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Make it Simple, Make it Right

Clinicians and surgeons respond to simple innovations that make a device easy to use. But achieving such simplicity isn't always easy.

For medical devices, designers strive to simplify products for simple reasons. "Healthcare is intrinsically very complex," says Medical Design Excellence Awards (MDEA) juror Ogan Gurel.

Gurel is chair of Aesis Research Group. "Devices in the care process must absolutely be as simple as possible." In hospitals and other healthcare settings, a simple device may prove more popular than an unnecessarily complex one. "Devices that are simple and intuitive at the first use will be reused because of a positive first-time experience," says juror Michael Schollmeyer, director of clinical research at CHF Solutions.

Beyond the need for devices to be easy to use, users also relate to the psychological aspects of simplicity. Juror Michael Wiklund explains it this way: "I closely associate simplicity with quality and innovation. The best products become visually and interactively simpler over time." Wiklund is president of Wiklund Research & Design.

But simplicity is often elusive. And more often than not, a final device that is simple requires significant planning and effort, neither of which is easy to accomplish.

"Converging on simple solutions is actually quite hard and might lead to considerable internal complexities that the user will never see," says Wiklund. "It takes commitment and resources to conduct the necessary design and engineering explorations to discover simple solutions and bring them into being."

If successful, a company can create a product that is elegant, inexpensive, and intuitive. After that, it might be worthy of a Medical Design Excellence Award, as are the following products



Euromed's SureSkin central catheter IV dressing uses a hydrocolloid adhesive that enables repositioning but can maintain adhesion for up to seven days.

The SureSkin central catheter IV dressing from Euromed Inc. (Northvale, NJ) is designed to ensure secure yet gentle waterproof adhesion, with flexibility so that it conforms to surfaces on the body that are not flat. The dressing incorporates a hydrocolloid adhesive that is thin and flexible. It is designed to adhere up to seven days if necessary.

To design the product, Euromed approached several problems seen in many central catheter dressings. For example, most dressings have corners, are relatively flimsy, and use several picture frame-type release liners. These dressings can lift at the corners and the shape does not make it easy to apply to areas such as the neck. In addition, during application the adhesive may wrinkle or stick to itself, which can make the dressing unusable. "One of our employees has a wife who is a phlebotomist," says Richard Lovell, director of marketing at Euromed. "She helped us identify some of the problems in typical dressings."

To create the SureSkin, the design team developed an overlapped release liner that only has two pieces and allows application with gloves. The dressing is round and has a multidimensional border and a special tube outlet area. "We wanted to enforce the edge, but still enable it to be flexible," says Lovell. The border provides stability to prevent the dressing from wrinkling beyond usability. And the tube outlet ensures a secure seal around the tube area.

The shape discourages lifting at the edges and promotes adhesion to curved body areas. "Intuitively, its round shape seems more appropriate for such a dressing than rectangular ones in terms of ensuring patient comfort and keeping the edges from peeling up," says Wiklund.

The device is also transparent so that users can see where they are going to put it, explains Lovell.

"The SureSkin shows the advantages of materials integration into a convenient and effective device that is easy to apply and adheres effectively, but removes easily when necessary," says Jackson.

Jurors also like the fact that nonprofessional caregivers can apply the dressing. "I like that it's caregiver inspired," says juror William Schneeberger, a cardiothoracic surgeon at the University of Cincinnati Medical Center. "These types of products cost about \$3 each and the applicator usually has only one chance to get it right. The SureSkin is more forgiving. Even with a little fold in the adhesive, the product can still be used."