Critical Solutions for Essential Draping

Continuing education self-study guide presented by 3M Health Care

by Deborah Gardner, LPN, OPAC, CIC, and J.J. Hedden Jr., BA

Objectives
1. Discuss the history of barrier testing and use.
2. Develop an understanding of test methods used to determine barrier performance levels for manufacturers.
3. Link barrier performance levels to areas of the drape and anticipated exposure risks.
4. Identify critical attributes of drape selection.
5. Perform a comparative product evaluation to identify clinical need.

Test Questions
True or False. Circle the correct answer.
1. All draping material meets the same level of barrier protection.
   True  False
2. The end-user is the ultimate judge of the appropriateness of the barrier level required, based on his/her experience and the potential/known exposure risks.
   True  False
3. During an operation procedure there can be significant fluid challenges from blood and saline.
   True  False
4. The penetration of a drape, gown or mask by fluids is known as “strike-through.”
   True  False
5. A level 1 rating allows the least amount of fluid penetration.
   True  False
6. The critical zone is defined as the area where direct contact with blood, body fluids, and other potentially infectious materials is most likely to occur.
   True  False
7. Barrier performance is the primary performance characteristic of a surgical gown or drape, therefore this is the only attribute to consider.
   True  False
8. Lint particles are disseminated into the environment where bacteria attach to them. The bacteria-carrying lint may settle in surgical sites and wounds with a resultant increase in postoperative patient complications.
   True  False
9. The end-user should properly document strike-through events and report them to the processor and product manufacturer or distributor for investigation.
   True  False
10. Surgical gowns and drapes should be resistant to penetration by blood and other bodily fluids, which can serve as vehicles for blood viral transmission.
    True  False

Many thanks to the team at 3M Health Care for working with Managing Infection Control to provide the following accredited course. This inservice is 3M Health Care Provider approved by the California Board of Registered Nurses, CEP 5770 for one (1) contact hour. This form is valid up to five (5) years from the date of publication. Instructions for submitting results are on page 97.

Managing Infection Control and 3M Health Care will be working collaboratively to provide continuing education courses in monthly editions of Managing Infection Control.
The primary performance characteristic of a surgical gown or drape is its effectiveness in providing the appropriate level of protection against the penetration of liquids and microorganisms.

Introduction

Although aseptic surgery had its beginning in the late 1800s, it wasn’t until 1952 that materials started being tested for their barrier effectiveness. There were some plastic materials but most testing centered on different woven styles of cotton. Then in the 1970s there was a proliferation of interest in and publication of protective materials which led the Association of periOperative Registered Nurses (AORN) to publish standards of practice for an effective barrier between sterile and non-sterile areas. This interest also prompted the Board of Regents of the American College of Surgeons to accept the principle that materials used as barriers in operating rooms should be impervious to the penetration of bacteria under the usual conditions of use. In 1978 the Association for the Advancement of Medical Instrumentation (AAMI) established a committee to develop guidelines for selecting and processing aseptic barrier materials. This effort was abandoned due to lack of consensus on test methods. This put healthcare personnel in a position of figuring out what drape works best for them in an environment where there is considerable variation in design among commercially available surgical drapes.

To remedy this lack of information, AAMI published a Technical Information Report (TIR No.11) in 1994 titled “Selection of Surgical Gowns and Drapes in Health Care Facilities.” The publication of this report was post 1980s during which time the rise in the prevalence of HIV and acquired immunodeficiency disease syndrome (AIDS) changed the focus from “aseptic barriers” for the protection of patients to “protective barriers” for the protection of surgical staff as well as patients. This report provided technical information to assist healthcare personnel in surgical gown and drape selection but there were no standard laboratory test methods that evaluated the impact of product design. Therefore, in 2003 AAMI developed a standard which was approved by ANSI (American National Standards Institute). This ANSI/AAMI PB70:2003 standard Liquid barrier performance and classification of protective apparel and drapes intended for use in health care facilities is intended to be used mainly by device manufacturers in qualifying, classifying and labeling the barrier performance of their products. The classification system established by this standard is intended to set a common foundation for the different levels of barrier protection available but does not take into account potential variations in specific procedures and techniques used in healthcare facilities. The end-user is the ultimate judge of the appropriateness of the barrier level required, based on his/her experience and the potential/known exposure risks.

To take into account the publication of the 2003 ANSI/AAMI PB70 standard, AAMI published a second addition of the TIR No.11:1994 which is now TIR No.11:2005 titled Selection and use of protective apparel and surgical drapes in health care facilities. Based on the classification system established in ANSI/AAMI PB70:2003, this report covers general considerations in choosing the appropriate level of barrier performance that is needed for particular healthcare applications. This report aims to reflect new trends in healthcare, changes in practices, and the state of the art in materials used for both single-use and multiple-use protective apparel and drapes. So, let’s cover test methods, performance levels and materials to connect the dots before we begin prioritizing the attributes we seek in protective apparel.

In this document manufacturing testing in order to classify barrier levels is called out. The assigned barrier levels are rated between 1 and 4. The larger the number, the greater the barrier protection. All drapes are required to meet a minimum of level 1. As the procedure becomes higher risk and the fluid involved increases, a higher level will provide higher barrier protection.

Barrier Performance Test Methods

The primary performance characteristic of a surgical gown or drape is its effectiveness in providing the appropriate level of protection against the penetration of liquids and microorganisms. The penetration of a drape, gown or mask by fluids is known as “strike-through.” The barrier performance test methods are designed to assess strike-through since it is the mode of transportation for organisms to invade the sterile field. The relevant tests for barrier performance include two tests from the American Association of Textile Chemists and Colorists (AATCC 42 and 127), and a test from the American Society for Testing and Materials (ASTM F1670). See Figures 1, 2 and 3 on page 86.
This type of test determines the ability of a material to resist water penetration under constant contact with increasing pressure. Typically, the test sample is clamped in place horizontally, and the hydrostatic pressure is steadily increased by raising the height of the water column from zero to a predetermined level (1.0 pounds per square inch [psi] = 27.687 inches water = 70.325 centimeters of water = 6.894 kilopascals). The test is terminated when visible penetration of water droplets occurs. The higher the hydrostatic pressure, the more resistant the material to penetration by water.

Relevance: This test is not used for Level 1 drapes. A level 1 material will not pass this test, but fluid will pass directly through the material. Pressing and leaning pressures in surgery can range from less than 1.0 psi to more than 60.0 psi. Abdominal pressures during surgery have been estimated to range between 0.25 and 2.0 psi.

Figure 3. Synthetic blood resistance test (ASTM F1670:2003)

This test is used to determine the ability of a material to resist the penetration of synthetic blood under constant pressure. Time and temperature are specified at 6 minutes, 2.0 psi for 1 minute, and atmospheric pressure for 54 minutes. The test is terminated if visible liquid penetration occurs before or at 60 minutes. This is a pass/fail screening test. Materials that pass ASTM F1670 (formerly ES21-1992) should then be subjected to ASTM F1671 (formerly ES22-1992), Standard Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Blood-Borne Pathogens Using Phi-X174 Bacteriophage Penetration. This test, designed to model penetration of viruses, determines the ability of a material to resist the penetration of microorganisms under constant contact. Specifications for time and temperature are the same as those designed for ASTM F1670. Drapes only
have to pass the ASTM F1670 whereas gowns do undergo the ASTM F1671 test upon passing ASTM F1670.

Relevance: This test addresses what the drape will be exposed to in the clinical setting (i.e., blood and saline challenges). Anytime fluid and pressure are present, strike-through will occur. This test measures the amount of pressure needed for the fluid to strike-through the material.

Table 1 below summarizes the tests used for barrier performance, the results, and the acceptable quality level (AQL).

Drapes and Barrier Performance Levels
With barrier performance levels set, we can relate these levels with areas of the drape. The drape in Figure 4 on page 89 shows the fenestration in white surrounded by area A, which is called the critical zone, and area B. The critical zone (Figure 1, Area A) is defined as the area where direct contact with blood, body fluids and other potentially infectious materials is most likely to occur. Table 2 on page 90 summarizes the levels and areas of the drape. It is important to notice that the overall level of the drape is dictated by the level of the critical zone and that the drape provides greater strike-through protection as the level number increases. Area B can be any level as long as it is at least a Level 1. There are drapes that consider both Area A and Area B (the entire drape) to be the critical zone.

Although the area immediately surrounding the incision site has been generally referred to as the critical zone, the two are not necessarily synonymous. Splashes from irrigation fluids used in many of today’s procedures, in addition to the common practice of laying wet

---

**Table 1. Classification of barrier performance of surgical gowns, other protective apparel, surgical drapes and drape accessories**

<table>
<thead>
<tr>
<th>Level</th>
<th>Test</th>
<th>Result</th>
<th>Acceptable Quality Level (AQL) Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AATCC 42:2000</td>
<td>≤ 4.5 g</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td>2</td>
<td>AATCC 42:2000</td>
<td>≤ 1.0 g</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td></td>
<td>AATCC 127:1998</td>
<td>≥ 20 cm</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td>3</td>
<td>AATCC 42:2000</td>
<td>≤ 1.0 g</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td></td>
<td>AATCC 127:1998</td>
<td>≥ 50 cm</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td>4</td>
<td>ASTM F1670:2003 (surgical drapes and drape accessories)</td>
<td>Pass</td>
<td>Statistical sample free of holes/defects</td>
</tr>
<tr>
<td></td>
<td>ASTM F1671:2003 (surgical gowns and other protective apparel)</td>
<td>Pass</td>
<td>Statistical sample free of holes/defects</td>
</tr>
</tbody>
</table>
blotting gauze on the patient drape, can cause strike-through and compromise sterility. So the traditional perception of a small area of the drape “defining” the critical zone simply does not fit the definition. There is variation in patient size and positioning, and draping technique so today’s critical zone must encompass the entire sterile field to ensure maximum infection prevention. Remember: As the level number increases, the drape provides greater protection against fluid strike-through. Without control of fluid it becomes more critical to have a higher level rating in barrier protection.

NOTES: For Figure 4.
1. The entire surgical drape (area A and area B) is required to have a barrier performance of at least Level 1 (as per 4.2.3.2 ANSI/AAMI PB70:2003).
2. Seams between two protective areas must have at least the barrier performance of the lower-performing area (as per 4.2.3.2 ANSI/AAMI PB70:2003).
3. Table 2 illustrates the requirements of 4.2.3.2 (ANSI/AAMI PB70:2003) and shows how the barrier performance classification of the drape would be determined.

Figure 4. Common procedure Drape

![Common procedure Drape Diagram]
Table 2. Barrier performance classification of surgical drapes

<table>
<thead>
<tr>
<th>Area A (Critical Zone)</th>
<th>Area B</th>
<th>Final Barrier Performance Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Level 1, 2, 3, or 4</td>
<td>Level 1</td>
</tr>
<tr>
<td>Level 2</td>
<td>Level 1, 2, 3, or 4</td>
<td>Level 2</td>
</tr>
<tr>
<td>Level 3</td>
<td>Level 1, 2, 3, or 4</td>
<td>Level 3</td>
</tr>
<tr>
<td>Level 4</td>
<td>Level 1, 2, 3, or 4</td>
<td>Level 4</td>
</tr>
</tbody>
</table>

NOTE: As the level number increases, the drape provides greater protection against fluid strike-through.

Although barrier performance is the primary performance characteristic of a surgical gown or drape, there are other important safety and performance properties to consider. AORN Standards, Recommended Practices and Guidelines, identify four critical criteria that should be considered when selecting surgical gowns and drapes:

- **Barrier Integrity**: Surgical gowns should be selected for use according to the barrier quality of the item and the wearers' anticipated exposure to blood and body fluids. Surgical gowns and drapes should be resistant to penetration by blood and other bodily fluids, which can serve as vehicles for blood viral transmission. (Recommended Practice II)

- **Linting**: Gowns and drapes should be resistant to tears, cuts and abrasions, and low-linting. Lint particles are disseminated into the environment where bacteria attach to them. The bacteria-carrying lint may settle in surgical sites and wounds with a resultant increase in postoperative patient complications. (Recommended Practice III)

- **Flammability**: Gowns and drapes selected for use should be consistent with accepted flammability standards that will provide the safest environment for patients and healthcare workers. All materials used in the surgical environment will burn given the right conditions. The OR environment contains the necessary fuel, heat source and oxygen to cause a potential fire. Care should be taken when drapes are exposed to light and heat sources, electrosurgical devices, lasers and other power equipment. (Recommended Practice V)

- **Comfort**: Gowns and drapes should be comfortable and contribute to maintaining the wearer’s desired body temperature. This allows personnel to more readily focus on what is truly important, which is the procedure at hand. Comfort is very subjective and should be assessed individually after determining that the product’s protective properties are appropriate for the application. (Recommended Practice VI)

The ANSI/AAMI PB70:2003 standard also covers the above properties and specifically addresses other properties which include: abrasion resistance, strength, drapeability, staining discoloration (residues), electrostatic properties, shrinkage, biocompatibility, sterility assurance, performance in use, and strike-through investigation.

- **Abrasion resistance**: Surgical protective materials should not abrade significantly during normal use, under wet or dry conditions. Abrasion may weaken the material, adversely affecting barrier properties, causing it to tear or generate more lint. Of primary concern is the abrasion of one material against itself or against another material, as would occur if the arm rubs against the chest area of a gown or the stomach area of a gown rubs against a drape on the surgical table.

- **Strength**: Barrier materials should be strong enough to withstand the stresses encountered during typical use. Tears or perforations compromise the sterile field and can allow penetration of liquid. A material can be tested for breaking strength, tear strength and puncture resistance.

- **Drapeability**: This refers to the tendency of a material to conform to a given shape or object. Surgical drapes and related draping products should be flexible so that they will cover the patient closely and smoothly, allow placement and manipulation of instruments, and appropriately drape out other related equipment, such as ring-stands, back tables and mayo stands.

- **Staining discoloration, residues**: This is important in the selection of multiple-use products. May warrant rejection from both an aesthetic and a septic standpoint. Certain types of residues may protect microorganisms and prevent adequate sterilization.

- **Electrostatic properties**: The primary electrical safety consideration is the ability of the material to accept or dissipate electrical charge.

- **Shrinkage**: This is a consideration in the selection of multiple-use products that will be subjected to laundering procedures.
Biocompatibility: The materials from which surgical drapes and gowns are fabricated should be free of toxic ingredients that could irritate tissue or otherwise adversely affect the patient or user.

Sterility assurance: Assurance of the sterility of protective apparel and drape products is a critical issue and should not be assumed or taken for granted. Prepackaged, sterilized multiple-use and single-use products are considered sterile unless the integrity of the package is compromised. Those products that are to be sterilized by the healthcare facility should be accompanied by the appropriate documentation and guidelines provided by the manufacturer to ensure that the onsite sterilization process will be effective.

Performance in use: With each surgical or other healthcare procedure, under normal conditions of use and for the duration of time in which they are used, protective apparel and drape products should prevent the penetration of blood, body fluids and other potentially infectious materials (OPIM). Conditions of use and time in use for various tasks and procedures can vary significantly and might dictate the use of products providing different levels of protection.

Strike-through investigation: The end-user should properly document strike-through events and report them to the processor and product manufacturer or distributor for investigation. If strike-through occurs, a qualified individual should ask the following questions:

a. Was the product used in accordance with the healthcare facility’s exposure control plan?
b. Was the strike-through an isolated incident, or does it reflect a pattern of occurrences? If the latter, does the exposure control plan need to be reevaluated?
c. Was the correct level of protection chosen for the level of anticipated risk (e.g., the right gown for the right procedure)?
d. Was the appropriate size of item selected?
Table 3. General relationships between barrier performance and anticipated exposure risks

<table>
<thead>
<tr>
<th>ANSI/AAMI PB70 barrier performance</th>
<th>Anticipated risk of exposure</th>
<th>Examples of procedures with anticipated exposure risks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fluid amount</td>
<td>Fluid spray or splash</td>
</tr>
<tr>
<td>Level 1</td>
<td>Minimal</td>
<td>Minimal</td>
</tr>
<tr>
<td>Level 2</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 4</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NOTE 1: This table provides examples of expected use conditions and healthcare applications for which each level of barrier performance might be appropriate. The table may be used as an aid in the development of the healthcare facility’s exposure control plan. The examples in the table are not intended to be all-inclusive, nor are they intended to substitute for professional judgment and experience. This table might not cover every situation encountered in the healthcare facility. Numerous factors can affect the selection of the appropriate barrier product. For example, variations in surgical technique and the duration of the procedure could increase the likelihood of liquid contact and the incidence of pressure applied and thus could influence the risk of exposure. In cases in which the risk of exposure increases after the procedure is underway, a change to a higher level of protection should be made, if appropriate. In addition, clinical experience over time could well dictate the choice of levels of barrier performance for particular applications than those suggested above. Because exposure risks are not equal and procedures could have multiple component parts, the users should select for the highest level of protection required by the scheduled procedure. Therefore, this table should be considered to provide general guidelines as a starting point for decision-making.

### NOTE 2: Risk is a function of fluid, quantity, time, and pressure.
e. Where did the strike-through occur?
f. Did strike-through occur in a non-critical zone?
g. Did strike-through occur through a seam?
h. Did strike-through occur at an interface (e.g., gown cuff to glove)?
i. Did strike-through occur when blood or liquid traveled down the crease of the gown sleeve and under the glove cuff, to be absorbed by the gown cuff?
j. Was the product damaged in any way during use?
k. If the product is reusable, how many times had it been used?
l. If the product is reusable, were laundering, inspection, testing, maintenance and sterilization carried out in accordance or consistent with the manufacturer’s instructions?
m. If applicable, what was the expiration date for the product?

Drape Construction and Materials Used

The use of surgical fabrics began with what was readily available. Cotton muslin was used beginning in the 19th century until the early 1970s when tightly woven fabrics with water-repellent chemical finishes were adopted for surgical use. Then in the 1980s, a new generation of engineered surgical textiles was developed. This greatly enhanced the performance characteristics of surgical drapes and gowns.

Nonwoven materials are engineered fabrics that rely on fiber-bonding technologies (thermal, chemical or mechanical) to provide integrity and strength rather than on the interlocking geometries associated with woven and knitted materials. The basic raw materials used for nonwovens are various forms of natural fibers (e.g., wood pulp, cotton) and synthetic fibers (e.g., polyester, polyolefin). Fabrics can be engineered to achieve desired properties by using particular fiber types, bonding process and fabric finishes. The most commonly used nonwoven fabrics for protective apparel and surgical drapes are as follows:

- **Spunlace.** A material often consisting of a blend of wood pulp and polyester fibers. High-velocity water jets are used to entangle the fibers to achieve mechanical bonding. For protective apparel and surgical drapes, a chemical treatment may also be used to improve liquid penetration resistance.

- **Spunbond/meltblown/spunbond.** A fabric consisting of three thermally or adhesively bonded layers. Typically, for medical applications, this material is made of polypropylene. Treatments are often applied to provide improved liquid penetration resistance. Spunbonded materials are made up of continuous filaments formed by in-line melt spinning. Meltblown materials are similar in that they are formed from a polymer by means of in-line melt spinning, but the fibers are finer and might not be continuous.

- **Wet-laid.** A nonwoven fabric consisting of wood pulp or a blend of polyester and wood pulp fibers. The fibers are suspended in water to obtain a uniform dispersion and are then separated from the slurry by draining the water through a fine mesh screen. For medical-grade fabrics, a chemical binder is often used to bond the fibers together. A chemical treatment can be used to improve liquid penetration resistance.
Composite. A combination of nonwoven fabrics, films, or both created through lamination or coating processes. The resulting material has enhanced performance because it has attributes of each component.³

Drapes and Clinical Use

All drapes are not created equal. This is an important consideration when trying to decide what level of drape is needed for a clinical procedure. As noted in Table 3 on page 92, there are many factors that can affect the selection of the appropriate barrier product such as: surgical technique, duration of procedure, risk of exposure (fluid, quantity, time and pressure) and clinical experience. The examples provided are labeled in accordance with ANSI/AAMI PB70:2003 and are appropriate for the healthcare procedure and for the level of protection required for both patient and staff. As a general guideline to assist in decision making they are not intended to be all-inclusive, nor are they intended to substitute for professional judgment and experience.

The selection of the protective apparel and drapes to be used by a healthcare facility is a complex and cumbersome task. Product selection should be guided by the product’s anticipated use, the performance attributes of the product in relation to the anticipated use, the cost of the product, and the quality systems built into the manufacture and supply of the product. Typically, the most important consideration is barrier performance.

More than one type of product may be needed in the surgical or other healthcare setting and it could be appropriate to evaluate each need separately (e.g., ophthalmic surgery has different needs than orthopedic surgery). Table 4 on page 96 is an example of one method of assessing performance priorities in relation to product function. The table lists minimum considerations; healthcare facilities may wish to add others, depending on their individual needs. The following procedure is used to complete the table:

1. Select the test methods to be used in evaluating the various properties from the methods described in TIR No.11:2005³ or from methods with which evaluators have had previous experience, and list them in the appropriate section of the table.

2. Assign a priority to each performance attribute as it relates to the needs of the healthcare facility. Use the following scale to assign priorities:
   1—Not important/expected
   2—Desired
   3—Important
   4—Extremely important

The selection of the protective apparel and drapes to be used by a healthcare facility is a complex and cumbersome task.

Once a priority has been assigned to a particular performance attribute, it should be used for all products being evaluated for that level of performance.

3. Assign a performance rating to each of the products when tested using the methods chosen. The performance rating should be based on testing performed by the healthcare facility or on documentation provided by the manufacturer. The following scale should be used to assign performance ratings:
   1—Poor (falls well below requirements)
   2—Below average
   3—Average (meets requirements)
   4—Above average
   5—Exceptional (exceeds requirements)

   It could be appropriate to use the above rating when comparing the actual test results for all of the products being evaluated. It is important to note, however, that if the rating system is used in this fashion, all products must be evaluated by the same test methods.

4. Multiply the priority by the performance rating; enter this value in the results column.

5. Add up the values in the results column to calculate the total score for each product being evaluated. It is important that all products have a score for each of the properties being evaluated.

The resultant total scores can then be used to rank the overall physical performance of the various products evaluated in relation to the needs of the particular healthcare facility. This score, when used in conjunction with the costing and quality assurance attributes of the individual products, can help simplify the task of selecting the protective products to be used by the healthcare facility.⁴

Conclusion

Surgical site infections (SSI) are the second most common healthcare-acquired infection among hospitalized patients. These infections number approximately 500,000 per year, among an
estimated 27 million surgical procedures, and account for approximately one-quarter of the estimated two million healthcare-acquired infections in the United States each year. Infections result in longer hospitalization and higher costs.

It is everyone’s duty to always know proper procedures and equipment (i.e., protective barrier materials) in order to reduce the risk to oneself as well as the patient. By utilizing the information on barrier levels in this article, healthcare personnel can more properly select a drape to provide standard of care and hopefully contribute to prevention of infections. 

Ordering Information

AAMI documents can be purchased through AAMI by credit card using the following four options:
1. Internet: http://www.aami.org
2. Call: 1-800-332-2264, ext 217 or 1-703-525-4890, ext 217
3. Fax: 703-525-1424
4. Mail: AAMI, Customer Service Center, 1100 N. Glebe Road, Suite 220, Arlington, VA 22201-5762

References

Table 4. Example of a product evaluation table

<table>
<thead>
<tr>
<th>Institution:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification, anticipated use:</td>
<td></td>
</tr>
<tr>
<td>Desired ANSI/AAMI PB70 performance level:</td>
<td></td>
</tr>
<tr>
<td><strong>Performance attribute</strong></td>
<td><strong>Priority</strong></td>
</tr>
<tr>
<td>Barrier performance</td>
<td></td>
</tr>
<tr>
<td>Abrasion resistance</td>
<td></td>
</tr>
<tr>
<td>Strength</td>
<td></td>
</tr>
<tr>
<td>Drapeability</td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td></td>
</tr>
<tr>
<td>Training discoloration, residues</td>
<td></td>
</tr>
<tr>
<td>Electrostatic properties</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td></td>
</tr>
<tr>
<td>Linting propensity</td>
<td></td>
</tr>
<tr>
<td>Shrinkage</td>
<td></td>
</tr>
<tr>
<td>Biocompatibility</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

| **Total score:** | **Total score:** | **Total score:** |


Deborah Gardner, LPN, OPAC, CIC, is a technical service specialist for 3M Health Care, St. Paul, Minn. She has more than 30 years experience in medical, including operating room nursing and clinical assessment. She has written several publications dealing with infection prevention as well as speaking to local AORN groups.

J.J. Hedden Jr., BA with pre-med requirements, is a technical writer. He has six years experience in the operating room working as a clinical engineer in the Artificial Heart Department in Tucson, Ariz., with Dr. Jack Copeland. There he educated nurses, residents and the community on cardiovascular assist devices and the total artificial heart.

**ANSWERS**

1. False  
2. True  
3. True  
4. True  
5. False  
6. True  
7. False  
8. True  
9. True  
10. True

**Nursing CE Application Form**

This inservice is approved by the California Board of Registered Nurses, CEP 5770 for one contact hour. This form is valid up to one year from the date of publication.

1. Make a photocopy of this form.
2. Print your name, address and daytime phone number and position/title.
3. Add the last 4 digits of your social security number or your nursing license number.
4. Date the application and sign.
5. Answer the true/false CE questions.
6. Submit this form and the answer sheet to:
   Workhorse Publishing
   Managing Infection Control
   PO Box 25310, Scottsdale, AZ 85255-9998
7. For questions or follow-up, contact craig@manageinfection.com.
8. Participants who score at least 70% will receive a certificate of completion within 30 days of *Managing Infection Control*’s receipt of the application.

**Application**

Please print or type.

Name__________________________

Mailing Address______________________________

City, State, Country, Zip________________________

Daytime phone (                    )______________

Position/Title__________________________

Social Security or Nursing License Number__________________________

Date application submitted ________________________

Signature__________________________

Offer expires November 2012

On a scale of 1-5, 5 being Excellent and 1 being Poor, please rate this program for the following:

1) Overall content________________

2) Met written objectives________________

3) Usability of content________________

<11/07>

Reprint with permission from Workhorse Publishing L.L.C.
Copyright © 2008 Workhorse Publishing L.L.C./All Rights Reserved.