OnSite brief: Carteret General Hospital, Morehead City, N.C.

Improved Hand and Environmental Hygiene Efforts Boost Hospital’s Culture of Safety

By Kelly M. Pyrek
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Introduction

In this OnSite brief, we share the success story of Carteret General Hospital, in Morehead City, N.C., which boosted its surface disinfection and hand hygiene efforts thanks to a comprehensive program from PDI.

The Outbreak...and Beyond

In the throes of an eight-week norovirus outbreak in January, infection preventionists Elaine Crittenton, RN, and Katherine Steele, RN, quickly came to realize the immense benefits of using surface disinfection and hand hygiene solutions from PDI within Carteret General Hospital. The not-for-profit 135-bed facility, located in Morehead City, N.C., had been last in line behind long-term care and outpatient facilities to see norovirus strike. But when it did, employee absenteeism spiked, patients became ill, and the infection preventionists knew they had to enact stringent infection control interventions to get the outbreak under control. It was a marriage of process and products, facilitated by PDI territory sales manager David Szvetecz. Just months earlier, Carteret General Hospital staff had begun using Sani-Cloth® Germicidal Disposable Wipes for its surface disinfection and general environmental hygiene, and in early January the facility introduced the Sani-Hands hand hygiene station. The station explains hand hygiene protocol, holds several tubs of the Sani-Hands® Instant Hand Sanitizing Wipes, and provides a trash can for easy and sanitary disposal of the wipes. The station is part of a more comprehensive hand hygiene campaign that also included use of wall-mounted canisters for staff members and individual packs of wipes provided to patients.
"When David visited we were in the middle of a norovirus outbreak," Steele explains. "We had discussed the situation with our statewide infection control program leaders, and we had sought advice about control measures to take. We were concerned about norovirus transmission at our cafeteria salad bar where the tongs were being handled by staff, patients and visitors. They agreed that we should shut down the salad bar and when we reopened it eventually, David helped us acquire the Sani-Hands hand hygiene stations. We placed them at the cafeteria’s entrance doors and right at the salad bar area. They were definitely used and very much appreciated, and soon we started distributing these hand hygiene stations to our outpatient center, our imaging center, and our urgent care center."

Steele says the timing was right because the facility was experiencing problems with its existing wall-mounted foam dispensers. "We were informed that in our patient registration areas in the outpatient and emergency departments, children would play with the dispensers and the product was being wasted. And with gel dispensers, the product would overflow and look displeasing. But once the Sani-Hands hand hygiene stations were in place, employees told me that the hand wipes were perfect."

"Our first experience with widespread norovirus was in 2007," Crittenton recalls. "It was horrific, and then North Carolina had a huge norovirus outbreak this year, too — it even made the statewide news. In Carteret County, acquisition of the virus started in long-term care; administrative staff at the first facility asked for help from the local health department and control measures were put in place to try to contain it but it jumped to another facility. Eventually it crept into the community and then it hit us, so this year it came in the back door instead of the front door. We changed many things in response to the outbreak — we even closed all of the self-service items in the cafeteria such as the salad bar, which was not a popular action with the staff. It held us in its grip for about eight weeks, and anyone who has been in an outbreak situation knows that's a long time."
Crittenton continues, "Norovirus has become a fairly frequent visitor in North Carolina and the real kicker with this virus is that you are still so contagious after your symptoms stop, it’s usually a 72-hour sickness, so you have it for three days and then you are struggling to regain normalcy. But people are incubating the virus and then shedding it and others who come in contact get sick fairly quickly. Studies have proven that for 48 hours to 72 hours after the symptoms of nausea, vomiting, abdominal cramping and diarrhea have stopped, people still pose the threat of sharing the virus. We had staff members get sick, and because we lost them for a whole week, we had a staffing crisis. It actually put everyone in jeopardy, and it was one of the biggest challenges we had ever faced before. It really helps when you have products you can use to disinfect high-touch surfaces and objects quickly."

Crittenton explains that in an outbreak scenario at Carteret, the number of patients who have acquired a particular pathogen determines the facility’s cleaning methodology. "If three or more patients on a wing are affected by an organism such as Clostridium difficile and/or norovirus, then we clean the entire unit with a bleach-based product. We also follow a stringent protocol for deep cleaning between patients and those shared patient-care items. During an outbreak, you are short staffed because people are sick, you have a facility full of patients who are sick, and you have so many considerations to bear in mind, so having a product that is ready at the point of use in the environment is critical. Prior to our implementation of PDI products, we used a phenolic that needed to be mixed -- we worried about whether they were being mixed correctly, whether there was the potential for the aerosolization of the chemicals during mixing, and ensuring that staff were using the right cleaning cloths was a challenge. Cleaning is everyone’s responsibility, and fortunately, we had the PDI Sani-Cloth® Bleach Wipe in house at that time of the outbreak so everyone could provide surface disinfection when needed."

Norovirus has been an uninvited yet frequent visitor in North Carolina this year, Crittenton says, and it’s not the only organism requiring ongoing vigilance at Carteret General Hospital. While the facility’s infection rates are low, Crittenton wants to keep them that way and keeps a sharp eye on the usual — and unusual — microbiological suspects. "Certainly methicillin-resistant Staphylococcus aureus (MRSA) is ever present in our environment but an infection caused by MRSA is an incredible rare occasion here," Crittenton says. "We have gone as long as a year and not had any lateral transmission of MRSA, which is almost unheard of. Overall, our HAI rate has been well below the national average, and I know this from seeing the cultures -- Kathy and I conduct 100 percent of the culture reviews for the hospital and that includes specimens that come in from long-term care and doctors' offices. Community-
acquired MRSA is probably more prevalent in our environment than healthcare-acquired MRSA, and we are starting to see movement in our Gram-negatives, Pseudomonas, Acinetobacter, some Klebsiella. Those organisms are all the buzz now — the KPCs and the CREs — so we are establishing fail-safe methodologies so we don’t miss those; we have built a database of all patients who have multidrug-resistant organisms and we have flagged their electronic medical records. “These patients are identified on admission and an orange wrist band is placed for identification to insure contact precautions are used with these particular patients that are colonized or have an active infection with a multi-drug resistant organism throughout the hospital. They are confined to their rooms and staff know to use personal protective equipment (PPE) such as gowns and gloves when entering these contact precaution isolation rooms. We also educate the patients’ family members and other visitors about multi-drug resistant infections and colonization. We explain the necessity to wear appropriate PPE while they are visiting so as to protect the hospital environment whenever they leave their family members room and I think that has helped a lot. The most resistant of those bugs that I have seen thus far have been among patients who either had significant stays in a tertiary-care facility and have a lot of co-morbidities, or are coming from the long-term care environment. There is not a lot of vancomycin-resistant Enterococci (VRE) here, which we are very fortunate not to have. We do see a fair amount of community-acquired pneumonia; oftentimes we don’t recover a pathogen because the patient has been treated with antibiotics on an outpatient basis and they have had a progression, so we use empiric therapy when we can’t tell what the bug is.”

The Partnership
Carteret General Hospital’s partnership with PDI began in July 2011 when PDI territory sales manager David Szvetecz first discussed surface wipes and the facility’s environmental hygiene needs with Crittenton and Carteret’s purchasing and materials management managers. It wasn’t long before PDI secured a three-year contract through the Premier Ascend group purchasing organization (GPO).

Szvetecz says he recalls the moment fondly: “Although it was a sole-source committed contract, personally I never look at any of it as a done deal at the very beginning, I did a presentation to Carteret’s materials management...
group and Elaine, and essentially I said, ‘Let me show you the financial and clinical benefits of our products, and from there, you reach back out to me and if this sounds good, we proceed.’ When you sit down for the first time with a hospital, you have that one shot and you better make it count. There was the contract that allowed me in the door, but I didn’t assume anything.”

It may not have been love at first sight, but many conversations were had between Szvetecz and Crittenton, and the relationship began to build and then blossom.

“He had been trying to win our business for a while,” Crittenton says. “To his credit, he tries hard to learn his marketplace. I’m not easy to mistake for someone else, but regardless, David has yet to miss an opportunity to greet me by name, ask how things are going and to see if there is anything I need, whether it’s in the facility or even at local APIC meetings. It takes a lot to change direction and that’s why I looked at the Ascend situation skeptically. Whoever wins the contract for three years might have won the business but if they don’t do a decent job — and not even an exceptional job — that’s a long three years to not be happy with the product or the representative. I am tough on product representatives, but David has been exceptional.” Crittenton continues, “It takes a lot of effort to change a product or a protocol in a hospital, and it affects everyone. Most people say they don’t want to change because it’s too much hassle.”

Replies Szvetecz, “I face that all the time so I have to impress upon them that I will make it as seamless as possible.”

It was indeed a time of soul-searching in order to determine the best solutions to address infection prevention-related concerns.

“At the beginning it was related to environmental disinfection, regulatory requirements and the question of kill time,” says Crittenton. “We knew we were heading toward our next Joint Commission survey, and we knew we had to have everyone singing the same song to surveyors. By conducting a mock survey event, we had discovered that we had a lot of disparity across our institution regarding the kill time that we were achieving with the products that we were using at the time and it was very confusing. We really hadn’t looked at the issue comprehensively like we did with PDI. We always talk about efficacy of products and one of the big deals over the last few years for hospitals has been being tagged by surveyors about dry time or contact time — that’s a huge issue when it comes to surface disinfection. For the longest time we were taught it was dry time, and that it was in the drying process that the bugs were killed. But all of a sudden it is now contact time, and that the surface has to stay wet for the recommended amount of time in order for the germicide to work. We do think about this issue in terms of time and money but also patient safety, and we want to be sure we are educating our people properly. I challenged David to know these answers and explain them to staff; he definitely held his own in conversations about the science of his products.” Crittenton says with a laugh, “I had to know his comfort level with his products and so I did challenge
him a bit. David was outstanding in the support he provided to us. It dovetailed nicely with our vision of trying to simplify products and provide education to staff. We also wanted to ensure that the product’s kill time met the requirements and the CDC’s environmental guideline because time is money — turning over rooms and equipment is key to facility throughput."

Crittenton explains that the norovirus outbreak helped highlight the need for efficient, effective surface disinfection. "I was really looking at our surface disinfection efforts because we knew that was a problem. We don’t want to discuss things from a purely regulatory aspect because we operate from a patient safety perspective, but we knew that as we were going through either CMS surveys or Joint Commission surveys, facilities in our area were getting tagged by surveyors because of the lack of cleaning between patients and shared patient-care items. In addition to the chemical that needed to be mixed, we were using a product in a tub that was randomly placed throughout the facility. We hadn’t addressed it from an education perspective, and never really did a full launch of that product. So when I was examining that lack of usage within context of considering the PDI product, I realized that item was a very slow mover. We were looking at every piece of the whole process as comprehensively as possible, and PDI offered an answer for all of those things. It offered me a product that had a good kill in a short amount of time; it offered me a bleach product so I didn’t have to worry about the stability of mixing my own chemicals on the floor."

Around the same time that the surface cleaning was being evaluated and the Sani-Cloth wipes were introduced, Crittenton and Steele were re-thinking hand hygiene for staff and patients.

"Kathy has her arms around hand hygiene on a regular basis, looking at compliance rates and the measurements for that, and we realized that we had failed our patients — they didn’t have a viable solution for their hand-cleansing needs," Crittenton says. "While we had patient hand wipes available they were very slow-moving, which indicated they needed to be closer to the point of use. We wanted to introduce patients to individual hand towelettes on the food trays, bedside packets for bed-bound patients, and we also wanted to put tubs of hand wipes out on the floors to help visitors with hand hygiene.
as well as staff members who were having reactions to the other products we were using because of existing contracts. We were able to convince our purchasing manager and administrative staff that this was a good idea and that we would simplify the processes here, and it worked out beautifully for us."

"Many staff have commented that the PDI Sani-Hands wipes used for hand cleansing, leaves their hands feeling soft and have reduced their symptoms of contact dermatitis," says Steele.

So Carteret launched its Sani-Hands Patient Hand Hygiene program, where new meal tray and bedside packs were offered to patients and in December 2011, comprehensive in-services were held for the dietary and nursing staff were held by Szvetecz and Steele.

"The Sani-Hands packets were individual wipes that we put on patient meal trays so that patients could effectively decontaminate their hands before eating," Crittenton explains. "Previously, bed-bound patients had been given a wet washcloth and that just moves the bugs around on their hands. But with a Sani-Hands wipe, they can have an efficient hand cleansing with an alcohol-based product, especially if they cannot walk to a sink for soap-and-water washing."

The bacterial burden on a patient’s hands is something to consider when talking about hand hygiene. "Several years ago for Infection Prevention Week we were doing an exercise on what grows on people’s hands," Crittenton says. — I asked a clerk who was getting ready to go to lunch to put her hand down on the petri dish. It resulted in pure culture, with Staph epidermis growing — you could see the whole handprint on that red medium. So when you think about patients lying in bed and the bugs multiplying on their hands and then they touch their IV or central line or touch and scratch their surgical incision, they are inoculating pristine sites that we are trying to keep clean."

But bed-bound patients weren’t the only ones enjoying the benefits of PDI’s hand hygiene wipes when the Sani-Hands hand hygiene stations debuted. In January 2012, Marquita Prichard, David Szvetecz, Evelyn Collins and Norma Norman.
at Steele’s request, PDI provided a Sani-Hands hand hygiene station for evaluation in the facility’s outpatient surgery waiting room. Because this was a huge success, they then provided two additional stations for Imaging and Urgent Care waiting rooms. In March, wall brackets for the Sani-Hands canisters were installed on patient units so that clinical staff that had contact dermatitis reactions in the past, could have an alternative to the foam hand sanitizer (help with contact dermatitis). It was good timing because the facility found itself battling norovirus again, and although soap and water was most effective against the virus, the wipes were a valuable adjunct.

This was evident among nurses who were suffering from skin-integrity issues such as contact dermatitis or dry, chapped hands during the fall and winter months.

"We live along the water where we enjoy 100 percent humidity most of the time, but in the fall when the weather changes and the winds kick in and it becomes crisp and dry, we are like reptiles deprived of water," Crittenton says. "I have staff coming to me in droves saying, 'Look at my hands,' because they are dry and cracked, and they develop little fissures in their fingertips. I remind people that their skin is their coat of armor and their protection, and I’ve seen staff members get MRSA in their fingertips, just from touching with fissured fingertips. For those staff members with contact dermatitis or other skin issues, the only choice they had was using soap and water if they didn’t want to use the existing foam sanitizer. We have this foam hand hygiene product from another company as part of a prior WNCHN purchasing arrangement so we can’t change, but we chose to augment it."

"We brought in the Sani-Hands packets initially for the meal trays and then the bedside packs for hand hygiene efforts as needed," Szvetecz says. "Then Kathy said some of the nurses were actually taking some of the wipes off the meal trays when they weren’t being used by patients because they liked them. That’s what indicated that the canisters were needed for those folks."

In March 2012, additional Sani-Hands brackets were added to each nursing unit. "We educated the staff that the Sani-Hands wipes were an alternative, and that by switching back and forth, we keep them from getting super sensitized or super dry because of the lack of emollients in the foam hand sanitizer," Crittenton continues. "Ease of access is very important, so having the wipes available was a good thing to do and the staff love them. It wasn’t a replacement product, but it was an important alternative. We reminded them through education that they needed to use the wipes for at least 15 seconds and get in the areas that alcohol would have reached in order for them to be effective."
Also in March 2012, Sani-Hands bedside packs were added to isolation carts to facilitate easy access for nursing staff. Posters for the Sani-Hands bedside packs were placed in acrylic frames and positioned on top of these carts, to provide an ongoing educational message and reminder.

"The key to infection prevention is the layering of multiple efforts from different directions," says Crittenton. "PDI made it easy for us with the product line that they have."

**The Education**

As we have seen, education was a key component of the surface disinfection and hand hygiene solutions that PDI provided to Carteret.

"David availed himself to me completely and was committed to making it work, bringing in the products and educating staff about them," Crittenton says. "And I think education is key. You can bring in any product and set in the midst of the staff and it will probably just sit there. And even if they did use it, they might not use it properly or effectively because they are not going to stop and read the label to understand the product if you don’t direct them to do so. David was a committed sales representative, but more than that, he became a part of the team in the time he was helping us with implementation of the products. Every day while he was here I got emails about how nice he was to the staff, how supportive he was, and it’s rare that you get that kind of feedback from busy staff. I thought that was very impressive."

Szvetecz says that in his 20 years in medical product sales (six of them for PDI), he has witnessed the power of providing staff education and instruction above and beyond mere demonstration of the product. He points to a prominent clinician whom he needed to dazzle when he was still new and green as a rep: "I got her interested in the product, but more importantly, I in-serviced the heck out of the place. When I came back to her with all of the sign-in sheets she was shocked at the number of people in attendance. That stuck with me, so each time I do this, whether it’s a large or small facility, I do my best to reach as many staff as humanly possible."

"When someone is really trying, I do everything I can to launch them successfully here in the building," Crittenton says. "I send out an introductory email, I promote it in our twice-weekly safety huddles, and David was very intuitive about feeling and following — anticipating needs and providing the appropriate guidance and instruction. The sign-in sheets are
key because there are requirements that are stringently monitored and you must divulge those frequently, such as when Joint Commission surveyors visit. David kept meticulous records, giving us excellent proof that we have in-serviced staff. The onus is on us to ensure that if we have a product or a process in the building, we have done a sufficient job of conducting in-services about them. At the time that the educational process was going on we were probably around 1,000 staff members and 600 or 700 of those were clinical staff members. So hitting all shifts and trying to think about how people work in teams and making sure he interfaced with everyone possible during the allotted time was very successful. When it comes to education, David takes a broad brushstroke approach and then delivers a more finely detailed brushstroke, in a two-prong attack. He identifies people on units who demonstrate leadership and will go back for one-on-one conversations with some of those leaders. He sees their interaction when he’s got everyone in the huddle, and he knows they are the ones who will usually take the information to the off-shifts and shifts he might miss."

One critical aspect of the education was ensuring that staff members could differentiate between the different wipes products. "Overall it was a very positive experience with no pushback at all from staff," Crittenton says. "They were used to seeing just one tub, one lid color, and now they had three to differentiate by the end of the introduction to the PDI program and there was a little bit of confusion. We continuously surveyed for a while to ensure that the right tub was in the right place because the last thing you want is for someone to grab a bleach wipe and wipe their hands with it. But through consistent education, staff learned to differentiate and to use all of the products correctly."

Staff compliance with infection prevention principles, practices and products is just one aspect of the myriad expectations for an infection preventionist who must also make sense of the many claims on labels of products today, as well as all of the "white noise" in the marketplace.

"I am very busy and it’s important not to get suckered," says Crittenton. "As infection preventionists we are all very busy and must process massive amounts of information every day — I feel like a super mainframe computer sometimes. But having all of this information is necessary to be able to make good decisions, especially about products. However, a product or a rep can disappoint and while it may take years to build credibility, it may take only moments to lose it."

One thing that Szvetecz and Crittenton agreed upon immediately was the effectiveness of the educational materials that PDI offered and that Crittenton and Steele could tailor for Carteret General Hospital staff. Those materials included laminated hand hygiene and surface hygiene protocols as well as flyers that explained important details about these protocols. For instance, one flyer announcing the new patient hand hygiene initiatives explains how the Sani-Hands individual packets can be used in contrast with
the Sani-Hands bedside packs. The take-home message was the importance of patient hand hygiene and its role in meeting Joint Commission National Patient Safety Goal 7 as well as helping to improve patient satisfaction scores.

“David and the PDI marketing team did a great job in providing educational materials that we could borrow from and create pieces that would resonate with staff,” Crittenton says. “I am not a graphic artist, so it was helpful to have this assistance with the flyers. And as we in infection prevention always say, ‘share selflessly, steal shamelessly’ because we are continuously teaching and mentoring — and not just with new or junior people, but veterans too, and everyone needs the message of hand and surface hygiene.”

Especially in a busy place such as Carteret General Hospital, which is celebrating its 45th year of service to the community, with an approximate area population of 67,000. As of 2010, the average daily census is 70.2 and the average length of stay is 3.9 days. The hospital has an average of 6,557 admissions, 1,895 inpatient surgeries, 2,926 outpatient surgeries, 42,777 ER visits — all handled by about 1,000 employees.

The Culture of Safety

The PDI partnership is part of Carteret General Hospital’s overall commitment to patient safety. The facility has expanded the quality data and measures for conditions such as pneumonia and surgical care, and this information is available from national and state public reporting sites and now is featured on Carteret General’s website. To help meet performance goals, Carteret General Hospital participates in several state and national quality reporting programs. This information helps the hospital continually improve care and excel in patient quality and safety. These efforts reflect the hospital’s slogan, “Our Mission Is Your Health,” which focuses on the hospital’s patient-centered approach to healthcare and expresses the commitment to help individuals enjoy long and healthy lives.

“Ultimately, at the end of the day, what happened here after the PDI program is culture change, and the emphasis on patient safety, healthcare worker safety, and environmental safety for our visitors,” Crittenton says. “We know what can lurk within a hospital and
we take responsibility comprehensively across the board for everyone’s wellbeing, safety and freedom from infections."

Humanizing infections is one strategy that Crittenton says can work to effect change within a healthcare institution.

"In some facilities, infections are often nameless, faceless, soft numbers," Crittenton says. "Our facility participated in the Institute for Healthcare Improvement (IHI)’s 100,000 Lives campaign, and about two-thirds of the way through our participation, our infection control chairman said that, after extrapolating the numbers, he thought that we had saved 12 patient lives at Carteret. I demonstrated that in one presentation by putting up what looked like paper dolls with no faces and non gender-specific clothing to show that they represented those people’s lives who had been saved and spared a life-threatening infection."

Crittenton adds, "These days it seems as though you can’t speak to anyone without hearing a horror story about an infection. When I give a lecture I ask people how many of them have been affected by a loss or a near loss resulting from a healthcare-acquired infection and on average, it’s 50 percent of every crowd I speak to. Those are high numbers that we, as infection preventionists, must address."

Crittenton says Carteret has and continues to participate in a number of patient safety- and quality-related collaborative efforts and notes, "When I think of all of the collaboratives and all of the core measures related to HAI prevention, we tend to talk about the bad things that have been in the press but we also need to talk about the opportunities, referencing our history — we need to be looking to where we started and being very humble, not so much being boastful about where we are but where we want to be."

"We also try to characterize to some degree what our patients bring with them to the table because they all bring something — co-morbidities and other unnamed, unrecognized things — when they come into our hospital. We try to examine each event and see if there is any correlation to something they brought with them that might be present on admission to help us learn so that in the future we have a better chance of preventing even more infections. As a 135-bed facility, we are small enough to operate as a speedboat compared to a medical center that operates like a cruise ship — if you decide you want to stop a cruise ship it takes five miles to do it. For us, we can cut the engine and make a hard right and redirect quickly. I like that because in infection prevention, we need to act quickly."
Carteret’s infection prevention efforts have been acknowledged in several important ways recently, including the hospital serving as a best-practice facility for a University of Wisconsin study looking at effective management and reduction of infections caused by multidrug-resistant-organisms. Carteret also was one of six hospitals in the nation to shoot a video for CMS and the Department of Health and Human Services on catheter-associated urinary tract infection (CAUTI) prevention.

"Carteret General Hospital is like the little engine that could," says Crittenton. It goes back to the speedboat analogy, and when you can effect change quickly, you can change the world."