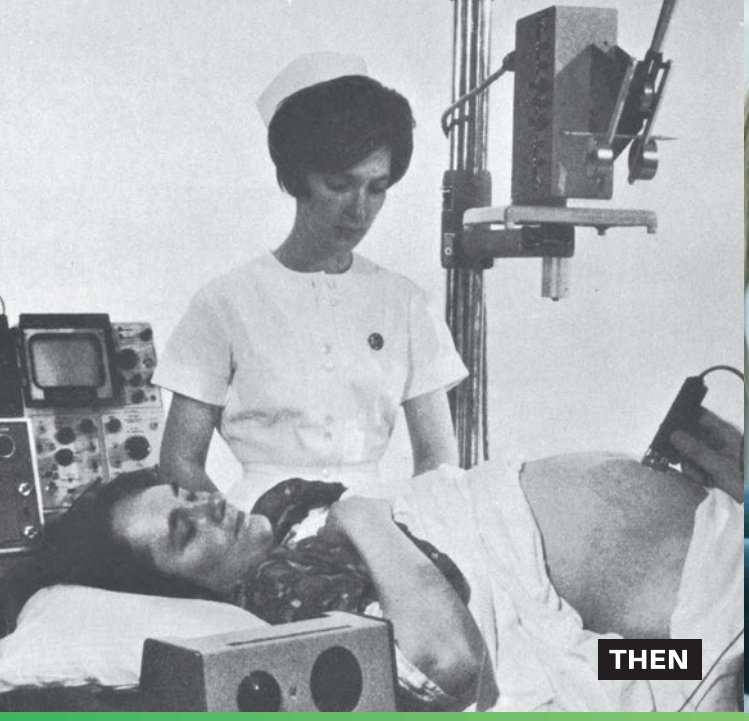

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of COVID-19 and has continued to be a significant challenge.

Solution(s) derived: Vizient reached out to businesses that manufacture and supply for other industries — companies we would typically never work with. One example is a local distillery we contracted to make hand sanitizer. They were able to distill their "brew" to the alcohol content needed for hand sanitizer but couldn't offer a bottling solution. That led the team to the state's largest dairy farm, which donated hundreds of empty half gallon milk jugs. Initially, we started recycling bottles in the hospitals, but ultimately, we found a manufacturer in eye health care that could supply bottles. The warehouse team then had to set up a "filling line" to fill the bottles. They obtained pumps from a local hardware store that allowed them to measure out the quantity so the bottles could be filled by the team.

Other PPE items were scarce. Hospitals required face shields, face masks and N95 covers. We quickly realized that these were either not available or had huge lead times. Healthcare organization volunteers offered to help make these items if we could supply the materials, so we sought the services of a large craft store that had been shut down. The agreement allowed the company to keep some employees working. They provided vinyl, foam, contact tape, fabric and elastic to produce the required protective gear. We also acquired surgical wrap from ORs among other sources. Efforts have expanded into making bouffant hair covers and continue as of late May, allowing every caregiver in the organization to receive a face shield. Volunteers have made 19,920 face shields to date.

Isolation gowns were another product in short supply. We found a local business that makes boat covers and boat seat covers and was on the verge of shutting down. Instead, after contracting with Vizient, they turned their manufacturing line around to provide over 20,000 isolation gowns keeping their staff employed.

Supplying enough disposable face masks so that every patient and visitor could wear one, along with non-clinical caregivers, proved to be another challenge, so we looked at washable options. This led us to a company that typically manufactures sewing lines for backpacks, shirts, etc., and after a handful of prototype reviews, the company started manufacturing washable cloth masks for the organization, providing around 20,000 masks a week. This effort has made a very significant impact in protecting the caregivers, patients and visitors.

The obvious big challenge has been the N95 mask. Once regulatory authorities allowed the use of non-medical grade masks, INTEGRIS went to the community to set up donation sites at every facility and the community responded with vigor. The number of donated masks was overwhelming and essential in the success of keeping caregivers safe.

Summit Medical's initial prototype (top left), final prototype (middle left), production line (center), packed pallet ready to ship (top right), and delivered - in use by Bob's Produce Ranch (bottom).

Influential, instrumental leaders: From the onset of the crisis, the entire supply chain team worked around the clock, every day of the week to find creative ways to find and deliver PPE. Interdepartmental relationships strengthened through it all as we relied on each other while working in ways we never imagined. The community was instrumental. This included the volunteers, businesses struggling to stay afloat and even booming businesses looking to expand or simply lend a hand. Hands down, the community coming together is the saving grace here; they were instrumental in flattening this hospital's curve and keeping our caregivers safe.

Prepped for tomorrow: A resilient supply chain requires the ability to pivot quickly to nontraditional sources to ensure seamless delivery of life-saving equipment. The pandemic has challenged us to think outside the box and serves as a warning never to get too comfortable. A few broken links in the supply chain make a tremendous impact. The crisis has taught us the importance of human and supply resiliency, a key to future success. Vizient continues to call for transparency along the entire length of the chain, so we can know how to adjust ahead of time when the next crisis comes. How we adjust will be key. We now know how important community and non-health care businesses are to help us stay nimble and to respond to supply chain disruption.

Shields raised to combat COVID-19

Organization: Summit Medical

Nominator: Kevin McIntosh, President, Summit Medical

Challenge(s) faced: With the decline of elective surgeries due to COVID-19, Kevin McIntosh, President, Summit Medical, initiated a new product brainstorm. Given the urgent demand for quality PPE — and recognizing a need to pivot our business to prevent layoffs — McIntosh tapped the company's engineering expertise and vendor network to develop face shields for both healthcare workers and employees returning to the workplace.

Solution(s) derived: With the expertise of Summit Medical's experience manufacturing surgical equipment, the team set out to quickly design and manufacture the highest quality face shields – with FDA compliance and all materials sourced and manufactured in the U.S. The team adjusted an open-source design from Maker Space at the University of Wisconsin-Madison to develop a prototype that met requirements for Summit Medical's Face Shields to be registered and sold as a medical device. More importantly, the team quickly conducted extensive research and testing of materials to ensure Summit Medical was providing the highest quality. Fortunately, Summit Medical was able to tap its vendor relationships – critical, time-sensitive suppliers — to meet the urgent manufacturing schedule. In May, Summit Medical met its first milestone to deliver more than one million FDA-compliant face shields — designed, engineered and manufactured in the U.S. — in just eight weeks.

Influential, instrumental leaders: With production plans finalized and materials on-site, Summit Medical cross-trained every staff member – including administrative staff — to assist with face shield assembly efforts. Staff worked overtime, including weekends to maximize production speed.

Prepped for tomorrow: As a medical device manufacturer, face shields are a natural fit within our existing product lines and customer base. Unlike others selling unregulated face shields during this limited period of relaxed standards, Summit Medical is an FDA-registered medical manufacturer that will sustain its capabilities to meet the continued demand. The company also coordinated supply networks for production of its face shields at Summit Medical's sister companies under the Innovia Medical umbrella at Eagle Labs in Rancho Cucamonga, CA. Innovia also leveraged Summit Medical's face shield design for production at Innovia's facilities in the United Kingdom, where they are producing more 1.3 million Innovia Face Visors to protect front-line healthcare workers in UK's National Health System. Summit Medical's Quality and Regulatory team is currently pursuing a CE for the face shields, which will allow the company to support customer demand in Europe and beyond.

Stepping up sourcing, supply, training expertise

Organization: Ecolab Healthcare

Nominator: Hank Carbone, Marketing Director – Ecolab Healthcare

Challenge(s) faced: Ecolab offers several EPA-registered surface disinfectants approved for use against SARS-CoV-2 and several alcohol-based hand sanitizers that are recommended by the World Health Organization (WHO) for use when soap and water are not available. Demand for these products has increased three to 15 times over normal volumes.

Solution(s) derived: Throughout the pandemic, Ecolab has provided infection prevention expertise, solutions, protocols and training to help combat the spread of COVID-19. Ecolab has taken extensive measures throughout our global manufacturing footprint to ensure continuity of supply, and our manufacturing plants are running at full capacity to help meet demand.

Ecolab has significantly increased production of its disinfectants, including a more than threefold increase in OxyCide Daily Disinfectant Cleaner, an EPA-registered, one-step concentrate disinfectant, and a more than fivefold increase for Virasept, an EPA-registered, ready-to-use disinfectant, to meet customer need. We also have significantly increased production of hand sanitizers.

Influential, instrumental leaders: Ecolab marshalled our entire organization to respond to the COVID-19 pandemic. Our procurement and supply chain organizations ensured we had adequate raw material supply and optimized production of key products to combat coronavirus. Our RD&E and manufacturing teams also transitioned production lines within several of our Nalco Water manufacturing plants to produce WHO-formula hand sanitizer to increase our ability to meet customer demand. A focused operations room of cross-functional associates coordinated the entire process to ensure alignment across the organization.

Prepped for tomorrow: Our global supply chain and procurement teams have set up a response center to manage all aspects of our manufacturing in response to the pandemic – from sourcing raw materials to where the products are manufactured to how we get products to our customers. This proactive response has enabled Ecolab to provide customers with a reliable source for hand sanitizer and surface disinfectants throughout this pandemic, and demonstrated our organization's ability to meet spikes in demand that may arise in the future.

Disinfecting masks at Baptist Health with Xenex Lightstrike

Zapping N95 masks for effective reuse

Organization: Baptist Health

Nominator: Melinda Hart, Director, Media Relations, Xenex Disinfection Services Inc.

Challenge(s) faced: In response to the nationwide shortage of PPE during the COVID-19 pandemic, Baptist Health expanded its use of robotic disinfecting technology to decontaminate N95 masks. The health system was one of the first in its region to use this approach, an innovative response to a shortage that has impacted hospitals across the U.S.

Solution(s) derived: Baptist Health was already using Xenex's LightStrike robots to disinfect patient and operating rooms, so they assigned one robot at each hospital to decontaminate N95 masks. Each facility has a room dedicated to disinfecting the masks, which are strung along wire shelving (resembling clothes on a clothesline). After a five-minute disinfection cycle, the masks are rotated and then exposed for five minutes on the other side, allowing both their exterior and interior to be decontaminated. Units with high N95 use, such as the COVID-19 units and the emergency departments, are among the first to have their masks cleaned.

Influential, instrumental leaders: Kyal Rector, RN, Senior Strategic Sourcing Agent – Value Analysis; Katherine Dorsey, RN, NEA-BC, Nursing Director; and Sara Hubbard, LSSBB, SHRM-SCP, CPT, Senior Consultant, Operational Performance Improvement; developed and led the project. Rick Tresmond, Vice President, Supply Chain, Baptist Health, was the executive champion.

Prepped for tomorrow: "During an ongoing crisis like the one we are facing now, our health system is applying innovative ideas that are shown to be effective," said David Rice, MD, Senior Vice President and Chief Quality Officer, Baptist Health. "The use of Xenex robots to disinfect our masks is just one of the ways we are rethinking how we do things so that we can benefit our patients and team members alike." HPN

There's a lot more online at https://hpnonline.com/21142060.

Environmental Services Heroes on the Frontline of Health Care spotlighted

Kimberly-Clark Professional, in partnership with the Association for the Health Care Environment (AHE), is excited to announce the new Environmental Services Heroes on the Frontline of Health Care Monthly Spotlight – a recognition program designed to highlight and lift up outstanding EVS personnel who are going above and beyond to make a difference during these very challenging times in healthcare.

Right now, due to COVID-19, many patients are being admitted with no loved ones or visitors allowed by their side. There are many stories and examples of EVS personnel who are not just keeping these patients' rooms to the utmost standard of cleanliness, but also being a friendly face and a source of comfort for them. These are true heroes.

Four outstanding individuals will be spotlighted each month. All spotlights selected will be featured on AHE's website now through National Health Care Environmental Services Week September 13 to 19, and each recognized individual will receive a small token of appreciation for all that they do on the front line of healthcare.

Nominate someone at https://www.ahe.org/evs-health-care-heroes.

Laundry disinfectant receives EPA approval for claim of effectiveness against Sars-Cov-2

Ecolab's AdvaCare Disinfectant has received the first approval given by the U.S. Environmental Protection Agency (EPA) for a laundry disinfectant and oxidizer emerging viral pathogen claim as effective against SARS-CoV-2, the virus that causes COVID-19.

AdvaCare Disinfectant is an EPA-registered laundry disinfectant – registration number 1677-193 – and the concentrated formulation is permitted for use in commercial and industrial laundry operations.

The current U.S. EPA-approved master label for AdvaCare Disinfectant now contains use directions for emerging viral pathogens, such as SARS-CoV-2, and Clostridium difficile (newly named Clostridioides difficile) at an attainable daily use level for all textiles laundered in a commercial laundry. The disinfectant is listed on the EPA's LIST N website for products that can be used against SARS-CoV-2.

The laundry antimicrobial additive with an emerging viral pathogen claim can be dosed directly into the wash process in both tunnel washers and large conventional commercial laundry machines, according to Greg Thorsen, Ecolab senior vice president and general manager, Textile Care North America.

CS CONNECTION

Workflow work-up

Returning to regular reprocessing schedules takes foresight and forethought

by Kara Nadeau

Saying the first half of 2020 has been "disruptive" to the U.S. healthcare industry is a major understatement. With COVID-19 dominating care delivery, and healthcare facilities focused on both treating infected individuals and protecting those without the virus from contracting it (e.g. staff members, non-COVID-19 patients), most "business-as-usual" activities have been cancelled or delayed.

Elective procedures came to a grinding halt, in turn, stopping Central Sterile/Sterile Processing Departments (CS/SPD) in their tracks. Many health systems and hospitals have furloughed or laid off CS/SPD professionals because of slashed surgical procedure volumes – and associated revenue losses. Others have redirected department resources to other areas, such as the reprocessing of single-use personal protective equipment (PPE), including N95 respirator masks.

Now as the nation's healthcare facilities begin to get back to business, CS/SPD professionals, like all other healthcare workers, are faced with uncertainty and fear. Concerns abound about elective procedures resuming – will they slowly ramp back up or will there be a surge in volume, coupled with a corresponding volume in instruments for reprocessing? Will CS/SPDs have the staffing levels required to meet increased demand for their services?

The COVID-19 pandemic has drained the nation's PPE supplies; resulting in healthcare workers scrambling to secure masks, gowns and other products designed to protect them. As CS/SPD teams return to work, will they have the PPE they need to do their jobs? Will they be competing with other departments for these scarce resources?

In May 2020, the U.S. Food and Drug Administration (FDA) issued a letter to healthcare providers on the potential for CS/SPD staff members to misinterpret indicators used to validate sterilization because there is no standard color to indicate a sterilized device.[1] The timing of this announcement has only added to concerns about CS/SPDs resuming work and the potential for heavier than normal case volumes that would overload their already strained resources.

As CS/SPDs plan for how they will operate under the "new normal," they have the opportunity to reevaluate policies, processes and procedures for greater safety, quality and efficiency. In this article, we present insights from CS/SPD professionals, equipment and supply manufacturers, technology providers and others on best practices for resuming operations in a COVID-19 world.

More time for planning

Ideally CS/SPD leaders have taken the downtime caused by the COVID-19 outbreak to plan for their departments' future states. As they ramp up staffing and operations, they should be communicating to their administration about the resources they will need to effectively and safely handle increased reprocessing volumes and new risks and challenges presented by the virus.

Determining staffing, equipment and other needs is a challenge because U.S. healthcare organizations are navigating unchartered waters. How do you prepare for a situation that you have never before experienced – recovery from an unprecedented modern-day pandemic?

Because healthcare organizations across the U.S. are resuming operations at their own pace on their own individual timelines, Ande M. Harris, M.Ed, CSPDT, Central Service Manager, Surgical Services, AdventHealth Apopka/Winter Garden, recommends that CS/SPD leaders look to those facilities that are leading the pack for best practices and lessons learned.

Ande Harris

"Despite the volume, CS/SPD teams are still responsible for safety; their own and that of their customers," said Harris. "Antic-

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ipation of volumes and preparing as far ahead of the beginning of surgery volumes increasing is important. It is also important to seek out others who have already begun the process ahead of you; if possible. This way, there is an opportunity to decrease the need, or desire to want to reinvent the wheel and be able to learn from their mistakes. It is also helpful, if applicable, to duplicate successful processes used elsewhere."

About staffing, Melinda Benedict, MS, CFER, Manager, Infection Control Program, Olympus Corporation of the Americas, says CS/SPD teams should anticipate increased volume once elective procedures resume and ensure they have adequate staffing levels to support the reprocessing of all instruments according to manufacturer instructions for use (IFU).

"It's important not to rush or skip any steps, now more than ever," said Benedict.

"There's no substitute for planning," said Amanda H. Coss, BBA, CRCST, CIS, CER, CHL, National Education Coordinator, Mobile Instrument Service & Repair. "What can you do today if you knew you'd be really busy in a few weeks? Perhaps ordering more supplies? Perhaps preparing staff for longer hours so they can adjust their personal lives? And we strongly recommend performing preventive maintenance now to remove any non-performing equipment so that it cannot disrupt cases."


Amanda H. Coss

During this time, Coss encourages organizations to check trays for instrumentation in sets not being used and modify count sheet tracking systems with OR team coordinators, check sets for cracked or chipped instrumentation identification, identify improperly working instrumentation and send it out for repair, replace missing instrumentation and update set information.

"Hopefully during the downtime, your facilities invested in some strong educational updates and focus; broke down complicated trays to familiarize the team on, possibly take pictures and upload them into your instrument tracking system; and invited the OR staff to join the SPD staff to rationalize, optimize, standardize and modernize trays," said Gabrielle Cox, Director of Education and Training, STERIS Instrument Processing Solutions.


Gabrielle Cox

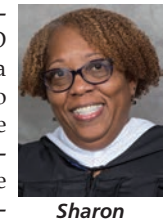
Anna R. Gutierrez, AA, CRCST, CSPDT, CIS, CFER, Sterile Processing Program Director at Fortis College, points out how leaders must be aware of the details when preparing for an influx of surgical procedures. She encourages CS/SPD professionals to compile data to demonstrate their needs, including:


Anna R. Gutierrez

- How many sets can my team assemble daily without sending mistakes into the OR?
- How many sets can my team manage in decontamination without injury or error?
- Is my current inventory count enough to handle the case load for the day?

"Having good intentions will not be enough if patient safety is not at the forefront of our daily tasks," said Gutierrez. "I highly encourage leaders to look into past records and analyze their numbers. As a leader, I know how many sets each team member can manage without setting them up for failure, and we can keep encouraging our teams to do more, but there is a logical limit to what your best technician can do."

Sharon Greene-Golden, BA, CRCST, CER, SME, FCS, oneSOURCE Consultant and Manager Adventist Health Care Shady Grove Medical Center, explains how CS/SPD professionals can use a platform like oneSource to proactively look toward the future, post pandemic. oneSOURCE helps healthcare facilities maintain compliance by offering multiple platforms that include access to critical manufacturer documentation and manuals across various sectors including COVID-19, surgical instruments and equipment, facilities maintenance, tissues/implants, dental, biomed and more.


Sharon Greene-Golden

Greene-Golden says teams can leverage this resource to take down trays, check them for accuracy and missing instruments, and collaborate with their OR team to improve services, stating:

"The one department that did not have their processes impacted as to the daily workflow in hospitals was sterile processing. During this down time in surgical cases, sterile processing departments should have been proactive and done some much needed housekeeping. The ability of sterile processing to function safely will require that we follow standards and best practice to ensure our patients get clean, working and sterile instruments for their surgical cases."

Workflow improvements

During these uncertain times, experts agree that CS/SPD leaders must ensure their teams are adhering to standard work, including industry standards (e.g. ANSI/AAMI). Standardized workflows and automation of manual tasks can help to boost efficiency, reduce errors and improve safety.

"When it comes to the reprocessing of surgical instruments and other medical devices during the COVID-19 pandemic, standardization—strict adherence to the current standard of care—is essential to protecting patients from risk," said Douglas Mackay, VP of Sales & Marketing, Ruhof. "Today's healthcare administrators are more focused than ever on the need to meet established standards, and more aware than ever of the consequences of not doing so. Media coverage and increased scrutiny by regulatory and accreditation agencies have elevated these issues."

"Achieving best practices will require stakeholders across the full spectrum of involved disciplines to work together to establish standardized policies and procedures, as well as educational activities and competencies to ensure that those policies and procedures are effectively carried out," Mackay added.

John Kimsey, National Director, Professional Services, STERIS, describes a three-step process that CS/SPDs can use to improve compliance to standard work procedures:


John Kimsey

1. Document the tasks being performed and how the task should be completed.
2. Determine how the staff will have access to the standard work at the point of use so they don't have to rely on memory. For example, place computer monitors above sinks displaying the decontamination standard work processes and other visual aids in the department to remind staff how to perform tasks.
3. Implement regular follow-up by leadership to observe and ensure staff are following the standard work.

Sami El-Saden, CEO and Chairman of the Board, Verrix, says reducing variability and automating manual steps that lead to errors is one way to significantly improve workflow efficiency while boosting technicians' confidence that trays of tools and devices have been properly sterilized.

"SPD technicians and managers have a difficult job, for which they don't always get enough recognition, and their workload is only growing," said El-Saden. "SPDs can't afford rework or avoidable errors so investing in process improvement can pay dividends when it comes to meeting the increasing demands of clinical departments."

El-Saden recommends that CS/SPD teams review quality metrics to understand if there are particular errors that are occurring repeatedly, and then implement a process change, a technology upgrade or additional training to address the issue. Verrix is currently developing a sterilization monitoring technology that is designed to eliminate common causes of errors while automating manual steps in order to provide improved efficiency and reliability.

"Verrix was founded to bring innovative, high-technology solutions to SPDs, to help ensure their tools meet the increased standards that other hospital departments have come to expect," said El-Saden. "Every hospital department depends upon a well-functioning, effective SPD, and Verrix is committed to offering technicians better tools to get their important job done."

The Verrix EVA System

Separating clean from dirty

Greene-Golden says one particular workflow area that is challenging to CS/SPDs is the separation of clean and contaminated items. To address this issue, she recommends that departments establish one-way flows for delivering and returning the case carts with either clean or contaminated items.

"The best practice and the guidance from ANSI/AAMI ST79:2017 teach that soiled materials must be isolated from the clean items to ensure acceptable processing conditions," said Greene-Golden. "It is most important to facilitate the one-way flow even if it means putting up barriers or walls to help complete the segregation of soiled and clean items. Quality is automatically enhanced when the department can maintain the dirty from the clean."

HLD and sterilization processes

As Ken Shaw, President of Americas, Nanosonics, explains, CS/SPD departments perform sterilization and high-level disinfection (HLD) on large volumes of reusable medical devices each day. Ultrasound is used in almost every healthcare department and being relied upon heavily in the management and monitoring of COVID-19 patients.

He notes how critical ultrasound probes (e.g. intraoperative probes, biopsy probes, or probes that contact sterile tissue) require sterilization, or HLD with use of a sterile sheath, if sterilization is not possible. Semi-critical probes (e.g. transvaginal probes, probes that scan non-intact skin) also require HLD with use of a sheath. Manual methods of HLD in the CS/SPD, such as soaking, are time consuming and prone human error. Therefore, the use of automated processes can not only boost workflow efficiency but also enhance quality and safety.

Nanosonics' trophon2

"Failures in meeting critical parameters during manual HLD (time, temperature and concentration) may compromise HLD efficacy," said Shaw. "Manual methods could also expose staff handling chemistries to toxic chemicals, and insufficient manual rinsing may leave chemical residuals that could pose a risk to patients."

"Fully automated ultrasound probe HLD with trophon2 or trophon EPR ensures the critical parameters are met every time, for every probe," Shaw added. "The sealed hydrogen peroxide cartridge and overall closed disinfection design ensures there is minimal risk of chemical exposure. The hands-off cycle means staff can continue to perform other tasks maximizing overall efficiency and productivity in CS/SPD."

Education and Training

"There needs to be training and there needs to be more of it on a daily basis because we know in our industry things change often," said Veronica Holder, a Sterile Processing Technician II based in Clayton, N.C.

Experts encourage leaders to re-educate and retrain CS/SPD teams on industry standards, manufacturer IFUs and their organizations' specific protocols and processes as elective procedures resume. They should also provide education on new precautions or practices related to the handling of instruments used on COVID-19 infected patients.

Veronica Holder

"The one thing that I believe is paramount in CS/SPD improving their procedures to optimize safety is staying abreast of the education that is available," said Harris. "In the times we are living, change is more rapid than it ever has been before. If we are not maintaining awareness through avenues of education, we are at a disadvantage. We may miss pertinent information that will be critical to the safety of the areas we serve."

"Make sure staff and technicians are following the manufacturers IFUs, as well as taking into account any additional precautionary recommendations for instruments used on or around COVID-19 patients," said Benedict. "Stay informed about new or modified recommendations from medical societies, the U.S. Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO)."

According to Mackay, overcoming barriers to cleanliness requires vigilance, education and a team commitment to follow evidence-based practices, as well as manufacturers' written IFUs. He states:

"Policies and procedures should include processes for containing contaminated instruments and minimizing airborne or contact spread of microorganisms. Key steps that should be standardized include pre-cleaning, transport, decontamination, and manual or mechanical cleaning. From cleaning chemistries and instrument and scope reprocessing products to cleaning verification and detergent delivery systems, Ruhof can serve as a valuable resource for your team."

As a company that understands how ongoing education, training and mentoring are critical to the success of any clinical department, Ruhof offers a program of free accredited continuing education for nurses and CS/SPD techs at both local facilities and national association trade shows, including the 2020 Virtual Trade Show Events.

Monitoring and measurement

Casey Stanislaus Czarnowski, BA, CRCST, CSPDT, CIS, CER, Sterile Processing Educator, Stanford Health Care, says one way to optimize safety, quality and efficiency is to incorporate a well-designed Annual Competency Assessment program.

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Casey Czarnowski

"An Annual Competency program that is directed by staff input and performed in situ by trained evaluators assures that all technicians are performing tasks according to department standard operating procedure (SOP)," said Czarnowski. "A good program prevents drift by experienced workers and demonstrates that new workers are trained to perform tasks in the same way. In situ teach back assessment also can discover environmental or mechanical factors that impact the work. Quality is the state of adherence to standards, not goodness."

Coss acknowledges that all CS/SPDs have processes and procedures that when followed should ensure safety and quality. She says a simple technique to optimize and improve operations is to audit current processes and procedures using two simple steps:

"Ask yourself first if the team is following the procedures. Then as you audit job performance, ask yourself if there are changes that will improve the process. We also recommend periodic audits of final work products either after assembly or by randomly pulling trays to ensure they are 100 percent correct."

Communication and collaboration

During times of "business as usual," communication and collaboration between the CS/SPD and other departments, most notably the operating room (OR), is critical to success. The coordination of efforts is even more crucial as both sterile processing and clinical teams navigate these uncertain and changing times.

"First and foremost, ensure you have an open communication channel to the OR," said Coss. "Perhaps in a business-as-usual climate, you can get away with a once daily meeting. But if case volumes surge as expected, you will need continuous flow communication with the OR."

"Increased communication across the SPD, to the OR, to the surgery scheduling desk, to the surgeon needs to be utilized," said Cox. "Importance needs to be placed on realistic expectations and possibilities. Delays need to be communicated quickly. The use of OR liaisons will help with flow, continue trust and increase reporting. An SPD navigator will increase throughput in the most productive way possible."

Mackay urges CS/SPDs to extend process standardization beyond their four walls and into customer departments, noting how perioperative teams often struggle with precleaning of today's complex instruments and devices, especially given the variety.

Ruhof's new ELEMENTUM Multi-tiered Enzymatic Detergent

"All perioperative personnel share responsibility for seeing that items used in surgery are effectively cleaned, sterilized or disinfected," said Mackay. "Having a system of standardized policies and procedures in place across all relevant departments—from the operating room to sterile processing areas—and at each level of the decision-making process can help ensure that this responsibility is met."

Gutierrez recommends that healthcare facilities form small cross-functional teams comprised of both CS/SPD and clinical professionals, to organize how and when clinical devices will be reprocessed and handled. She states:

"Past experience has proved that small teams can better manage individual clinics, set up pick-up times and have better quality devices sent back into clinical rotation. These small teams are empowered to learn, lead and communicate any errors or deficiencies back to each department. As a result, most techs in the team find themselves delivering higher quality products because they have ownership of the process they helped create."

Marcia Frieze, CEO, Case Medical, explains how the return to elective procedures provides a unique opportunity for cross-functional teams to assess their instrument set inventory. She recommends the following steps:

- For each set type, ensure there are enough instrument sets in inventory to accommodate planned procedures and allow adequate time for reprocessing.
- Look for opportunities to remove unnecessary instruments from the set, organize for ease of use and/or standardize contents across all sets of the same type. This will reduce the time needed for processing, improving department efficiency and set accuracy.
- Transition from wrapped sets to rigid containers. This will immediately reduce turnaround time by eliminating the wrapping step.

"If you decide to move to rigid containers, Case Medical's SteriTite containers are manufactured with the highest quality materials and each container has a unique 2D bar code for paperless tracking," Frieze added.

SteriTite containers from Case Medical feature a unique 2D bar code for tracking

Additional considerations: PPE and BIs

Safety is always a priority of the CS/SPD, and it is always a challenge, but certain factors today are presenting even greater hurdles to protecting both patient and CS/SPD team-member safety. Two that have been in the media spotlight are the shortage of PPE supplies and the misinterpretation of indicators for sterilization. We asked our experts to provide their insights and advice on these two topics.

Addressing potential PPE shortages

"I have heard and read online that some sterile processing departments have run out of PPE and some are having a hard time acquiring the needed PPE to function daily," said Greene-Golden. "If a sterile processing department runs out of PPE, they cannot work in the decontamination area and yes, this will impact their ability to function in patient care by not being able to perform their duties.

"This is unacceptable and against OSHA regulations for the protection of the healthcare worker," she added. "Sterile processing team members must have PPE to clean and decontaminate instruments and equipment for patient care. So, no PPE means, in literal terms, no cleaning or decontaminating in the sterile processing department."

"I think that CS/SPD leaders should be very vocal with their leaders and administration that proper PPE is essential to their process," said Harris. "What may be a suitable solution in one area for preserving PPE, may not be a suitable solution in their areas. It is also important that leadership understand that there are certain requirements that are necessary for the PPE in CS/SPD departments to meet. Any old gown or glove won't do."

In recent months, PPE manufacturers have stepped up production of masks and other supplies in an attempt to meet the needs of healthcare workers. The U.S.

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government has also called on companies from outside of the healthcare industry to dedicate staff and manufacturing line resources to the production of PPE. Coss recommends that CS/SPD teams take advantage of industry resources aimed at combatting the COVID-19 pandemic.

"Lack of PPE has been all over the news for the past two months," said Coss. "It is possible that some facilities may still face challenges in getting the supplies they need. Look for guidance from the manufacturers, FDA, CDC, and AAMI on methods to conserve and safely re-use PPE if possible."

"The CDC has provided guidance on how healthcare providers can address PPE shortages," said Benedict. "The CDC's COVID-19 website is updated often, and so it's important to check it regularly for updates. Even when there's a shortage of PPE, facilities need to ensure employee safety."

Gutierrez says her facility has experienced firsthand PPE shortages in the CS/SPD. She and her team have turned internally for support, leveraging their college/hospital affiliations to secure the required supplies.

"As our externship students return to hospitals, some departments have asked for extra PPE to support their needs," said Gutierrez. "Within my organization, our leaders have considerately taken the time to supply us with PPE we can then share with our affiliated hospitals. Just another reason to support your local SPT training programs out there!"

According to Shaw, a transition from manual to automated processes in the CS/SPD can help ease the PPE shortage burden. He states:

"As many traditional soaking reprocessing methods require CS/SPD to suit up with full PPE to protect themselves from harsh chemicals, SPD departments may have to compete for available PPE within the hospital. If SPD doesn't have the required PPE to reprocess reusable medical devices, this could potentially delay the reprocessing turnaround time. One way to work around this potential challenge is for hospitals to choose automated and enclosed reprocessing solutions that reduce the risk of exposure to chemicals."

Biological indicator interpretation

According to Greene-Golden, indicator colors and the FDA's announcement on the possibility of misinterpretation is a valid concern in the world of sterile processing. She states:

"Many years ago, you could not be color blind and work in the department because you needed to differentiate between colors. It is important that we be able to accurately determine if an item has met the parameters of sterilization by the color change of the indicator."

Greene-Golden believes uniform color changes on all indicators would benefit CS/SPD professionals, making it easier to determine pass or fail of the strip. She said for now CS/SPD leaders must address the issue with education and constant checks to ensure their team members know which color means passed and which means failed.

Harris stresses that education and communication around the indicator challenges, within the CS/SPD and out to clinical teams, is essential to addressing the issue and easing concerns among personnel in both departments.

"Make a cheat-sheet with pictures and color change to help team members recognize the change of each indicator," said Harris. "Even if the OR doesn't ask, offer that very important information. 'X, I don't know if you've heard, but the FDA announced that it may be difficult to tell the difference between some of the indicators used in different sterilization methods. We have created a cheat-sheet to help us know the difference. I have e-mailed you a copy as well. Can you please share in your huddles?' Being proactive can defuse the situation and the need to be reactive."

Benedict recommends that healthcare organizations purchase only one brand of indicator to avoid confusion about the interpretation of color changes.

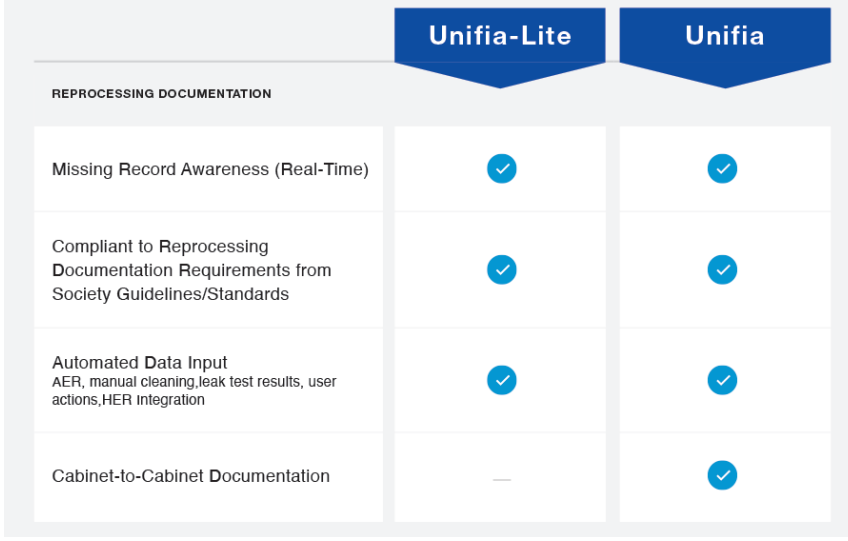
"Make sure staff have received training on how to interpret the color change for the brand of indicator you're using," said Benedict. "Consider posting signs near the sterilizers that visually show the color change as a reinforcement for staff."

Gutierrez acknowledges that during the COVID-19 pandemic some healthcare organizations will continue to use chemical indicators from different manufacturers in different departments. She stresses the importance of CS/SPDs sharing IFU claims with those departments, performing in-services each time indicators from a different manufacturer are used, and conducting assessments when a change in indicators occurs to ensure staff members understand the colors and their meanings.

"The FDA's announcement of the possibility to misinterpret indicator color at point of use brings spotlight to a challenge most CS technicians deal with every day," said Gutierrez. "I have to agree that a standard color must be established with the FDA being the driving force behind it, not just for hydrogen peroxide but for all sterilization processes."

Coss provides the following tips to help clear up confusion around indicator readings:

- Whatever product you choose, avoid making changes. Once people are programmed to a color code, it will be hard to move them to another.
- Ensure that the indicator's instructions for use (IFU) are readily available.
- Educate CS/SPD staff on the appropriate processed and unprocessed indicators.
- Post a laminated picture of a processed indicator in the department areas so staff are able to see if the indicators have met parameters for sterilization. HPN



Unifia, from Olympus America, is a reprocessing documentation, workflow and asset management system.

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LEARNING OBJECTIVES

1. *Name the three factors required to spread infection*
2. *Discuss the transmission pathways*
3. *Explain ways to break the chain of infection in the SPD*

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SELF-STUDY SERIES

Breaking the chain of infection

by Arthur Henderson, RN, BA, CNOR, CRCST, GTS

Healthcare-associated infections strike fear into the hearts of infection preventionists, nursing administrators and patients. These potentially avoidable infections raise costs, delay discharges, prolong healing, and significantly increase each patient's risk of morbidity.

Preventing infections requires an all-hands-on-deck approach to breaking the chain of events that can lead to them. In addition to the infection prevention policies, procedures and practices operating throughout a healthcare facility, the work of the sterile processing department is a critical infection prevention function. A deeper understanding of the mechanisms of infection can inform this work and help optimize its infection control capabilities.

Infection factors

An infection happens when disease-causing agents enter the human body and begin to multiply. The agents invade the person's body tissues and cause a reaction. Some reactions are benign, like a runny nose, while others are deadly. There are many types of disease-causing agents. They include viruses, bacteria, protozoa, some parasites, and prions.

Infections require three contributing factors to spread:

1. *Reservoir:* the infected person acts as a reservoir that allows the disease-causing agent to multiply and grow.
2. *Transmission:* Transmission is the path the disease-causing agent will take to reach and infect a new person.
3. *Susceptible host:* this is a person who can be infected. Once infected, this person becomes a reservoir.

Infection transmission stops when one of these three factors is removed. Healthcare providers focus on preventing transmission and exposure of susceptible hosts to disease-causing agents, and they apply many strategies and tactics to prevent transmission. Each specific tactic is designed to address a particular route of transmission. For example, one important method of preventing transmission via reusable devices and instruments is sterilizing them between patients.

Reservoirs and transmission

An infected person (reservoir) sheds disease-causing agents. Shedding allows agents to be transported to a new person (host) to infect. ***Contact transmission*** is the most common way to spread infections. The host comes into direct contact with the disease-causing agents on/in the reservoir. How the agents reach the host depends on how they are shed.

Disease-causing agents have several ways to leave the reservoir. The most common ways are through body fluids and excretions. Urine, feces, and sputum top the list of common exit points for bacteria, viruses, and parasites. The skin can also be a departure point. Bacteria and parasites on the skin transfer to another person when touched. ***Direct contact*** with the reservoir or their excretions is the first path of transmission.

In healthcare, direct contact with body tissues and blood is also a concern. Staff members can contact blood and tissue when collecting samples from patients or performing medical procedures on them.

Indirect contact is the second most common method of infection transmission. Body fluids and tissues deposited on surfaces may remain infectious for hours or even days depending on the surface material. In some cases, such as with anthrax, the material can remain infectious for years. Contact with the contaminated surface is an indirect path for transmission. Common healthcare surfaces include walls, floors, door handles, linens, used medical devices, bed tables, sinks, toilets, transport carts and any other devices or surfaces that are in proximity to infected patients, patient secretions and body tissues. In the SPD, handling contaminated instruments during reprocessing can be a primary means of indirect contact transmission.

There are some disease-causing agents that travel by air. ***Airborne transmission*** is limited to disease-causing agents that are suspended in the air on tiny droplets or fine particles of dust for long periods of time. These agents ride the air currents to find the next person to infect. Tuberculosis is an example of a disease spread through the air.

Airborne transmission is not the same as ***droplet transmission***. Coughing and sneezing are examples of droplet dispersion. Droplet dispersion relies on the physical force provided by the reservoir to send the infectious material to a new person. Droplet dispersion also deposits infectious material on surfaces that can later be transferred to a new person. Droplet dispersion is a form of contact transmission.

The final way to spread infection is by ***vector transmission.*** A vector is a living organism that directly transmits the infectious agent into the body of a healthy person. Vector transmission can be a very complicated process involving many different organisms along the pathway to human infection. Ultimately, the infection reaches the human by an insect biting or burrowing through the skin, or by the person eating a vector. Table 1, below, shows common diseases and their vectors.

Table 1: Common Vectors and their Diseases in the United States

Vector / Transmission	Illness	Disease Agent	US Infections [1, 2, 3]
Flea / Bite	Bubonic Plague	Bacteria: *Yersinia pestis*	7 per year
Mosquito / Bite	West Nile Fever & Encephalitis	Virus: West Nile Virus (WNV)	900 per year
Mosquito / Bite	Malaria	Protozoa: *Plasmodium falciparum*	2,000 per year
Cow & Pig / Eat undercooked meat	Tapeworm	Worm (Helminth): *Taenia saginata Taenia solium*	<1,000 per year

The reservoir is the source of every infectious agent, so finding reservoirs is the first step to preventing transmission. This is harder than it seems. Reservoirs can be shedding infectious materials but have no signs of illness. This happens during the incubation time of the disease. The incubation time is the time after infection but before the onset of illness. During this time, infected people can be contagious and able to spread the disease without realizing that they are infected. Incubation times vary greatly among illnesses (Table 2, above-right). In rare cases, a person may become infected and never become ill or show any signs of infection. This asymptomatic infected person is referred to as a carrier. Carriers can spread diseases quickly and are difficult to identify.

Table 2: Incubation periods of different infectious agents

Type of Infectious Agent	Agent Name	Examples of diseases	Average Incubation Period (per CDC)
Virus	H1N1 H3N2	Influenza A / the Flu	2-4 days
	HIV-1 and HIV-2	Acquired Immune Deficiency Syndrome (AIDS)/HIV	40-60 days
Bacteria	*Borrelia burgdorferi*	Lyme disease	3-10 days
	Methicillin Resistant *Staphylococcus aureus*	MRSA	2-5 days
Protozoa	*Plasmodium falciparum*	Malaria	7-30 days
	Toxoplasma gondii	Toxoplasmosis	5-23 days
Parasites	*Taenia solium* *Taenia saginata*	Tapeworm	8-10 days 10-14 days
	Enterobius vermicularis	Pinworm	30-60 days
Prions	Prion Protein	Creutzfeldt-Jakob Disease (CJD)	11-12 years (estimated)
	Prion Protein	Mad Cow Disease (vCJD)	5-10 years (estimated)

Susceptible host

The last link in the infection chain is the susceptible host; a person who will get sick when exposed to an infectious agent. Many factors influence a host's risk of getting sick. Health conditions, age, immunizations, past infections, and natural immune defenses all play a role in the host's battle against infectious agents.

People in poor health, the very young or old, the unimmunized, those with lowered immune systems, and persons recovering from a medical condition or surgery are more likely to get sick.

In addition to being susceptible to normally infectious agents, immunocompromised people can suffer infections from microorganisms that do not normally cause illness. Many microorganisms live in the environment and on people, and a healthy person can fight off these types of microbes and stay well.

Microorganisms that do not cause infection in healthy people but will cause serious infections in immunocompromised patients are known as *opportunistic microorganisms*. Many opportunistic microorganisms live in and on healthy people. *For example, Staphylococcus epidermidis* is a regular resident of human skin, where it lives without hurting its host. However, it is the most common source of infection on indwelling medical devices such as catheters and drain tubes. *Staphylococcus aureus* is another common microorganism that lives within the ears, nose, and throat. It too can cause infection in an immune depressed individual. The most well-known *Staph. aureus* disease is Methicillin-resistant *Staphylococcus aureus* or MRSA. And *Streptococcus pneumoniae* normally lives in the nose, throat, and mouth of healthy people. However, when conditions are right, the organism can migrate to the lungs and cause pneumonia.

Patients undergoing treatment within healthcare facilities are some of the most likely hosts for infection. Many suffer from existing medical conditions and undergo treatments that lower their ability to fight off infections. Preventing the spread of infectious agents to this vulnerable population is the main goal of infection prevention professionals.

Breaking the chain in the SPD

Infection risk can be greatly reduced by removing just one of the three contributing factors. Hospital policies and procedures should apply principles of infection prevention that target these elements.

Manage the reservoirs:

Sterile processing staff are the most likely reservoirs in the department. However,

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

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any person can be a reservoir. Vendors, staff from other departments, and temporary employees are also potential reservoirs. Policies and procedures should be in place governing actions to take for a reported staff illness. Consider when to send staff home, precautions to take when working with a sick person, and what to do for items and staff exposed to an ill person during the incubation period. Also include policies and procedures for department visitors and contracted workers.

Staff should also take steps to prevent transmission of opportunistic microorganisms. The use of hair and beard nets, hospital-supplied clean scrubs and shoe covers all prevent the shedding of opportunistic microorganisms. Staff should wash hands often to reduce the microbial population and wear gloves as appropriate.

When staff have been exposed to a respiratory infectious agent such as influenza, consider wearing surgical face masks during the incubation time of the disease agent. Face masks may also be used during respiratory illness outbreaks that occur in the facility or community. Face masks should fit over the nose and mouth. The mask should not pucker or allow free exchange between the environment and the person's airway.

Identify the vehicles of transmission:
Infectious agents enter the sterile processing department in a variety of ways. Finding these routes and treating the infectious agents is the second way to break the infection chain in sterile processing departments.

Infectious agents hide in many places. The most obvious place is in and on the reusable medical devices and equipment used for surgical and diagnostic procedures. These items have contacted body fluids and tissues and may have transferred infectious agents from the patient to the item. In addition, items handled by nurses, doctors, and others during procedures allow for opportunistic microorganisms to transfer to the equipment. For these reasons, all items must be thoroughly cleaned and treated with an appropriate microbicidal process to prevent transfer of infectious materials to the next patient.

Water also harbors organisms that can cause disease. Tap water, hoses, spouts, drains, and even treated water can harbor *Pseudomonas aeruginosa*, *Legionella sp.* and other opportunistic microorganisms. Water sources should be periodically checked for infectious agents, and drains should be regularly treated to reduce microorganism levels.

Develop thorough, proactive infection prevention procedures:
All items processed by the sterile processing department should undergo a microbicidal process that is appropriate for the devices' use and patient population. Surgical instrumentation should be sterilized and items such as IV pumps should be disinfected. But there are times when it may be necessary to perform a higher level of microbicidal processing due to the presence of a particular infectious agent. For example, patient care items normally requiring low-level disinfection may need a higher level of disinfection when they have been used on a floor experiencing an outbreak of *Clostridioides difficile* (C. diff).

Facilities should also have policies and procedures in place for inactivating and disposing of instruments with suspected exposure to prion transmissible agents. Prions are not living organisms and require specialized treatment to render the instruments safe for disposal. Procedures should also include testing the surfaces and equipment used to treat these devices.

Sterile processing managers should also work directly with their infection prevention colleagues to identify and remediate any sources of infectious material transmission within the department. By taking advantage of the IP perspective, managers may discover modes for transmission that they were not aware of.

Reduce risk for susceptible hosts:
Since the majority of hospitalized patients are already susceptible to infectious agents, it's very difficult to break this link in a hospital setting. However, some steps can be taken to help reduce the risk. For example, staff should be encouraged to vaccinate, including against hepatitis B, the flu, chicken pox and meningitis.

Also, medical screenings can identify staff that are harboring infectious agents but may not know it. Screenings can be conducted for communicable diseases that have high rates of asymptomatic carriers. For example, approximately 13 million people in the US have latent tuberculosis and 5-10% of them will become active and transmissible within two years of exposure.[4] Knowing this, some facilities have implemented an annual screening for TB. Also, the number of healthcare workers carrying MRSA is estimated to be between 1.0 and 6.9%,[5] so nasal screenings for MRSA can also be conducted.

It's also important to note that infection prevention needs will change with seasons, outbreaks, pandemics, and patient population changes. To be proactive, sterile processing departments' infection prevention strategies should be reevaluated as these larger changes occur.

Knowledge reduces risk

Managing the spread of infection is a complex and multifaceted challenge. To successfully reduce the risk, all healthcare workers must act as infection prevention advocates. By gaining knowledge about the principles and factors involved in infection transmission, SPD staff is empowered to support all infection prevention policies and procedures in their department. They know they are protecting themselves, their fellow staff members, hospital visitors, vendors, clinicians, and of course, the patients their functions ultimately serve. HPN

Arthur Henderson is a senior clinical education specialist for STERIS Corporation. His areas of responsibility include education, clinical support, and troubleshooting issues related to sterilization, high-level disinfection and infection control. Prior to STERIS, Arthur gained extensive perioperative management experience in acute care hospitals in both the OR and sterile processing departments. He has more than twenty-five years of experience as a registered nurse and has worked in a variety of specialties, including GI, open heart, neurosurgery, and cardiothoracic intensive care.

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CONTINUING EDUCATION TEST • JULY 2020

Competencies in Sterile Processing

Circle the one correct answer:

1. What is the role of the reservoir in infection transmission?
a. Allow the infectious agent to multiply and grow
b. Inject the infectious agent directly into another person
c. Immunize staff members
d. Find areas where infectious agents might be

2. Which statement is true?
a. The reservoir never shows symptoms
b. A susceptible host sheds infectious agents
c. A reservoir only sheds infectious agents when they are showing symptoms
d. Once infected, a susceptible host becomes a new reservoir

3. Which is a form of direct contact transmission?
a. A technician touches a contaminated medical device during cleaning
b. An ill patient grabs the nurse's hand for comfort
c. A visitor touches a contaminated doorknob
d. A vendor breathes in aerosolized contaminated fluids from the ultrasonic cleaner

4. Droplet transmission is which form of transmission?
a. Airborne transmission
b. Vector transmission
c. Contact transmission
d. Insect transmission

5. A carrier is a person who is infected but shows no signs of infection.
a. True
b. False

6. When is an infected person contagious?
a. During the incubation period and while showing symptoms of illness
b. While showing symptoms of illness
c. During the incubation period but not when showing symptoms
d. Only when the person sneezes

7. What is an organism that normally does not cause infection but will do so under the right conditions called?
a. Advantageous microorganism
b. Parasitic microorganism
c. Opportunistic microorganism
d. Synergistic microorganism

8. Who is not a reservoir in sterile processing departments?
a. Sterile processing staff
b. Vendors
c. Visiting staff
d. Patients

9. Which are common vehicles of infectious materials or opportunistic microorganisms found in sterile processing departments?
a. Contaminated medical devices and toilet seats
b. Contaminated medical devices and sink drains
c. Waiting room furniture and contaminated medical devices
d. Sterilizer chambers and contaminated medical devices

10. Immunization of hospital staff and patients is used to proactively break which link in the chain of infection?
a. Reservoir
b. Transmission
c. Susceptible Host
d. Vector

IAHCSMM
Instrumental to Patient Care

The approval number for this lesson is **STERIS-HPN 202905**.

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Testing insulated electrosurgical devices for safety, monitoring washers, cleaning efficacy

by Ray Taurasi, Principal, Healthcare CS Solutions.

Q Over the past few months, I have received several calls and notes with questions pertaining to insulated medical devices. Since this seemed to be somewhat of a hot topic, I decided to combine some of the concerns, precautions and questions into one response to share with all readers.

A Minimally-invasive surgical (MIS) procedures provide many advantages for patient care, including smaller incisions, faster recovery times, reduced pain and scarring. MIS procedures frequently require the use of electrosurgical devices, helping to prevent blood loss. Electrosurgical devices utilize high-frequency electric currents to heat, cut and cauterize tissue with great precision (figure 1).

Figure 1

Figure 2

Electrosurgical instrumentation requires an insulation coating to contain the electrical currents, preventing them from burning the patient or staff. Stray currents can provide a source of ignition, causing a fire. The insulation of these instruments can be damaged or worn over time, resulting in breaks in the insulation and allowing the dangerous escape of electrical currents.

Annually, there are thousands of patient burn incidents documented in the US. One study showed that 25% of patients who are burned by stray currents will die. Findings have shown that one in five reusable laparoscopic instruments have an insulation failure. Approximately 67% of stray electrosurgical burns go unnoticed during surgery. Such events can result in severe patient care complications, infections, pain, extended hospitalization and prolonged recovery.

The FDA in 2018 issued a safety communication alert stating that, "Evidence shows that a patient is injured by capacitive coupling or intraoperative insulation failure every 90 minutes in the USA" Manufacturer's IFUs, as well as AAMI, AORN, AST standards and guidelines state the necessity of thoroughly inspecting all electrosurgical insulated instrumentation for any defects, cracks and pin holes for the leakage of electrical currents. AORN and AST both specifically note that an insulator scanner/testing device should be utilized to detect the release of stray electrical currents from the instruments' insulation and tip.

As evidenced by the vast number of patient burn incidents, visual inspection alone is not adequate to detect a leak or small hole in the instrument's insulation. The only effective way to detect electrical current leakage and to ensure the safety of insulated electrosurgical instrumentation is to utilize an insulation testing device (figure 2).

Q While completing my nursing degree, I worked in sterile processing as a shift supervisor for a few years; I enjoyed the position very much. After graduating, I have worked as an OR nurse for the past four years. Recently I accepted a position as the OR/sterile processing liaison; my number one charge is to get SPD ready for the Joint Commission inspection in a few months. I want to focus first on bringing our washers monitoring policy up to the current standards. Is once a week still acceptable? Does every washer need to be tested? Is it necessary to test every level of a washer or would a random shelf testing be acceptable? I want to have a good record of washer performance to prove that instruments processed through our washers are clean and safe for patient care.

A Welcome back to Sterile Processing. Your previous experience combined with your nursing experience in the operating room will be of great value.

The current AAMI ST79 standards state:

Mechanical cleaning equipment performance should be tested each day the equipment is used. All test results should be recorded. It is important to note that these standards pertain to all mechanical cleaning equipment, such as washer disinfectors, ultrasonic washers, cart washers, automatic endoscope preprocessors (AERs) and their accessory components, e.g. washer racks, manifolds, adaptors and the like.

Whatever testing tools you utilize, they must be able to demonstrate the effective performance of the mechanical washer disinfector and its essential components. Testing an instrument disinfector would require testing each level of the washer. Each level of the washer rack contains spinner arms, which deliver the water, cleaning chemistry and necessary impingement to dislodge and remove soil. It is possible to have problems with a spinner, which would impede the effective functioning of the washer.

The testing of mechanical washers provides verification that the equipment is performing appropriately and can clean the contents of items placed in them. The tests do not prove that the instruments are clean.

Follow all IFUs for:

- reprocessing of each instrument, e.g. disassembly, precleaning, inspection
- processing equipment manufacturer, e.g. proper loading, positioning contents, appropriate cycle selection
- detergents, etc., e.g. appropriate chemicals and concentrations
- ensuring staff competency for all related tasks
- monitoring individual performance

Including all of the above with mechanical proficiency will provide a high confidence level for cleaning efficacy of items processed in the mechanical washer.

Post cleaning, individual instruments can be tested to verify there is no presence of residual soil on or within the device. Professional organizations, such as AAMI, SGNA and AORN, have recommendations for performing cleaning verification tests on certain complex instrumentation, such as those with channels, movable parts, crevices, angulations and difficult design features, which present a greater challenge to the cleaning process. There are various types of tests available for detecting residual soils, such as hemoglobin and carbohydrates. **HPN**

Proper care, inspection crucial for needle holder performance

by Rick Schultz

Most procedures begin with a scissor and end with a needle holder. To surgeons, the first impression of surgical set quality is the scissor's sharpness and their final perception is the needle holder's ability to hold the needle to close the incision. Needle holders, sometimes called needle drivers, are indeed the "heroes" of the incision closure.

There are many different types of needle holders for various procedures, but all have the same basic parts. Typically, they are constructed of stainless steel and have stainless steel jaws or tungsten carbide jaw inserts (indicated by gold-colored rings). Tungsten carbide jaws can be replaced without replacing the entire instrument. The gold color on the needle holder rings indicates the jaws contain tungsten carbide. This gold color is only a visual identifier of the presence of tungsten carbide construction and does not affect the use of the instrument. Tungsten carbide is much harder than stainless steel and wears out more slowly, and tungsten carbide jaws can be replaced when they do wear out. The jaws of non-gold needle holders are made of stainless steel. The jaws of stainless-steel needle holders are not repairable. Once the jaws wear out, the entire instrument needs to be replaced.

There is a common misconception that tungsten carbide-jawed needle holders cannot be placed into an ultrasonic cleaner because the jaws will pop out of the instrument during cleaning. Although there is a possibility that the jaws will come off inside an ultrasonic cleaner, they can still be reattached. The machine itself will not damage the needle holder. If a jaw does pop off, it is most likely in need of repair. Having a jaw pop off during cleaning is much better than having a jaw pop off during a surgery.

Some needle holders are blue in color. A blue needle holder indicates the instrument is made of titanium. Titanium is typically gray in color, but these instruments are anodized to achieve their color. This process also makes the instruments non-reflective, which reduces glare from operating lights. Titanium needle holders are much lighter than stainless steel, which can reduce hand fatigue during long surgical procedures. They are also non-magnetic, rust-proof, and stronger than stainless steel. These properties make titanium instruments more expensive.

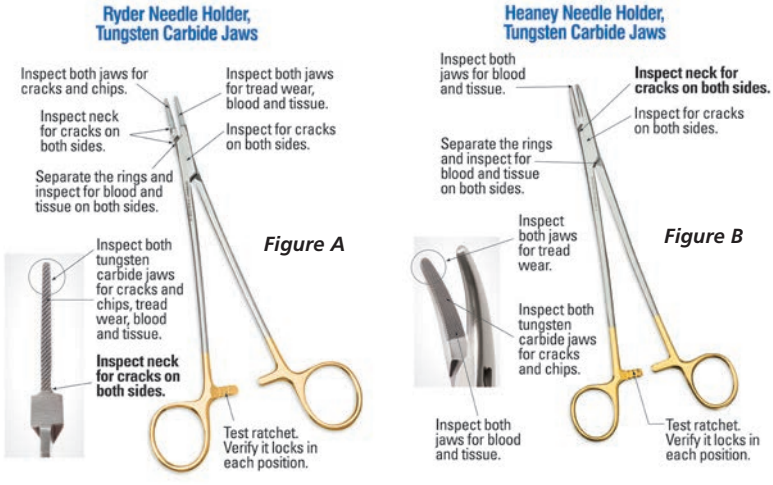
Smooth jaw needle holders are for holding extremely fine suturing needles. They can have diamond dusted jaws or ceramic jaws. A diamond-dusted jaw is indicated by black-handled rings. These needle holders have a fine dusting of tungsten carbide applied to the jaws using an electrical applicator with a carbide electrode. Green-handled needle holders have ceramic jaws.

As with all surgical instruments, it is imperative that needle holders be inspected daily for wear. An important part of every Sterile Processing (SP) professional's job is to ensure a quality system is in place for all surgical instruments to be in top condition prior to their arrival on the sterile field.

Testing inspection points

In addition to regularly scheduled inspection and maintenance, SP professionals should inspect all needle holder jaws before placing them in the surgical tray. A quick inspection technique is simply to separate the rings and inspect both jaws. All jaws wear out over time. If the needle holder's jaw is chipped or worn upon inspection, it should be immediately removed from service to be repaired or replaced.

Cracks in the neck of the needle holder are another common problem. Inspect the neck of the instrument on both sides for cracks (see bold section in figures A and B). Cracks occur when a small needle holder is used to hold a larger needle. Another reason this may occur is when a needle-nosed pliers is not included in an orthopedic set; needle holders are then used like pliers to pull pins and twist wire. This is not a recommended use for needle holders. These cracks are not repairable. Instruments should be removed from service immediately and discarded.



Cracks in the neck of the needle holder are a common problem.
(Photo courtesy Rick Schultz)

Another essential part of needle holder inspection is ensuring the ratchet locks in each position. To test, click each ratchet slowly to see if the needle holder firmly engages. If it does not, put the needle holder on the first ratchet and gently tap it on a flat work surface (not the palm of your hand). If the ratchet holds after three or four taps, flip the instrument over and repeat the test. If the ratchet springs open during either test, the instrument should be sent out for repair. HPN

Rick Schultz, the Instrument Whisperer, is an author, inventor and lecturer, and the retired CEO of Spectrum Surgical Instruments Corp. Certain portions of this article were originally presented in the Sept./Oct. 2019 issue of PROCESS from IAHCSMM and this article is reprinted with permission.

Sticking points

Sharps safety products are designed to prevent injury and infection

by Kara Nadeau

While this year marks the 20th anniversary of the Needlestick Safety and Prevention Act (Pub. L. 106-430) being signed into law, sharps injuries are still a significant threat to healthcare workers. According to the Centers for Disease Control and Prevention (CDC), hospital-based healthcare personnel experience approximately 385,000 needlesticks and other sharps-related injuries each year, putting them at risk for exposure to bloodborne pathogens such as hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV).[1]

The advancement of sharps injury prevention devices has reduced the number of injuries over the past two decades, with the greatest reductions occurring in the categories of disposable syringes and winged steel needles (butterflies). Although injuries still occur when using devices designed for safety, with many occurring before the user activates the safety feature.[2]

Manufacturers continue designing new sharps devices for greater ease of use, effectiveness and safety. In this article, we provide insights from some of these companies on recent design advancements, and highlight new products aimed at protecting healthcare workers and patients.

The evolution of sharps safety regulations, standards and guidance

Regulators, manufacturers, industry associations, healthcare organizations and individual health practitioners all recognize the risks of using sharps devices. Over the past 20 years, various groups have taken action to help protect healthcare workers and patients against sharps injuries and potential pathogen exposure.

OSHA's Bloodborne Pathogens Standard

In 2000, in response to the growing problem of accidental sharps injuries in healthcare and other occupational settings, Congress mandated a modification to OSHA's Bloodborne Pathogens Standard (29 CFR 1910.1030) to provide greater detail around OSHA's requirements for employers to identify, evaluate and implement safer medical devices. This included requirements for employers to maintain sharps injury logs and involve non-managerial healthcare workers in evaluating and choosing devices.[3]

While OSHA's original 1991 Bloodborne Pathogens standard included the requirement for employers to implement safer medical devices, the revised 2000 standard, which took effect on April 18, 2001, further clarified the definition of "engineering controls" related to safety devices. OSHA defined these controls as those "that isolate or remove the bloodborne pathogens hazard from the workplace," including sharps disposal containers, self-sheathing needles and safer medical devices, such as sharps with engineered sharps-injury protections and needleless systems.

Furthermore, employers must train employees with occupational exposure to blood and other potentially infectious materials (OPIM) on the proper use of all engineering and work practice controls; and provide personal protective equipment (PPE), such as gloves, gowns, eye protection and masks.

American Nurses Association (ANA) Position Statement

In 2012, more than a decade after the revision of OSHA's Bloodborne Pathogens Standard, the American Nurses Association (ANA) and 18 other nursing and health care organizations endorsed a new position statement "aimed at moving the debate about sharps safety forward and prompt further, tighter legislation."[4]

The International Healthcare Worker Safety Center at the University of Virginia developed the statement, entitled, "Moving the Sharps Safety Agenda Forward in the United States: Consensus Statement and Call to Action," which described five key areas to further reduce the risk of sharps injuries to healthcare workers.[5]

1. ***Improving sharps safety in surgical settings***: Recommendations include developing a site-specific sharps safety policy for the OR mandating the availability, training and use of specific sharps safety devices and implementation of risk mitigation strategies outlined by the American College of Surgeons (ACS) and the Association of peri-Operative Registered Nurses (AORN).
2. ***Understanding and reducing exposure risks in non-hospital settings***: Recommendations include the collaboration of professional organizations and medical product distributors for non-hospital care settings in making sharps safety a priority; and ensuring the availability of appropriate devices and educational and training materials targeted at workers in these settings.
3. ***Involving frontline healthcare workers in the selection of safety devices***: Recommendations include employers enlisting frontline workers in regular and systematic assessment of the devices currently in use in their institution, to ensure such devices are appropriate and, in OSHA's words, "eliminate or minimize employee exposure" to the "lowest feasible extent."
4. ***Addressing gaps in safety devices: The need for continued innovation***: Recommendations include professional organizations partnering with device manufacturers to assess and prioritize device needs for specific clinical applications; and manufacturers partnering with surgeons and surgeon's groups to develop suture- and scalpel-safety designs that both reduce risk and are comfortable and intuitive for surgeons to use.
5. ***Enhancing education and training***: Recommendations include employers providing instruction on an annual basis for all potentially exposed clinicians and other workers (including service workers and purchasing agents) on the appropriate use and disposal of safety devices that are available in their facility. Employers, professional educators, manufacturers and employee representatives should collaborate to develop training strategies that can be widely applied when new devices are introduced so that frontline healthcare workers know how to properly use and dispose of them.

U.S. Pharmacopeia (USP) General Chapter <800>

According to the CDC, about eight million U.S. healthcare workers are potentially exposed to hazardous drugs (HDs), including those used for cancer therapy, some antiviral drugs, hormone agents and bioengineered drugs. While the CDC notes

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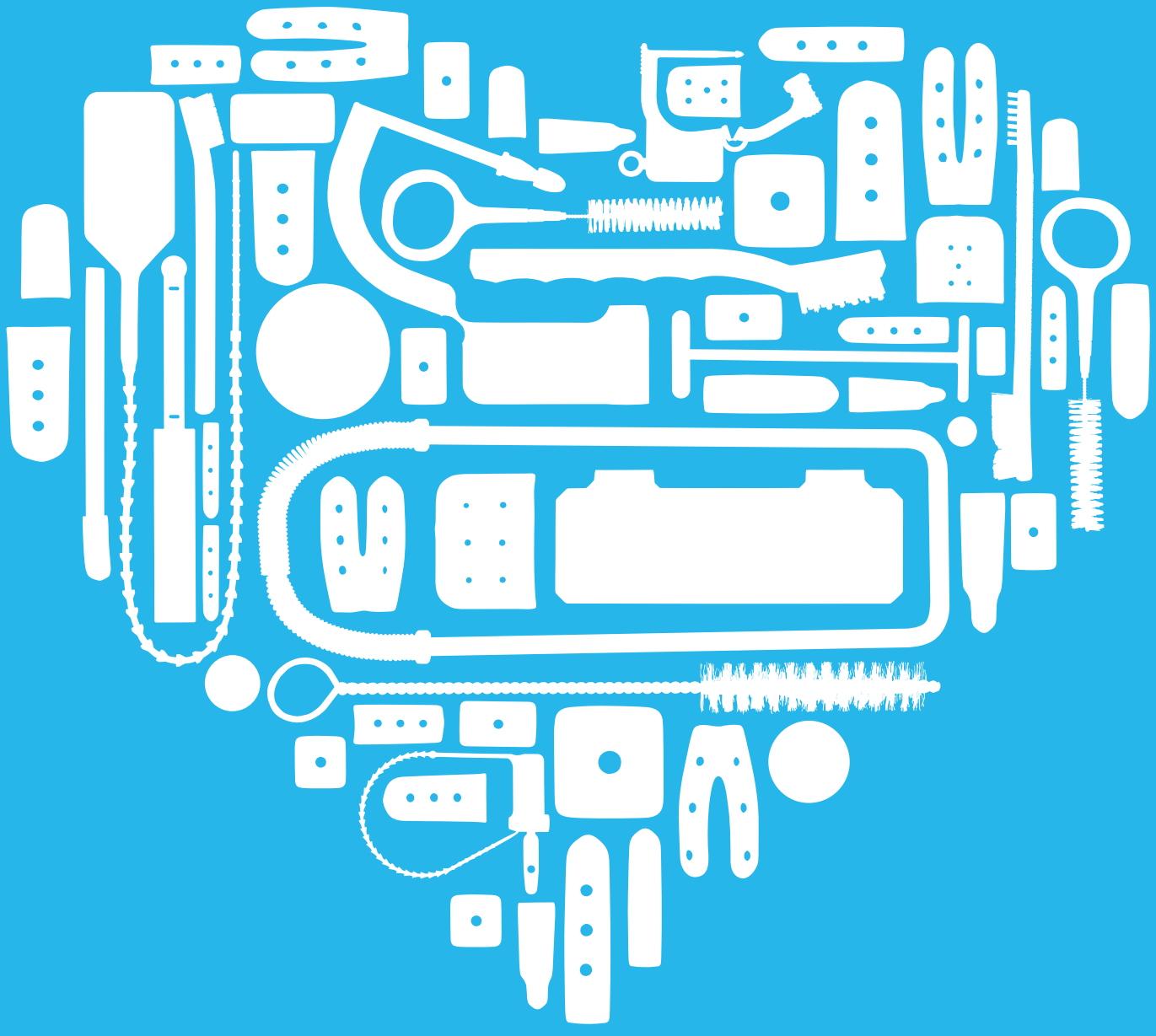

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To all healthcare workers… we thank you. You are at the heart of patient care and we are inspired by your dedication. You are our 'why'. From supplies needed in SPD/OR/Endoscopy to educational resources for your career growth and process improvement in the department… We are here for you, so you can be there for them.

KEYSURGICAL

that inhalation and skin contact or absorption are the most likely routes of exposure, unintentional ingestion from hand to mouth contact and unintentional injection through a needlestick or sharps injury are also possible.[6]

In 2019, the U.S. Pharmacopeia (USP), developed a general chapter specific to the handling of HDs, USP General Chapter <800> Hazardous Drugs—Handling in Healthcare Settings, which is designed to further minimize the risk of exposure to HDs through safe handling practices.[7]

USP 800 includes responsibilities of personnel handling hazardous drugs; facility and engineering controls; procedures for deactivating, decontaminating and cleaning; spill control; and documentation. As of December 1, 2019, USP recommends those facilities handling HDs comply with these revised standards.

In its February 7, 2020 regulatory advisory, the American Hospital Association (AHA) voiced its support for implementation of the USP 800 standards:

"Protecting health care personnel from harm resulting from occupational exposure to environmental hazards is a top priority for hospitals and health systems, and implementation of these standards will play a critical role in keeping providers and the patients they treat safe."[8]

Sharps injuries: Still a significant risk

Even with stricter standards intended to reduce sharps injuries among healthcare workers over the past 20 years, a significant number of injuries still occur in U.S. hospitals.

In the latest EPINet Report for Needlestick and Sharp Object Injuries, 34 U.S. hospitals reported 1,175 injuries between January 1, 2018 and December 31, 2018.[9] Those sharps products most associated with injuries were suture needles (290 injuries/25% of total reported) and disposable syringes (282 injuries/24% of total reported).

The vast majority of cases occurred with a contaminated sharps item (1,055 injuries/90% of total reported), with 63 percent having visible blood on the device. Most injuries occurred in operating rooms (OR)/recovery areas (44%) followed by patient rooms/ward (22%). In the majority of cases (70%) the injured worker was the original user of the sharp item, and the injury occurred during use (55%).

Sharps injuries still occur when healthcare workers use devices designed for safety. Among the injuries reported to EPINet during 2018, 34 percent were caused by a needle or sharp medical device with a safety design (e.g. shielded, recessed, retractable, or blunted needle or blade). When asked if the safety mechanism was activated at the time of injury, 32 percent of those reporting said the safety feature was either partially (23%) or fully (9%) activated.

New products designed for greater safety

Like all areas of healthcare, sharps injury-prevention devices continue to evolve with more advanced features, and to address previously unserved application areas. Below are some of the latest technologies and products intended to improve healthcare worker and patient safety.

B. Braun's catheter systems

The ACCEL Valved Safety Centesis Catheters and Procedure Kits are designed to help clinicians comply with recommendations for preventable medical error reduction, sharps safety and infection prevention. The centesis needle is a safety engineered device with an automatic needle safety shield that is most effective for needlestick injury prevention. It is integrated with a fluid/air stop, self-sealing valve located in the catheter hub for automatic containment of patient drainage fluid and reduced risk of pneumothorax after needle removal. This provides a safe, closed catheter system during clinical use.

B. Braun's ACCEL Evacuated Drainage Bottles

The ACCEL 600mL, 1,000mL and 2,000mL Evacuated Drainage Bottles are shatterproof, light weight, clear plastic bottles that provide containment of bio-hazardous fluids. These bottle are safe and secure, luer lock, needle-free access.

The ACCEL Connection Sets kink-resistant tubing provides a safe and secure luer lock connection containing biohazardous fluids during drainage. Closed male luer sets provide for a safe and secure closed system during evacuated bottle exchanges.

"The safety of our clinicians and the patients they serve drove our development of these products due to the prevalence of needlestick injury," said Valerie Shively,

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Using the colored Biogel Indicator Underglove, the Bassett Medical Center was able to realize 100% double-gloving compliance in all areas except the cardiac surgical team resulting in a 31% decrease in needlestick injuries.[1]

Improved glove breach detection — that is one way Biogel gloves deliver Tötal Value

To review this published poster or learn more about Biogel Indicator® gloves, visit www.molnlycke.us/choosebiogel

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Marketing Associate, B. Braun Interventional Systems. "With our products, we aim to manage the risk of bloodstream infections, maintain a sterile field, and reduce waste and control costs by having all components together in one convenient kit."

Cardinal Health's needleless cannula technology

"OSHA's guidance around bloodborne pathogens recommends, 'When selecting a safer device, [a facility should] identify its intended scope of use in the healthcare facility and any special technique or design factors that will influence its safety, efficiency, and user acceptability,'"[10] said Charles Kraft, RN, Clinical Account Specialist, Acute Clinical Products, Cardinal Health.

The Cardinal Health Monoject SmarTip needleless cannula addresses all three of these factors:

- Clinician safety: Needleless plastic cannula helps prevent accidental needlesticks.
- Patient safety: Anti-coring design reduces vial coring and the chance of drawing particulate matter along with medication.
- Efficiency: A 16g flow rate allows for quick and easy draws, even for viscous fluids.
- User acceptability: SmarTip is designed with side aspiration eyelets, which make it easier to access all medication in a vial without having to manipulate the cannula when drawing up.

IntegriMedical's needle free injection technology (NFIT)

"Needle free injections technology (NFIT) is the emerging innovation to address the risks associated with needlestick injuries (NSI)," said Lois Wedlock, Director Clinical Excellence, Needle Free Solutions and Training. "This technology eliminates all

Cardinal Health Monoject SmarTip needleless cannula

NSI because there is no needle, it is more comfortable to the patient and easy for the healthcare professional to administer the injection. The shields, sheaths and retractors still have a needle; therefore, NSIs can still occur. The NFIT has zero NSI incidents."

Wedlock points out how NFIT technology could help with wide-spread administration of a future COVID-19 vaccination. She states: "The new mRNA candidate vaccines require more force and technique than a needle and syringe can offer. NFIT ensures a consistent dose is administered at the proper depth of penetration every time and reduces the incidence of repetitive stress injury to the healthcare professional. The supply of needles and syringes may be scarce with the expected vaccinations being administered in the coming months and having another option may offer relief to the supply chain."

"Furthermore, with the current pandemic, healthcare cannot afford to have distracted workers wondering about their own health status with NSI, whether it be an overworked nurse injecting a patient who accidently gets stuck, to a housekeeper getting stuck from a needle while handling the bed linens," Wedlock added.

Mölnlycke's double-gloving system

"The CDC and OSHA take sharps safety very seriously, yet product selection remains largely the same," said Lorrie Calabrese, BSN, RN, CNOR, GTS, CCSVP, Clinical Nurse Consultant, Mölnlycke Health Care. "Without new innovations, healthcare must focus on consistent use of available products and best practice."

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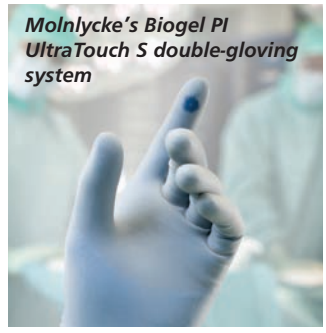
U.S. Patent for Introcan Safety™ IV Catheter are: 6,117,108; 6,287,278; 6,616,630; 7,264,613; 7,625,360; 7,972,313; 8,211,070; 8,382,721; 8,647,313; 8,827,965; D713,522; and D713,957.
U.S. Patent for Introcan Safety™ 3 IV Catheter are: 7,736,339; 8,328,762; 8,333,735; 8,337,463; 8,540,728; and 9,149,626.

While double gloving with synthetic gloves are an evidence-based solution that can effectively decrease pathogen transmission and have become the standard of care in many hospitals, there have been cases where wearers suffer skin sensitivities to the accelerators used to manufacture them. Therefore, to be accepted, the system design must take into account staff desire for comfortable fit, good tactile feel and skin sensitivity needs.

"For the OR, securing the best double gloving system is critical and usage is driven by comfort, quality and a culture of safety," said Calabrese. "Using a just culture model, staff shares accountability and control for best practices, such as double gloving. This approach takes a step beyond dogma and places the outcomes for safety on education and actual practice using a synthetic double-gloving indicator system."



Molnlycke's Biogel PI UltraTouch S double-gloving system

The new Mölnlycke Biogel PI UltraTouch S double-gloving system, made with a skin-friendly formula, is designed to reduce the risk of Type IV allergic contact dermatitis. The best-in-class puncture indication system ensures breaches are spotted quickly.

One medical center reported a 31 percent decrease in needlestick injuries among staff members from 2018 to 2019 using a two-fold focus: Gain double gloving acceptance using an indicator glove and transition to a latex-free environment.[11]

Owen Mumford's safety pen needles

Stephanie Lee, Director, Marketing, Owen Mumford, explains how needlesticks still occur at unacceptably high rates because most conventional safety pen needles only protect the patient end leaving the healthcare professional-side of the needle exposed. She says another concern is the traditional safety pen needle makes it virtually impossible to verify that the medication has been delivered during the injection. Hidden needles prevent the healthcare professional from viewing penetration, and the sensitivity of the automatic trigger can cause premature activation; therefore, the clinician might not administer a proper injection or full medication delivery.

"First generation safety pen needles have played a significant role in the protection of health workers by reducing the risk of needlestick injuries," said Lee. The use of safety pen needles has helped to reduce the occurrence of needlesticks each year, which results in reduced exposure among health workers and patients to disease from contaminated sharps, however, problems still exist. In response, Owen Mumford developed the next-generation safety pen needle that offers dual-protection covering both ends of the needle, protecting both the patient and the healthcare professional."

Unifine SafeControl Safety Pen Needle with Dual-Protection from Owen Mumford

According to Duesman, the safety and efficacy of activating a safety mechanism before removal from a patient is well established. Pre-removal activation virtually eliminates exposure to a contaminated needle, thereby effectively reducing the risk of a needlestick injury. VanishPoint automated retraction syringes have demonstrated significant needlestick reduction, as compared to manual devices that require removal from the patient prior to activation.

Retractable Technologies' retractable needle technology

Safety and ease of use are the driving factors behind all of Retractable Technologies' (RTI) products, Kathryn M. Duesman, RN, Vice President of Clinical Affairs, Retractable Technologies, explains. A U.S.-based company that was established 25 years ago, RTI exclusively designs and manufactures medical devices that protect caregivers and patients.

"RTI appreciates and respects the challenges of the healthcare environment," said Duesman. "The COVID-19 pandemic has illustrated the importance of protecting healthcare workers, as well as the need for a robust, U.S.-based medical device industry. All of our products are designed to allow for safe and efficient use for the caregiver, the patient and the community-at-large. It is important to note that RTI's safety-needle products prevent both needlestick injuries and reuse, which can contribute to the spread of bloodborne pathogens associated with medical devices."

EasyPoint retractable needle from Retractable Technologies

RTI's latest commercially available innovation is the EasyPoint retractable needle. This needle is compatible with luer-fitting syringes and allows for pre-removal activation. It features a unique activation mechanism that eliminates forward motion, allowing users to keep their fingers behind the needle.

Viscot Medical's neutral zone trays

"Surgeons are the most likely to get stuck in the OR according to AST-provided statistics, the first scrub is the second most likely," said Nina Morales, Marketing Associate, Viscot Medical. "Our goal was to create a simple solution that enforced already existing safety recommendations."

Viscot Medical's Soffzone is an autoclavable neutral zone designed to enforce the hands-free transfer of sharps recommended by the CDC, OSHA, AORN, etc. while saving facilities money.

"Soffzone was developed by a surgeon who was frustrated by the lack of safety enhancements in the OR," explains Morales. "His feedback directly drove the development of this product. The bright red color was influenced by him wanting to keep his eyes on the surgical site but knowing where the sharp was in his periphery vision, and the low profile for complete visibility of the sharp. The size was so he could keep it easily accessible on the mayo stand. Every detail was made with comfort and safety in mind."

Soffzone Neutral Zone Trays from Viscot

"We recently validated different sterilization methods for the Soffzone and updated the IFU to reflect that," Morales added. "Many facilities have begun sterilizing the Soffzone in their kits to help drive compliance across the board." HPN

Visit https://hpnonline.com/21141922 for references.

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1 Project Saturn B (2017) Face-to-face interviews and product evaluations commissioned with an independent market research agency. Data on file.

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EVS blends mix of cleaning practices for hospital disinfection

by Ebony Smith

Every day, environmental services (EVS) departments play an instrumental role on the front lines keeping hospital and healthcare facilities, patients, visitors and staff protected from infectious pathogens. EVS workers conduct routine cleaning and disinfection of surfaces in rooms as directed by industry guidelines and standards. Pandemic health crises, like COVID-19, however, may call for orchestrating additional measures of cleaning and decontamination in these settings.

Increasing volume and enhancement of cleaning

During COVID-19, some EVS teams, such as at UAB Medicine in Birmingham, AL, have expanded their cleaning repertoire, supplies and schedules to ensure the safest possible healthcare environments.

"UAB Medicine has always followed strict guidelines for cleaning our hospitals and clinics, and we are doing even more during the COVID-19 outbreak. To help prevent the spread of the virus, our Environmental Services staff use special cleaning products and procedures and wear masks, gloves, face shields or goggles, and gowns. They clean and sanitize more often than usual and in more places, paying special attention to 'high-touch' surfaces such as handrails, door handles, elevator buttons, and restrooms," reported UAB Medicine.

The EVS team added significant time and focus cleaning areas where patients with COVID-19 received care. "A standard terminal clean after a patient is discharged or moved to another area takes 35-40 minutes. For rooms that were occupied by a patient with COVID-19, EVS team members must wait an hour after the patient has left before starting to clean. They wear full personal protective equipment and follow "enhanced contact precautions," which call for a double cleaning that takes up to 65 minutes using a disinfectant called Oxivir Tb. A double cleaning includes a normal full cleaning, followed by a second full cleaning and more attention to frequently touched surfaces. Privacy curtains are changed, the walls are cleaned, and the room is sprayed with a hydrogen peroxide-based disinfectant mist that clings to surfaces."

Representatives from cleaning and disinfectant manufacturers as well as infection prevention and clinical education specialists share with *Healthcare Purchasing News* the latest EVS cleaning supplies, equipment and techniques used to help keep hospitals adequately cleaned, sanitized and safe for care.

All things touched

Everyone who visits, works in or is cared for in a hospital comes in contact with many objects and spaces prone to contamination.

"There are tens of thousands of high-touch areas in a hospital," pointed out John Mazzaccaro, Vice President of Sales, HAIGuard. "Your exposure starts in a lobby with its furniture or in a wheelchair at the ER, depending on how you arrive. Once inside, there are tens of thousands of pieces of portable equipment moved around by staff from room to room and shared by patients. There are semi-permanent fixtures like cubicle curtains, shades and shower curtains that collect and share pathogens as staff make rounds and patients come and go. Every surface your patients, visitors and staff can reach will be touched and pathogens will be shared."

R-Water's TK60 Healthcare-Grade Disinfectant device

The Hand Shield Curtain from HAIGuard

Rayne Guest, Founder and CEO, R-Water LLC, calls out various items that are brought in, are placed down and can transmit pathogens.

"Personal items such as purses and bags, cell phones, laptops, or magazines and books shouldn't be overlooked," Guest said. "Visitors constantly bring in items for their loved ones, including takeout from restaurants. A kind gesture of retrieving or moving a personal item for a patient or resident can easily spread pathogens. Shoes bring in a ton of germs. All it takes is picking up one piece of luggage or purse from the floor and sitting it on a patient's bed to dramatically increase the risk of infections."

Intensive care, OR and patient rooms are some of the highest-touched areas, addresses Marc-Oliver Wright, MT(ASCP), MS, CIC, FAPIC, Clinical Science Liaison , PDI Healthcare.

"Researchers have found an average of 44 objects are touched in ICUs per encounter, while 13 surfaces are touched in general patient care rooms," Wright said. Objects closer to the patient, like bed rails, supply carts and IV pumps, are touched more frequently and are considered 'high touch surfaces.' In operating rooms a similar study found that high-touch surfaces include the computer mouse, OR bed, door and medication cart, with many of these surfaces being contaminated even after the rooms are terminally cleaned. Waiting rooms, bathrooms and other areas have not been studied as well, but it would not be surprising that high-use objects—toilet flush handles, sink handles, light switches, door knobs and arm chairs—would be the most frequently touched."

Areas touched less often also pose contamination risks, explains Doe

Kley, Senior Infection Preventionist, Clorox Healthcare.

"It's important, however, to keep in mind that touch contamination can occur from any item or surface, not just the high-touch ones," Kley noted. "A 2015 study by Cheng et al found an average of 93 contacts with surfaces per hour in healthcare settings. Furthermore, a single medical device can consist of up to 40 different materials. So, it is critical that surface compatibility with your disinfectants is a consideration."

Brian Le, Synexis, adds, "One study found that a healthcare worker's hands are as likely to be contaminated by touching an environmental surface as they are by direct contact with a patient."

Good hand hygiene, stresses Martin McGonagle, SC Johnson Professional, is another essential part of preventing the spread of contaminants.

"Hands are a key touchpoint for transmitting microorganisms to those surfaces, which is why special attention should be paid to hand hygiene protocol," McGonagle said. "It's important to clean and disinfect surfaces, but it's also critical to maintain a diligent and frequent hand hygiene protocol for staff, patients and visitors."

Kristen Venegas, Senior. Customer Experience Manager, Kimberly-Clark Professional, agrees that hand hygiene, when done in the correct manner, leads to better cleaning and care.

"We talk about 'hot spots' a lot at KCP," Venegas stated. We have many studies that show high germ counts on these frequently touched surfaces and how easily these germs can be transmitted from person to person. Did you know, 95 percent of people do not wash their hands long enough? It is good to remember that proper hand washing and drying with a paper towel (which removes up to 77 percent of bacteria that remains on hands after washing) is not only critical for hospital staff, but also for patients and visitors in helping prevent the spread of germs."

Trusted standards and effects of cleaning

During pandemics, or any time of care, what guides EVS in their cleaning and disinfection processes?

"It's standard practice to align protocols with CDC and AHE guidelines. Proper cleaning method (e.g. 'clean to dirty' or 'high to low') is key, because, as the CDC states, "the actual physical removal of microorganisms and soil by wiping or scrubbing is probably as important, if not more so, than any antimicrobial effect of the cleaning agent used," indicated Michelle Olsen, Senior Category Manager – Cleaning, Rubbermaid Commercial Products. "The equipment and area closest to the patient — the 'hot zone' — is going to be the most contaminated. Starting with the cleanest areas will prevent spreading pathogens from heavily contaminated areas into cleaner areas. Products like our HYGEN microfiber cloths and mop pads are designed to provide optimal cleaning and remove 99.9 percent of tested virus and bacteria to help prepare surfaces for disinfection. We've developed products like our Flexi-Frame and Flex-Wand for use with HYGEN microfiber, so that you can clean all surfaces, top-to-bottom, corner-to-corner. An often-forgotten contaminated surface is a waste receptacle lid, which is why we've eliminated that surface with our Step-On Container."

Rubbermaid's HYGEN Microfiber Wet Mop Pads

The Association for the Health Care Environment (AHE) emphasizes the efficacy of its cleaning guidance for EVS during COVID-19. They note, however, that extra cleaning time may be needed during the pandemic.

"The guidelines and processes we have already established for EVS are sufficient for COVID-19 cleaning. Although you may want to increase frequency of cleaning and disinfecting of high-touch surfaces. If a patient was coughing and remained in the room for a long period of time or underwent an aerosol-generating procedure, allow sufficient time for airborne contaminant removal before performing a discharge clean," stated AHE.

Some facilities are turning to technology to help manage EVS cleaning in accordance with new guidelines during COVID-19, addressed Venegas, of Kimberly-Clark Professional.

"While the CDC has been sharing a lot of new and heightened COVID-19-specific protocols for cleaning and disinfecting, some hospitals are beginning to adopt IoT to improve efficiencies," Venegas said. "Predictive data from connective devices has shown improved cleaning metrics along with a shift in focus from towel, tissue and skincare dispensers to more critical needs like deep cleaning and disinfecting."

SC Johnson Professional's McGonagle recommends EVS and infection control have a say in the cleaning and disinfecting practices developed for facilities. This should include a concentration on high-touch areas and adherence to manufacturers' instructions for use (IFU).

"It's important that facilities follow the collective input from infection control and Environmental Services (EVS) personnel. This will help them make an educated decision to establish their own protocols and cleaning regimens based on this information," McGonagle expressed. "Certain high-touch surfaces need to be cleaned more frequently, and in some cases, after every contact. Special attention should be paid to high-touch surfaces within high-traffic areas, such as waiting rooms and lobbies. It's important to follow label instructions when disinfecting surfaces. Labels specify contact times needed for proper disinfection. For example, SC Johnson Professional's Coverage Plus Germicidal Surface Wipes offer a two-minute contact time and is broad spectrum against microorganisms. If the disinfectant is wiped away before two minutes have passed, the effectiveness of the product will decrease."

What do standard EVS cleaning and disinfection methods look like in a hospital setting?

Wright, of PDI Healthcare, points to terminal and daily cleaning in OR and patient rooms.

"In general, procedure areas are cleaned and disinfected after each procedure, with an emphasis on high-touch surfaces and any surfaces or equipment that may come in contact with the patient," Wright explained. "At the end of the day, these rooms undergo a terminal clean, where additional surfaces, such as the floor outside of the immediate procedure area or air vents, are disinfected. In patient rooms, there is daily cleaning of surfaces, including high-touch objects, counters and the patient's bathroom, and a terminal clean upon discharge where equipment is removed and all surfaces, including those not easily accessed dur-

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ing occupancy, are cleaned/disinfected. EVS staff are using disinfectants with an emerging viral pathogen claim approved by the EPA – these are also known as List N disinfectants.

"While no disinfectant yet has been proven to kill SARS-CoV-2, the ones included on this list are effective at killing viruses similar to or stronger than the coronavirus. Many are using supplemental disinfection, such as UV light, as an additional measure in hopes of reducing the risk of transmission."

Patient rooms undergo daily and discharge cleaning, notes R-Water LLC's Guest.

"For 'Dailies', the high-touch surfaces are disinfected (bed rails, horizontal surfaces, and restroom/sink areas) and the room is swept or mopped," Guest said. "'Discharges' cover more surfaces in the room, including mattresses and fixtures. Many hospitals use quaternary ammonia (quat) products with a 10-minute contact time for disinfection. In facilities that use quats, a case of C. diff means the room would have to be cleaned a second time, generally using a bleach product. During the second cleaning, in addition to all the original surfaces that were hit with the quat products, the walls and floors should be disinfected. However, by using TK60 (Total Kill in 60 Seconds), EVS is able to significantly reduce the contact time a product needs to sit on a surface and eliminate the second cleaning by simply applying TK60 to all of the surfaces in the patient room the first time. In essence, when using our product, every room is treated like a C-diff room."

Public areas are another critical concentration for cleaning, shares, Judy Black, BCE, Vice President Quality Assurance and Technical Services, Orkin, LLC.

Judy Black

"Orkin VitalClean disinfection service efforts are focused on healthcare common areas such as waiting rooms, nursing stations and offices," Black stated. "The number of high-touch surfaces might surprise you. Our pest management professionals are trained observers. They apply that same keen observation when figuring out what high-touch and low-touch areas may exist in an area and need to be treated. We use lint-free cloths to apply a first round of disinfectant, a process that also helps dislodge pathogens. Then we follow up with a mist application of the disinfectant. The mist is created by a specific application tip that allows for a specific particle size of droplet. The mist allows for an even treatment that will hold wet for 10 minutes."

Still, even when patients with COVID-19 are treated in a hospital, many standards of cleaning still apply, expresses Deborah Chung, healthcare marketing manager, Essity North America.

"With some exceptions, cleaning and disinfections of areas that were exposed to COVID-19 do not differ greatly from routine procedures," Chung noted. "In

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*Sporicidin is listed on the EPA's List N for use against SARS-CoV-2, the virus that causes COVID-19.

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addition to routine procedures, EVS staff should be disinfecting high-touch surfaces more frequently than usual. CDC recommends using alcohol-based hand rubs with greater than 60 percent ethanol or 70 percent isopropanol in health care settings to help prevent the spread of COVID-19."

Meaning and impact of deep cleaning

Depending on who you ask, deep cleaning holds different meanings within and outside of healthcare environments.

"Deep cleaning is often associated with a shutdown resulting from exposure to pathogen or a protocol preceding reopening of a shuttered facility," indicated Matt Schiering, Contec, Inc. "Prior to COVID-19, one would have heard this term most frequently in reference to a cruise ship, nursing home or school that had endured a norovirus outbreak. Deep cleaning is often simply treating high-touch surfaces to ensure confidence prior to allowing people to expose themselves to these same surfaces upon reopening. Everything from UV and fogging devices to 'old school' scrubbing brushes and high-level disinfectants each have their place in addressing COVID-19 concerns. It may seem trite, but mechanical removal and adherence to label dwell times remains a tried and true way to ensure efficacious and efficient elimination of pathogens."-

Synexis' Le draws a connection between deep cleaning, terminal cleaning and complementary cleaning practices.

"In healthcare, deep cleaning is often associated with terminal cleaning," Le said. "Deep cleaning is the ability to thoroughly clean and disinfect the room, top to bottom, at a single point in time, but the minute an individual enters that room, the process of recontamination begins. It would be advantageous if you could augment deep cleaning by employing measures, such as dry hydrogen peroxide (DHP), that continuously and comprehensively keep microbial levels down. Synexis' automated technology produces DHP from ambient

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Learning from COVID-19

What EVS lessons and tips have come to light from the COVID-19 pandemic? *Healthcare Purchasing News* shares these insights from industry professionals.

"With the emergence of COVID-19, even more emphasis has been placed on the importance of EVS staff and their role in fighting the spread of the disease. More broadly, I think infection prevention teams are reflecting on lessons learned that will help hospitals prepare for future pandemics, including the importance of continuous syndromic surveillance, preparing for supply shortages, and overall pandemic planning.

Other tips and lessons learned include:

- Flexibility around PPE and product supplies in the event of shortages
- Rethinking how the work gets completed. Here are some examples:
  1. To preserve PPE supplies, have nursing perform occupied cleaning since they will already be in the room
  2. Repurpose furloughed staff such as training valet parking staff to be responsible for frequent cleaning and disinfection of high-touch surfaces in public areas and elevators
  3. Since it is not a specific recommendation and we don't perform patient care activities on walls, is complete wall cleaning (rather than just spot cleaning) really necessary?
  4. Take down privacy curtains in private rooms that have doors as they are not essential and create more cleaning work for EVS."

Doe Kley, Clorox Healthcare

"The need for scheduled and regular next-level cleaning for the entire facility is necessary for both a healthier work environment and a safer clinical care setting. There should no longer be a disinfection exception for items like curtains or shades that can be shared by hundreds of patients before their next cleaning. The concept of disinfecting an item "when visibly soiled" has often been used as an excuse for items that seem difficult, and this language exists in many cleaning protocols. It is time to remove the excuse. All hospital-acquired infections can be prevented. We have to accept the challenge that keeping our staff and customers safe requires more."

John Mazzaccaro, HAIGuard

"a. Hand hygiene remains the cornerstone of infection prevention and the #1 way to reduce spread of diseases.
b. Signage can help reinforce the importance of proper hand hygiene with staff and as healthcare facilities open to visitors."

Deborah Chung, Essity North America

"COVID-19 has suddenly brought to the forefront two major pain points for healthcare teams across the country: contact times and supply chain. In the past, running out of disinfecting products or wipes wasn't a concern and disinfectants with a ten-minute contact time were the industry norm. Now people are realizing the peace of mind producing disinfectants on site with a one-minute contact time provides."

Rayne Guest, R-Water LLC

"Because of PPE shortages, we've heard of changes to routine cleaning in hospitals. In many cases, nursing staff has been doing daily cleaning when they go in to check vitals or give medications, and EVS has only performed terminal cleaning. In surge locations, the need to get rooms turned over has been complicated by the need to let them air out before cleaning. Both situations mean you need cleaning products that are user-friendly, highly effective, and very efficient."

Michelle Olsen, Rubbermaid Commercial Products

"A common theme emerging from this crisis is preparation. This caught the healthcare industry off-guard, hence the reactive responding that we've all seen. Moving forward, facilities will have more comprehensive plans and mitigation strategies in place to reduce the risk of transmission."

Brian Le, Synexis

"a. Contingency planning or what to do when things don't go according to plan. In times of crisis, supply availability can be strained. How does an EVS program re-allocate the resources they have to the areas of greatest need? What goes into developing a Plan B and Plan C?
b. Rapid fire communication and education strategies. In many places, supply chain interruptions required that the facility change their practice to a new product, process or technology. How was the information effectively communicated to front-line staff?"

Marc-Oliver Wright, PDI Healthcare

"As part of our Heroes on the Frontline of Health Care Monthly Spotlight Program in partnership with AHE, we are hearing so many wonderful stories about the role that EVS plays in not only keeping patients and staff safe, but also in being a source of comfort for patients who are alone in the hospital right now without family/friends allowed by their side. I think EVS teams – now more than ever – can learn how just a small gesture of care and a smiling face can mean the world to these patients and can help aid in their recovery."

Kristen Venegas, Kimberly-Clark Professional

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1 KCP Healthcare Study, 2019
2 52 Week IRI Data ending April 2018; 2017 HPIS Data; Hall & Partners, September 2017 Brand Survey
3 KCP Onvation Study, 2017

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oxygen and humidity and is safe for occupied settings. DHP permeates a space from ceiling to floor, corner to corner, addressing every surface – low, medium and high-touch. Increased quality and frequency of cleaning and disinfection are key strategies in preventing COVID-19 spread."

Deep cleaning involves more time and areas of cleaning, according to Kley, of Clorox Healthcare.

"Deep cleaning should not be confused with terminal cleaning," explained Kley. "While a terminal clean is more extensive than an occupied room cleaning, deep cleaning is even more extensive than terminal cleaning. Deep cleaning happens on a routine schedule depending on the traffic. It entails cleaning everything, including curtains, walls, ceilings and hard-to-reach areas. Floors are typically stripped and deep cleaned. Scheduling deep cleaning means coordinating with department managers as it may entail closing a unit or parts of a unit."

Still, Linda Homan, RN, BSN, CIC, Senior Manager Clinical Affairs, Ecolab Healthcare, views the standard methods of cleaning as appropriate for any circumstances.

"During this pandemic, as with any other time, hospital surfaces are contaminated with pathogens and we want to ensure that all contaminated surfaces are properly cleaned and disinfected," Homan stated. "The term 'deep cleaning' has been used to convey the message that cleaning is done more thoroughly than usual. In truth, the routine cleaning and disinfection practices already in place for hospital environmental hygiene are designed to protect staff and patients and have been proven to remove harmful bacteria and viruses from surfaces when done thoroughly and consistently. The term 'deep cleaning' is not meaningful or recommended when performing environmental hygiene during the COVID-19 pandemic. Rather than recommending a different level or type of cleaning, the CDC recommends ensuring that routine environmental cleaning and disinfection procedures are followed consistently and correctly."

HAIGuard's John Mazzaccaro, however, sees a growing need for deep cleaning during COVID-19.

"At HAIGuard, we define deep cleaning as a next-level disinfection process," Mazzaccaro shared. "The ability to clean and disinfect what we can't see and can't reach can only be achieved by using innovative technology, finding more manpower and implementing next-level protocols on both a set schedule and an emergent basis. Staff, visitors and patients will need to be assured that where they go in a healthcare setting and what they touch is safer than ever before because the stakes are higher.

"COVID-19 has made us more aware of the things that we can't see and how they can directly hurt us. This market response and cultural change is creating a demand for services like our Hydrogen Peroxide Vaporization process in order to reach new standards and restore lost confidence. HAIGuard's process can thoroughly disinfect previously unreached places where microbes can hide and grow."

As the focus on deep cleaning has increased and the availability of cleaning supplies has decreased, some EVS teams have shifted to alternative products, notes Kimberly-Clark Professional's Venegas.

"Going back to those 'hot spots', deep cleaning is ensuring that nothing has been overlooked and that cleaning and disinfecting products are being used properly according to their instructions and guidelines. With skyrocketing demand, a lot of cleaning and disinfecting products have been extremely difficult to get. EVS staff have been more willing to try new solutions that differ from what they have traditionally used. At KCP we have seen a lot of demand for our WetTask Disposable Wiping System. Unlike traditional pre-sats, this system gives EVS staff the ability to add the cleaning chemicals of their choice while also providing cost-in-use benefits of switching from pre-sats."

Hygiene solutions from Kimberly-Clark Professional

Deep cleaning may also help meet the needs of special situations, explains Wright, of PDI Healthcare.

"The term 'deep cleaning' is to enhance the current practice with superior products or practices in the context of a specific problem or need," Wright addressed. "For example, an EVS department at a long-term care facility might use a standard low or intermediate level disinfectant for routine cleaning of rooms. But if a resident has a gastrointestinal illness, EVS might switch to a sporicidal disinfectant, like bleach, and increase the frequency of cleaning. Deep cleaning can also include what is called "supplemental disinfection," where after a room is manually cleaned/disinfected, the room undergoes an additional—and often hands-free—disinfection cycle using advanced technology like ultraviolet light to kill any germs left behind after manual cleaning."

Rooms where patients with COVID-19 have been treated require additional cleaning time and PPE, points out Kley, of Clorox Healthcare.

"After discharge of a COVID-19 patient, the CDC states EVS staff should delay entry into the room for terminal cleaning until sufficient time has elapsed for air exchanges to remove infectious particles," Kley said. "The minimum PPE that should be worn to enter the room for terminal cleaning are gown and gloves. Wear a mask if the facility is practicing universal masking. Other PPE such as eye protection should be added if splash or spraying during cleaning and disinfection activities are anticipated or are otherwise required based on the products in use. Additionally, the CDC recommends using products with EPA-approved emerging viral pathogens claims against SARS-CoV-2.

"Clorox Healthcare has several ready-to-use disinfecting products with the EPA-approved emerging viral pathogen claim, including Bleach Germicidal Wipes, Fuzion Cleaner

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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

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Disinfectant, Hydrogen Peroxide Wipes as well as Clorox Healthcare's newly launched Spore Defense Cleaner Disinfectant. This is the first sporicidal solution available through the Clorox Total 360 electrostatic system and qualifies for use against SARS-Cov-2."

No matter when, how or where they are cleaning, EVS rises to the occasion to safely clean and disinfect areas for the safety of all, stresses R-Water LLC's Guest.

"I believe all cleanings should be deep cleanings, especially 'Discharges,' Guest stated. "The only way to achieve that level of proper disinfection is to strictly adhere to contact times and protocols. EVS has one of the toughest and most important jobs in any hospital or extended care facility working tirelessly to create the safest possible environment for patients, residents, nurses, doctors, other staff members and visitors." **HPN**

Visit https://hpnonline.com/21141164 for our annual listing of EVS product vendors by category.

Endnotes

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Augmenting the heartbeat of clinical processes, patient care delivery

Workstation utility consistently remains a work in progress

by Rick Dana Barlow

Call them data and information sidekicks or even the defibrillator assisting the heartbeat of patient care, but workstations – mobile and stationary – really function as workhorses throughout the clinical and operational areas.

With computerized, digital electronic assistants, we've progressed a long way from the analog routine – pen, paper and clipboard with sticky notes. While the latter may have been equally as convenient and mobile on the front end, the process involved a bit more manual data entry on the back end, something its automated successor solved.

Even stationary workstations – areas designed and dedicated to the effective and efficient performance of certain tasks – represented an improvement over occupying some nook or space to complete an integral task.

Few can argue that smart phones serve as sort of an untethered mobile workstation, just shy of perhaps a "tricorder" on "Star Trek." But the industry seems headed in that direction – from advanced computers built into desks and tables or flat screen monitors affixed to the wall either as art or mirrors to hand-held and wearable devices with monumental computing power.

Imagine redefining the concept of taking your workstation with you on your person in the form of a hand-held or wearable device or tapping on something festooned to the wall.

Does that future entice and excite clinicians and end users? Or do they prefer the comforting familiarity of convenience they have today?

Utility over futility

As today's culture – business and consumer – strives to do more with less, it should come as no surprise that convenience leads the list of favorable attributes and features of today's mobile and stationary workstations, as noted by a number of workstation supplier executives tuned in to customer demands. That includes access and mobility.

Yet, ergonomics, ease-of-use/user-friendliness (arguably a synonym for convenience) and, of course, cleaning, disinfecting and sterilizing against the backdrop of the COVID-19 pandemic, remain close in priority for the health and safety of clinicians and patients alike.

Dave Salus

Such favorable features all fit together, according to Dave Salus, Market Manager, Healthcare Division, InterMetro.

"Having access to critical data is of utmost importance," Salus told *Healthcare Purchasing News*. "If it's not with the clinician, it's not convenient, nor accessible. It needs to be portable. And it goes without saying – COVID or no COVID – it needs to be clean."

Salus stresses that InterMetro incorporates computers and the power to keep them mobile on its workstation platforms – including bedside, anesthesia, IV therapy, critical care and emergency overflow, among others. These carts also include Microban antimicrobial protection.

"Sterility, infection control and cleanliness have got to be the biggest priority above all other attributes," insisted Ian Loper, Vice President, DSI. "Without full achievement, you have an unsafe working environment for both employees and the patients. Stainless steel work surfaces are the tried-and-true surface that enables full infection control, but to achieve full sterility, the employees must continue to wipe down their work surface before and after every shift."

Workstation utility should be designed around clinician engagement with the patients, which can affect the patient experience and also the well-being and workflow of the clinician, according to Brian Hazelwood, Marketing Manager, Medical Division, Midmark.

"The use of mobile workstations to create a flexible workspace inside the patient

care zone can greatly enhance patient engagement," he noted. "This mobility allows physicians to work in the way they are most comfortable, whether that be seated, standing, mobile or stationary. Midmark workstations adjust in height – 23 inches to four inches – while offering tilt and rotation functionality that allows for a proper working position to be maintained without sacrificing eye contact with the patient. Mobile workstations designed to improve the caregiver-patient interaction enable organizations to easily bring digital information to the point of care without sacrificing workflow."

Hazelwood also emphasizes the need for operational flexibility.

"The use of mobile or wall-mounted workstations can also bring devices – desktops, laptops and tablets – within arm's reach, decreasing the need for caregivers to move within the space and maximizing engagement with patients," he said. "All necessary data is accessible at the point of care and can be shared by caregivers. Digital and physical care interfaces are within the same work zone, and the movement of caregivers is minimized as constant contact with patients is maintained."

Ergonomics reinforces flexibility, which benefits the end user as well as the healthcare organization, according to David Phillips, Marketing Manager, Hänel Storage Systems.

Midmark's 6212 Workstation

"Workstations should be the correct height so that employees no longer need to bend or squat to lift items from near the floor, extend or climb stepstools to reach items awkwardly stacked above, or make repetitive motions that are outside OSHA's recommended 'golden zone,'" he said. "It's in a hospital's best interests to keep its employees healthy. Any of these movements can result in a pulled muscle, strained back or slipped spinal disc, and when they occur on the job, the employer can be on the hook for financial compensation and rehabilitation that can last for months. A change in ergonomics can also mean a simpler design that's much easier to use."

Steve Torbett

Workstations must have that "no hassle" functionality to help – not hinder – a clinician's ability to deliver patient care, urges Steve Torbett, Senior Product Manager, Capsa Healthcare.

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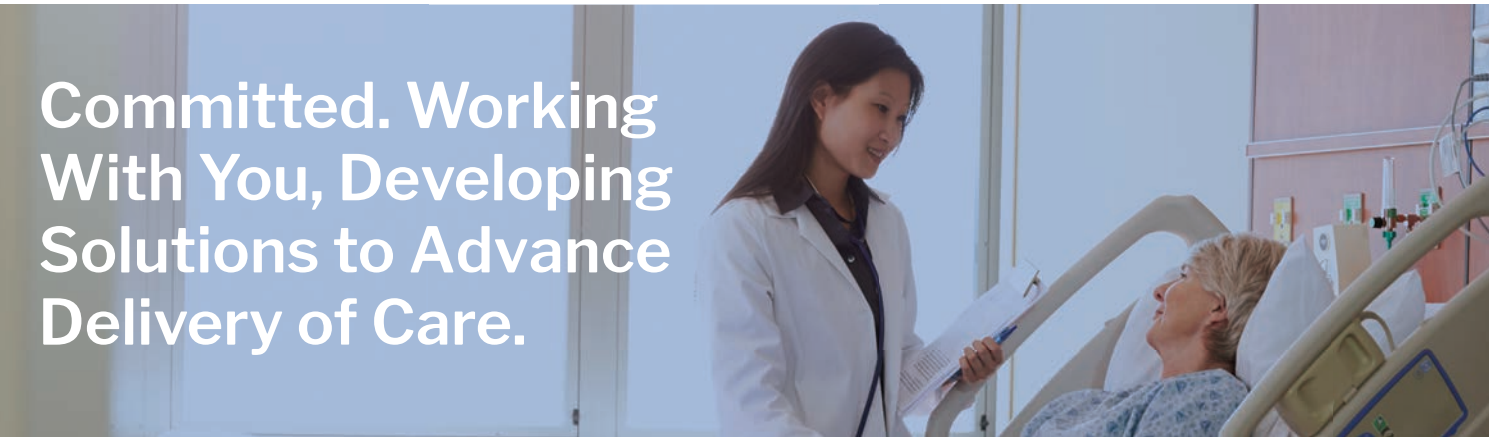

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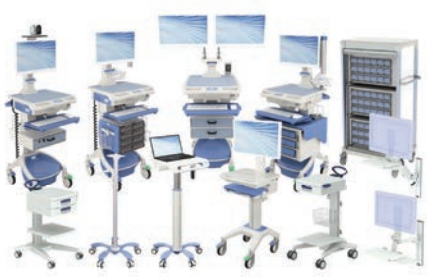

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Hänel Rotomat installation at Florida Hospital

"At their foundation, mobile workstations help caregivers save critical steps by carrying what they need most often to deliver patient care. They're also designed for clinicians to easily access electronic medical records," he said.

Some workstations are designed with a technology focus and not as much on the user experience and clinical workflows, forcing caregivers to adapt," Torbett continued. "Too much emphasis on technology and healthcare software can make it more complicated and difficult to deliver care instead of making it easier. We listen closely to the pains and wishes of clinical users, IT and administrators. It's about asking open-ended questions and using the right ways to uncover unmet needs and identify innovative ideas for a solution."

Torbett cites one example of how Capsa installed a seven-inch glass touch screen on the front of its CareLink carts that served as an eye-opener for the company.

"We did research with nurses about what belongs in a screen," he said. "If you had a screen like that embedded in the cart, what do you wish it did? What do you wish you could use your smartphone for in front of patients? It led to the development of a number of features, some of which we wouldn't have necessarily even thought of. That was powerful for us."

Flexibility filleted

Tapping clinician and end-user suggestions, manufacturers of mobile and stationary workstations have adapted and improved the products they offer but acknowledge further design and development efforts will yield the changes needed to remain lock-step with progress.

Such progress – incremental and beyond – starts with a fundamental understanding of the function of these products, according to Emma Naclerio, Mechanical Engineer, TouchPoint Medical.

"While users of [workstations on wheels] may have similar workflows, no two WoWs are used exactly the same," she told *HPN*. "At the end of the day, this is the user's 'desk,' and the user should be empowered to customize it as they see fit to do their job. This can be achieved through user/ergonomic settings that automatically apply when the user logs in with their RFID badge, bins/hooks/shelves that the user can swap/rearrange to suit their work, or smaller touches like spaces for writing notes or applying identifying decals and signage."

Capsa's Torbett links ergonomics into the equation, akin to electronic settings geared to individual drivers of a car.

"Workstations with a lot of adjustability and easy maneuverability that adapt to users' needs is critical to their health and satisfaction," he observed. "For example, we introduced user stored preferences for standing and seated heights for a workstation, similar to saving user settings in car seats. When caregivers save their preferences, they transfer to every other workstation through our fleet management system. We also introduced a trigger-operated steer assist feature, designed to reduce strain in users' shoulders as they push a workstation through hallways."

User "personalization" and adaptation are becoming key differentiators, according to Bradley Carlson, Product Manager, Point of Care Solutions, TouchPoint Medical. "In addition, things like an inductive phone/device charger on the work surface or multiple color section availability are nice touches. With the trend towards non-powered and 'lightly' powered carts rapidly growing, if some of these personal touches can be incorporated into much lighter weight form factor, then that would be a home run – for documentation carts."

Sarah Leitz, Director, Product Marketing, Altus Industries, urges seamless transitions between devices as a key benefit.

"Make it easy and simple to move back and forth between mobile and desktop applications," she said. "Mobile is great for many use cases, but heavy documentation on a mobile device is difficult and frustrating. Being able to easily go back and forth between the two is critical to workflow and ease of use."

Leitz indicates that her company currently is developing with a manufacturing partner – ACS MediHealth – an attachment to the cart that would allow the clinician or end user to dock a mobile device and use it to run software, such as electronic health records – on a larger screen.

The necessary functional attribute that should define workstation design for the near future is integration, according to InterMetro's Salus.

"More and more procedures are happening at the patient bedside, rather than moving patients to the service," he noted. "This requires the clinicians to bring their tools and supplies to the patient. The design of the workstation needs to address mobility, portability and integration. The clinicians need to easily transport the workstation with them to the patient but also need the workstation to accommodate their supplies, medications, tools and technology required for the procedure. It makes for a unique solution that delivers these required functions that doesn't sacrifice [one] feature to provide another."

Midmark's Hazelwood concurs with the drive for integration to push workstation development.

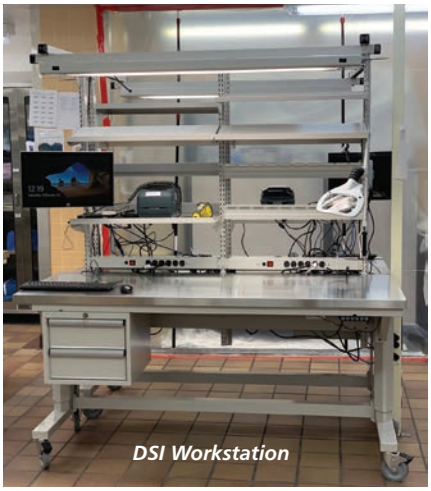
"As the practice of healthcare evolves, technology will continue to play a larger role in the exam room and in how physicians and caregivers interact with patients," he noted. "A fully connected digital ecosystem where point-of-care processes, equipment and caregivers


Altus Cart Portfolio

are integrated will help enhance the care delivery experience. Workstations should be intuitive for the user, support the deployment of technology at the point of care, and properly support the provider-patient interaction and the clinical workflow. Integration of technology – and as a result, proper diagnostic readings – are important for improving patient outcomes. Without proper planning and the right equipment, integration of technologies such as EMRs and tablets could negatively impact the overall efficiency of the care process."

DSI's Loper concentrates on "optional accessories" for stationary workstations as notable design and development improvements, including iPad holders, enhanced light and light features of illumination for inspection of perforations in sterile wrap materials, elaborate self-balancing shade LED Luxo magnifiers, ergonomic quick-adjust for standing or sitting applications, magnification lighting and specialized storage bins for peel packs as examples of upgrades to a standard workstation line.

But the current COVID-19 pandemic should motivate additional design changes that may include surface features.



DSI Workstation

"With infection prevention and sterility as the priority, 10 years from now I would assume every workstation within an SPD will be entirely stainless-steel except for the desired accessories," Loper envisioned. "There might be some small incremental upgrades to the bells and whistles attached to the workstation but the movement going forward will continue to be towards all stainless-steel materials to help increase sterility within the department."

Hänel's Phillips acknowledges that providers and suppliers can learn valuable lessons from the pandemic – one of which may involve more automation.

"One improvement to stationary workstation design should be that they're easily disinfected," he said. "If COVID-19 has taught us anything, it's the need to clean and disinfect surfaces that are frequently touched. In storage areas containing a myriad of shelves, those shelves are touched on a regular basis, presenting a greater chance of exposure to pathogens, and therefore a greater risk to health. Efforts to contain potential disease transmission on so many high-touch surfaces could be better done by decreasing human exposure to these surfaces. Automated vertical carousels feature a single stainless steel worktable that is easy to clean and disinfect, rather than multiple surfaces that are more difficult to address. Cleaning can be done as often as possible, and chemical disinfectants never come into contact with the sterile supplies stored within the carousel." **HPN**

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The trouble with (non) standardized tests

by Karen Conway, Vice President, Healthcare Value, GHX

Much has been written about the challenges associated with a paucity of diagnostic testing for the presence of COVID-19. Without adequate testing, it is difficult to identify and isolate those with the disease in order to prevent its further spread in the population. And once again, supply chain disruptions are contributing to the problem.

That said, it is not all the supply chain's fault. At first, capacity had more to do with public policy, specifically limitations by the U.S. Food and Drug Administration (FDA) on who could develop the tests: The Centers for Disease Control and Prevention (CDC) and diagnostic test makers, like Roche and Abbott, but not public health laboratories. After problems surfaced with the CDC test, and demand soared beyond the supply, the FDA gave the go ahead for labs certified by the Centers for Medicare and Medicaid Services (CMS) under the Clinical Laboratory Improvement Amendments (CLIA) to develop their own tests. Despite an unprecedented acceleration in time to market for many tests, the worldwide reach of the virus created demand on a scale not experienced in recent memory, and that's when the supply chain issues came to the forefront.

According to the Association of Molecular Pathology (AMP), more than 85 percent of the 118 U.S. labs responding to a survey in late April/early May said supply chain disruptions had delayed or decreased their ability to provide diagnostic testing. The supply shortages were far ranging. More than 90 percent said they were currently or had previously experienced shortages in testing swabs; 88 percent had similar issues with transport media, and 81 and 79 percent, respectively, had or are currently unable to get enough of the right reagents or testing kits.

The severity of shortages differed by lab type. Forty percent of academic medical center and community laboratories reported supply disruptions for testing kits, compared to just 13 percent of commercial labs. Once again, fingers pointed to public policy. Two-thirds of labs at hospitals, health systems and academic medical centers said they were told they could not purchase testing kits or reagents due to government restrictions and/or allocation, while less than one-third of commercial reference labs reported similar issues.

From scarcity to variation

Generally speaking, the hospital, community and academic medical center labs are much closer to patients and are also able to turn tests around quickly (most in less than 24 hours), compared to the commercial labs, with 43 percent that said results took longer than 24 hours and some longer than six days.

A larger portion of academic medical center laboratories (57 percent) and community hospital laboratories (45 percent) also reported demand was lower than their current capacity, while only 37 percent of the commercial labs had excess capacity.

The disparity in supply availability, timing of results, and capacity could have important implications as testing demand increases with the resumption of elective and non-urgent care and the reopening of businesses and schools. Given more supply availability issues, some hospitals are working with the commercial labs to get test results back within two days, which is time enough for them to know whether a patient is infection-free before starting a procedure. But if the time frame is longer, the hospital must utilize its own lab resources, which may have supply issues.

The relative lack of supplies has also led more of the non-commercial labs (57 percent) to run three or more testing methodologies, compared to just 20 percent of commercial labs. By diversifying testing methods, respondents say they can pivot based on which reagents or other method-dependent supplies they receive. Different methods often have different hardware, software, and protocols; some tests have to run on a specific platform, while others can be run on multiple platforms. Regardless, variation introduces greater complexity and the potential for errors.

Finally, the survey respondents reported problems with variation in how and to whom they report test results. Ninety percent of respondents said they are reporting results to state health departments, but 85 percent also said they have reporting requirements with the Federal Emergency Management Association, the CDC and/or local health departments. Forty-three percent said the multiple reporting requirements negatively impacted workflow given a lack of standardization in what information is required and how it should be reported. Hospitals have also reported similar challenges with how they are complying with reporting requirements for demand and utilization to both government agencies and their own executive teams.

In light of the survey results, AMP has outlined a number of recommendations for public policy makers and laboratory stakeholders. These include standardizing reporting formats so they are compatible with electronic health records and laboratory information systems and establishing a centralized reporting agency to eliminate duplicate reporting. The AMP also believes that more centralized visibility into supply availability, lab capacity, and demand could help public-private partnerships allocate and deliver supplies to where they can be best utilized to meet evolving healthcare and community needs.

Standardization and centralization are recurring themes in meeting the demands of COVID-19 and future pandemics. Once again, the ability for everyone to speak the same language and to share data across a common platform are paramount in times when making decisions and taking action can mean the difference between life and death. HPN

Karen Conway works to advance the role of the supply chain as a critical enabler in the pursuit of a value-based healthcare system.

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Revamping supply chain's farm system

by Ed Hardin, FACHE, CMRP, Vice President & Chief Supply Chain Officer, Froedtert Health

Back in January I wrote to you about the shrewdness of my hometown baseball team and drew the comparison to our need for retaining and developing talent. *[Editor's Note: See January 2020 Periscope, https://hpnonline.com/21118036.]* In just a few short weeks to follow, the veracity of that editorial column on how to build a world-class team seemed to vaporize with the news that the Houston Astros had been caught stealing pitcher signs, which had reverberations throughout the major league and apparently angered the baseball gods in the process. Well, perhaps the baseball gods were not angered, but the latest [in early June] is that Major League Baseball won't begin its season until early July and wrap up sometime in early November.

The reality is that the Astros had a great team going back two years before the scandal and two years after. Their Triple-A farm system, led by the co-founder of FC Barcelona's La Masia farm system and steeped in the rigorous empirical analysis of baseball statistics, was and still is considered one of the best in professional baseball. That farm system, not to mention a good deal of proving the critics wrong, will propel my team to another playoff berth, but let's return to the topic at hand.

Competition for talent

As I previously shared, the competition for talent remains a threat to supply chain leaders from industries where our skills and experiences translate well but also between provider organizations. The latter has reared its ugly head in the form of a compensation war between market competitors around the country. Will the recent pandemic and the fear of job loss quell the competitive volleys? Perhaps, but the situation is certainly only a temporary reprieve. And what of the points I made concerning limited data, declining member engagement in the institutions long responsible for professional development, shrinking budgets, lack of succession planning, and the influx of talent from outside our industry? Again, the need for us to put aside old paradigms and rethink what it means to retain and develop talent is calling out for our attention.

Critical and timely to-do's

My call to farms – an intentional and strategic approach to talent management – elicited dozens of responses from *Healthcare Purchasing News* readers.

Who are our anchor organizations and what obligation do they have to ensure that talent management remains a top priority?

The names of organizations you provided were plentiful and, in fact, there were a few that I had never heard of or never ventured to learn more about. What was very insightful was the suggested perspective that by definition, an anchor organization must have an obligation to improve the professional lot of its participants, and without such obligation, it is really no anchor organization at all. This begs the question whether such an organization deserves our time, that crucial resource we should never squander?

How does higher education play a role, and what linkages might supply chain leaders create with their local universities, colleges and vocational schools? And what can we do to turn the tables on our non-healthcare rivals for talent and become more competitive for entry-level personnel who haven't given healthcare serious consideration to launch their careers?

I combined these two questions as the responses were very similar. In retrospect, it is easy to see why. The theme here was universally shared by all respondents: Get involved in your local institution for higher education through guest or regular lecturing, hiring student interns and generally holding yourself as an available mentor to those entering the profession. Doing so pays dividends! One respondent shared that his five-year relationship with a nationally ranked supply chain graduate program has, he believes, garnered him preferred promotion of his internship program that, in turn, has led to the hiring of at least two former interns all of whom entered graduate school with plans to go into manufacturing. The point that many respondents made was to actively commit to your local programs where young talent are in abundance and sell them on the idea of healthcare as a viable industry alternative.

What groups must collaborate to form a multi-disciplinary panel of thought leaders to accurately identify the educational, training and networking requirements of team members?

The responses here seemed more discerning than from my first question regarding anchor organizations in part, I believe, because so much is riding on who would provide the subject matter experts capable of transforming our approach to talent management. Several organizations, including the Association for Healthcare Resource & Materials Management (AHRMM), Strategic Marketplace Initiative (SMI) and Bellwether League, were mentioned more than once as a source for a multi-disciplinary panel and for different reasons. AHRMM as its mission expressly calls out education, SMI for its promotion of collaboration, and Bellwether League for recognizing and inducting the best-of-the-best talent.

How do we help organizational development and education departments to best reprioritize resources to support our efforts in talent management?

This question drew the fewest responses. One respondent summed up the challenge well when she stated, "There are no extra dollars to go around. If the resources are to be made available for my team, these are going to have to come from my connections outside the organization." I know this individual. This was not a "half-empty" kind of response but a recognition of the reality that many of us face, and with the understanding that it will take a bit of work to research available resources. Take, for instance, the white papers produced by the aforementioned organizations. With a bit of tenacity and creativity, many of these can be shared with team members simply as reading material for the most aspiring team members or as the subject of a brown bag lunch session that you hold as a training session. HPN

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