

OPERATING ROOM

Wrapping it up: caring for surgical wounds

by Susan Cantrell, ELS

Wrapping up a surgical case usually concludes with wrapping up an incision site. Increased attention awarded to the impact that infection can have on the healing of a surgical wound, and patient morbidity and mortality, has brought about interesting developments in the engineering of postsurgical bandages and dressings. The traditional gauze and adhesive tape does create something of a barrier to a fresh surgical wound, but it's just not enough for some patients whose preoperative condition may require something more sophisticated. Industry has answered the challenge with advanced surgical bandages and dressings.

Certainly the environment poses risk of infection after surgery, but the risk of infection actually begins before surgery. The patient's condition, particularly conditions that affect the immune system, prior to surgery poses a risk factor. In such high-risk cases, an advanced dressing can perform as an infection control measure to protect postoperative wounds from becoming infected.

Antimicrobial dressings as a preventive measure to infection is a relatively new trend, according to Carl Liebert, group product manager/infection management, Smith-Nephew Wound Management, Largo, FL. "Antimicrobial barrier dressings can act as an infection-management device. For surgical wounds, they can prevent bacteria in the hospital environment from migrating to the wound. Likewise, they can prevent transfer of bacteria from the wound to the hospital staff and from the staff to the environment." An enormous advantage, averred Liebert, is that "use of advanced dressings can potentially reduce the use of systemic antibiotics." Who doesn't like the sound of that?

"Realization of infection risk due to the patient's comorbidities, such as diabetes, cancer, or

poor vascularization, creates the need for a barrier from the broader environment," stated Liebert. "It's important to realize that risk exists in the hospital and elsewhere, so a potent antimicrobial barrier dressing is needed to minimize risk of infection occurring in postoperative wounds."

Earmarks of an effective bandage or dressing

Certain components or properties should be present in the antimicrobial bandage or dressing to present an effective barrier to exogenous bacteria and to manage endogenous bacteria present at the incision site. What's important, contended Liebert, is that the antimicrobial be potent and fast-acting and that the bandage have the capability of being left in place for several days. Leaving a dressing in place for several days reduces trauma to the wound, creates less discomfort for the patient, and saves money by consuming less nursing time and reducing costs on dressings.

Smith-Nephew's Acticoat Antimicrobial Barrier contains silver. Silver has long been known for its inherent antimicrobial properties. It's being used increasingly by the healthcare industry because, when used in potent dose amounts (>60 ppm), it doesn't present the danger of resistance. Acticoat employs nanocrystalline ionic silver, delivered in atomized "clusters" on the bandage. To

be effective, ionic silver must be present in concentrations of ≥ 60 ppm or greater. Acticoat is potent, releasing 70 to 100 ppm of ionic silver. Its potency renders it effective on multiple types and species of bacteria.

Liebert explained the importance of us-

ing a fast-acting antimicrobial: "Incisions start to heal within 24 hours, so activation time is important. Acticoat is fast-acting because it's highly soluble. Silver activates quickly to create a barrier, with a \log^3 reduction in bacterial load within 30 minutes.

Kristen Comstock, skin health marketing manager, 3M, St. Paul, MN, offered further advice on qualities to look for in an effective advanced bandage or dressing. "Different features make bandages or dressings suitable

for different types of surgical wounds. Look for ease of application and removal; conformability to the wound site; extended wear time; the capability for the patient to shower without harming the bandage; nonadherence to the wound bed; compatibility with sutures, staples, and Steri-Strip skin closures; and the ability to monitor the wound without removing the dressing."

3M's Tegaderm Absorbent clear acrylic dressing is transparent. "It's novel because

you can visualize the wound while it absorbs exudate," proclaimed Comstock. "Wear time is not cut short because the dressing has to be removed so that the healthcare worker can see what's going on. You can see whether the wound is healing properly without removing the dressing, which is a great advantage, because removing the dressing can damage the skin and be really uncomfortable for the patient."

If what is seen through the dressing is not good news, 3M has a solution. "If the wound is not healing properly," noted Comstock, "a dressing with an antimicrobial could be used." 3M released Tegaderm Ag Mesh last year, a silver product with a cotton-gauze substrate.

Gerry LoDuca, president, Dukal Corporation, Hauppauge, NY, also offered advice to purchasers seeking postsurgical wound-care products, highlighting the importance of balancing good quality with reasonable pric-



Centurion SorbaView Ultimate
PICC Line Dressing



The Acticoat family of bactericidal barrier dressings, Smith-Nephew Wound Management

es: “Look for a high-quality product by a reputable company at competitive prices.”

Dukal’s mission is to offer alternatives to all traditional wound-care products at a price advantage. “Dukal’s goal is to build good products that perform as well or better than the national leaders, with an advantage in purchase price,” said LoDuca.

One of Dukal’s postsurgical wound-care products is a nonadhering pad. “The outer facing is covered by a material that allows wicking, and, while it’s very absorbent, it doesn’t stick to the wound. It’s held in place with a nonconforming-type bandage, presenting a clean cover to minimize contamination. Removal is nontraumatic. It stacks up well against national brands.”

Often pre- or postsurgical care involves insertion of a catheter for one reason or another. Sought-after qualities in catheter-care dressings are similar to those important in postsurgical bandages and dressings. Mike Goro, vice president, sales and marketing, Tri-State Hospital Supply Corporation, Howell, MI, talked to *Healthcare Purchasing News* about what’s needed in catheter dressings: “Tri-State manufactures several specialty dressings designed specifically for care at the catheter insertion site. Dressings for the care and maintenance of catheter sites should be transparent, to allow clear observation of the site; they should be easy to apply; provide security to the site; be non-irritating to the tissue; provide an occlusive barrier against bacteria or other contaminants; and provide a high level of moisture transmission away from the insertion site.”

“Tri-State’s Centurion dressings use a three-part construction. First is the transparent material, the bottom of which is coated with a special hypoallergenic adhesive that has been applied in a specific pattern to ensure excellent adhesion, while providing the optimum vapor-moisture transmission away from the insertion site. Next, a frame made of a porous material is placed along the outer boundary to give the dressing some rigidity for ease of application but



DUKAL Non-Adherent Pad

also to wick away excess moisture that may form near the insertion site. The next step involves placing a tough netting material over the frame that expands the ‘lock down’ surface of the dressing and strengthens it against any pulls or tugs that would otherwise jeopardize the integrity of the dressing. These steps, along with the materials used, work to provide a

dressing that resists the breakdowns associated with other dressings. That means fewer changes, easier technique for application, greatly reduced chance for infection, and significantly improved comfort for the patient.”

“Every dressing and every component Tri-State manufactures to support our dressings has been designed using extensive input from nurses in the field,” said Goro. “Hundreds of hours of talking with nurses go into the design and development of every dressing. From nurses we learned the importance of cost outcomes, and we set out to develop dressings around that concept. Most dressings today last anywhere from 1 to 3 days. Our dressings have been designed to last up to 7 days with no deterioration or failure.”

Tri-State isn’t just trying to go for an adhesion-time record; there are significant reasons for using dressings that can stay in place for an extended length of time, Goro explained.

“Every time a dressing has to be changed or replaced, there is a cost associated with the dressing and any supplemental components needed for the procedure. There also are additional costs in nursing time, patient anxiety, and the potential for infection. At the very least, an infection can cost an institution thousands of dollars. Extending the length of time, as well as the performance, of the dressing can greatly reduce

the overall cost outcome for the using institutions. Clinical studies performed by Robert Garcia, Brookdale University, have shown significant catheter-related bloodstream-infection reductions in patients using SorbaView dressings over extended

time. Numerous major institutions have switched to SorbaView during the past few years. The reason is clear: fewer dressings and dressing procedures mean fewer infections and less cost.”

What’s in store?

What’s in store for the future of bandages and dressings? Mandatory reporting of healthcare-acquired infections, the trend toward less invasive surgeries, and earlier hospital discharges are a few factors shaping the future of postsurgical wound care.

Liebert believes that, as hospitals are held more accountable for infection rates, these types of infection prevention measures will receive more consideration, leading to a product trend toward more advanced dressings in postoperative wound care. An example of new product development at Smith-Nephew is their new ActicoatSite, designed to work with postoperative external fixation devices used in orthopedic trauma surgery. “At Smith-Nephew, we’re constantly looking at how new products can be applied or developed to meet evolving wound-care needs.”

3M’s Comstock observed that, because patients are being discharged from the hospital earlier and earlier, more wound care will be performed at home by the patient or the patient’s family. “Out-patient surgery and home care are influencing product development,” stated Comstock. “Easy application and removal are good elements of wound care that will become even more important.”

Dukal’s LoDuca added: “The demand for heavier dressings, for more absorption, probably will not increase. Surgeries are moving to minimally invasive procedures, away from large, open incisions to smaller wounds that heal faster and are less traumatic for the patient.”

Catheter security will continue to garner attention as well. “At Tri-State,” said Goro, “we have taken our dressing technology and applied it to developing new catheter security systems that utilize the strength and adherence properties for which we’ve come to be known. Security systems will support dressings and help to reduce infections, thrombosis, and accidental ‘tear’ or ‘pull outs’ of catheters. We are working to develop dressings that have the security built right into them. We also are investigating the potential and cost benefits of dressings that have antibacterial properties built directly into them.” As for their strength in product development, said Goro, “We continue to meet with nurses to discuss their ideas and needs.” **HPN**



3M Tegaderm Absorbent clear acrylic dressing, used over a surgical wound with sutures.