Wrapping the Most Precious Gift of All

Saving one life, improving the quality of another, each piece of bone, pericardium, or ligament donated to a tissue bank is unique. Given under the most difficult of circumstances, these irreplaceable "gifts of life" are in short supply and require extra care in their storage and transport.

The National Tissue Bank Network-Georgia Tissue Bank recovers and processes these precious materials for distribution to almost every state in the United States. Every year, it distributes as many as 10,000 of these tissue grafts, and at any given time, it may have several thousand of these "gifts" in its inventory.

Many of the grafts are frozen and stored at -70°C in an ultralow-temperature freezer. Others are freeze-dried and shelved at room temperature. Each method of storage presents its own problems, according to Jesus Hernandez, CEO of the National Tissue Bank Network-Georgia Tissue Bank.

"We use glass jars for some of the grafts we store at room temperature," he said. "But jars can take up a great deal of space, and the shelves can get very heavy. Considering the fact that many grafts can be stored up to five years, that's a real consideration." The fragile nature of glass also makes it inappropriate for frozen samples and presents the added concern of possible breakage during transport.

However, since 1992, the National Tissue Bank Network-Georgia Tissue Bank has been using a viable alternative to glass -- pouches of Tyvek®, double-packaged in film for a total moisture barrier. Less expensive per unit than glass jars to purchase, lightweight pouches of Tyvek® are also less expensive to ship. And, thanks to their durability, pouches of Tyvek® resist damage during transport.

Pouches of Tyvek® also take up a fraction of the space required by glass jars for storage at room temperature. And they remain flexible, even after freezing for long periods of time. This is important, Hernandez said, "because many doctors like to be able to feel the texture of the graft before it's removed from the packaging."

In addition, pouches of Tyvek® offer extra protection against contamination during transplants. While the seals maintain their integrity during years of storage, the easy-to-open pouches have a fiber-free peel that prevents the release of particulates into the sterile field.

Although some physicians continue to request glass jars, Hernandez has seen firsthand the inherent advantages of Tyvek®. And when the National Tissue Bank Network-Georgia Tissue Bank begins collecting and processing skin grafts in the near future, he plans on exploring the possibility of using Tyvek® for packaging those samples as well.

"The innovative use of Tyvek® is just one example of how our organization strives to bring new ideas and concepts to the work of tissue banking," Hernandez said. "When you look at the advantages of Tyvek®, such as its strength, flexibility, and ease of storage, it's always worked very well for us."