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INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY™

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Introducing Al
The first and or
catheters with built-

Complications due to catheter-related bacteremia are medically unacceptable when the causes are preventable. And in today's health-care climate, the monetary cost of treating nosocomial infection versus the cost of prevention is similarly unacceptable.

Fortunately, the forces of prevention have gamed a new weapon. ARROWg'ard™ is a patented colonization-resistant chlorhexidine and silver sulfadiazine antiseptic surface molecularly bonded into the polyurethane catheter material along the entire indwelling length of each ARROWg'ard™ blue line CVC.

A recent study indicates that catheters with ARROWg'ard™ protection were twofold less likely to be colonized than control catheters *and fourfold less likely to produce bacteremia*. The study also noted a considerable lengthening of the safe indwelling period for ARROWg'ard™ catheters compared to control catheters.[1]

ARROWg'ard™ infection protection is presently available in select multi-lumen™ and single-lumen CVC kits. It will soon be available on other Arrow critical-care products.

The benefits of CVCs are not without risk

There is no question that central venous catheterization (CVC) represents a significant medical advancement, particularly in treatment of the critically ill. However, with increased usage there is an Increased risk of CVC-related infection.

The reported frequency of intravascular device-associated bacteremia is between 0.2% and 0.5% for IV peripheral catheters, up to 7.0% for central parenteral nutrition catheters—*and from 3.8% to 12.0% for central venous catheters.*[2] In short, 80% to 90% of each year's cases of intravascular-related bloodstream infection arise from the use of cvcs.3 Moreover, a 10% to 20% case fatality rate has been associated with catheter-related bacteremia.[3]

In an address to the Third International Conference on Nosocomial Infections, Dr. Dennis Maki stated that *one-third of nosocomial infections are preventable*, especially the 50,000 cases a year that develop from CVCs. Some 80% of these catheter-related infections arise from bacteria found on the skin that migrate down the catheter track, Dr. Maki noted.

Awareness is, of course, part of the battle. But more ammunition is needed. And that's why we developed ARROWg'ard™.

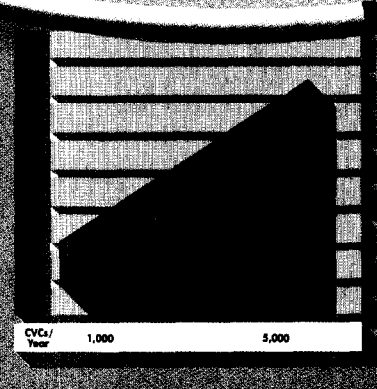
More infection control means more financial control

In a study published in 1988 reporting 1986 results, Hampton and Sheretz determined that nosocomial infection added a mean of seven days to a normal hospital stay and increased *the cost by a mean of more than $6,000!*[5] An additional downside: Medicare reimburses very little of the cost if a hospital stay is extended to treat bacteremia.

When you add the increases in cost since these studies were made, the economic impact of CVC-related infection is even more severe. And while new drugs to fight septic infections offer hope of better management in some crisis cases, the extreme costs pose a clinical dilemma for caregivers.

But ARROWg'ard™ can help reverse those spiraling figures.

Let's say that a hospital places 500 multi-lumen CVCs a year. If the infection rate is 4%, 20 infections result. By

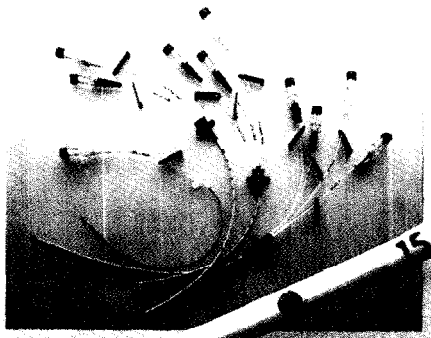


4% Infection Rate per 500 Multi-Lumen CVCs

https://doi.org/10.1086/646998

ROWg+ard™ Blue.
y central venous
i infection protection.

bringing the infection rate down to 2%, 10 cases would be avoided-and, at the figure of $6,000 per case for added hospitalization, the added cost for infection would be cut in half, from $120,000 to $60,000. At a cost of $68.20 per ARROWg+ard™ multi-lumen CVC kit, or $34,100 for 500 multi-lumen CVCs. the hospital retains over half the savings*



even after subtracting the catheter cost. Even more important than the economics, potentially, lives may be saved.[3] Further, you must consider the unnecessary expenditure of time and energy on the part of your staff and the trauma and suffering of the patient.

Additional patient and physician benefits.

Select Arrow multi-lumen and single-lumen central venous catheters now carry ARROWg+ard™ protection. And there are other impressive benefits built into select ARROWg+ard™ CVC kits and sets. These features add up to better patient care with every use:

• The Arrow Blue FlexTip® is an integral catheter tip which is more pliant than the body. It remains patent yet deflects in case of inadvertent contact with the vessel walls to reduce perforation risk.

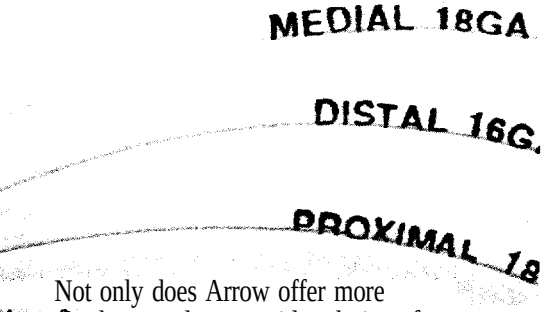
• Flexible thromoboresistant polyurethane material softens in situ for excellent indwelling characteristics.

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has a hollow plunger, containing a patented valving system. It allows a spring-wire guide to be placed directly into the vessel lumen so there's less trauma, less contamination risk, and virtually no chance for air embolism.

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• A centimeter-marked spring-wire guide (.025" and .035" diameters available) aids in accurate and positive catheter placement.



Not only does Arrow offer more benefits, but you have a wider choice of kits, sets, and accessories for central venous catheterization from Arrow than from any other source.

Ask for our free infection-control information packet

We have prepared a helpful packet on infection control. It contains many of the articles referenced in this brochure and CVC informational literature. For your free packet, call your Arrow representative, or contact us directly by calling 1 800 233-3187, Ext. 3294, and ask for Joanne.

* Contact your Arrow representative for full explanation of this program.

Refer to package insert for current warnings, precautions, and instructions for use.

** ARROWg+ard™ is a joint development of Datex Medical Sciences, Inc., and Arrow International, Inc., using technology developed by Dr. Shanta Modak and colleagues, in the Department of Surgery, Columbia University. U.S. Patent Numbers 4,612,337, 4,563,485, 4,581,028, 5,010,098 apply. Other U.S. and foreign patents pending.

** U.S. Patent Number RE-31873. Canadian Patent Number 1,112,533. Foreign patents pending and issued. The Arrow-Howes™ Multi-Lumen Central Venous Catheter is a joint development of Randolph Howes, M.D., Ph.D., and Arrow International, Inc.

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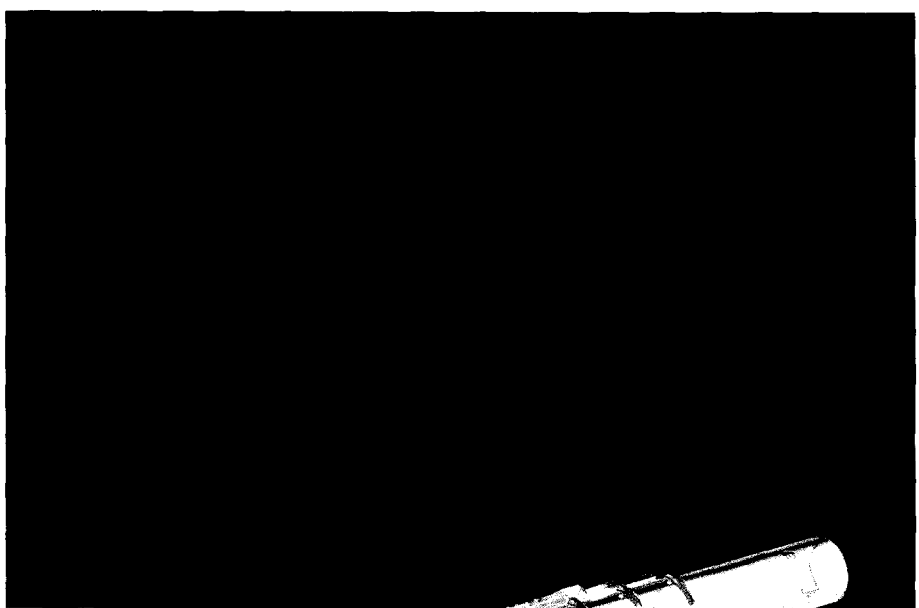
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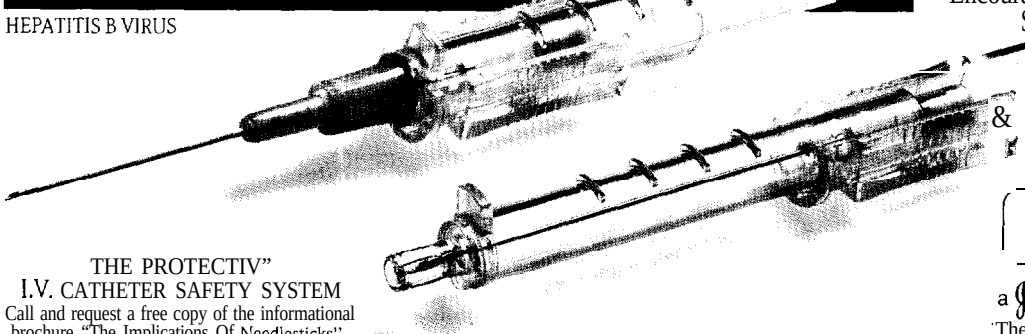
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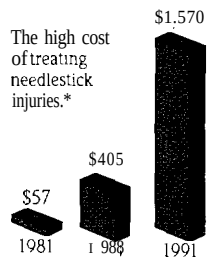
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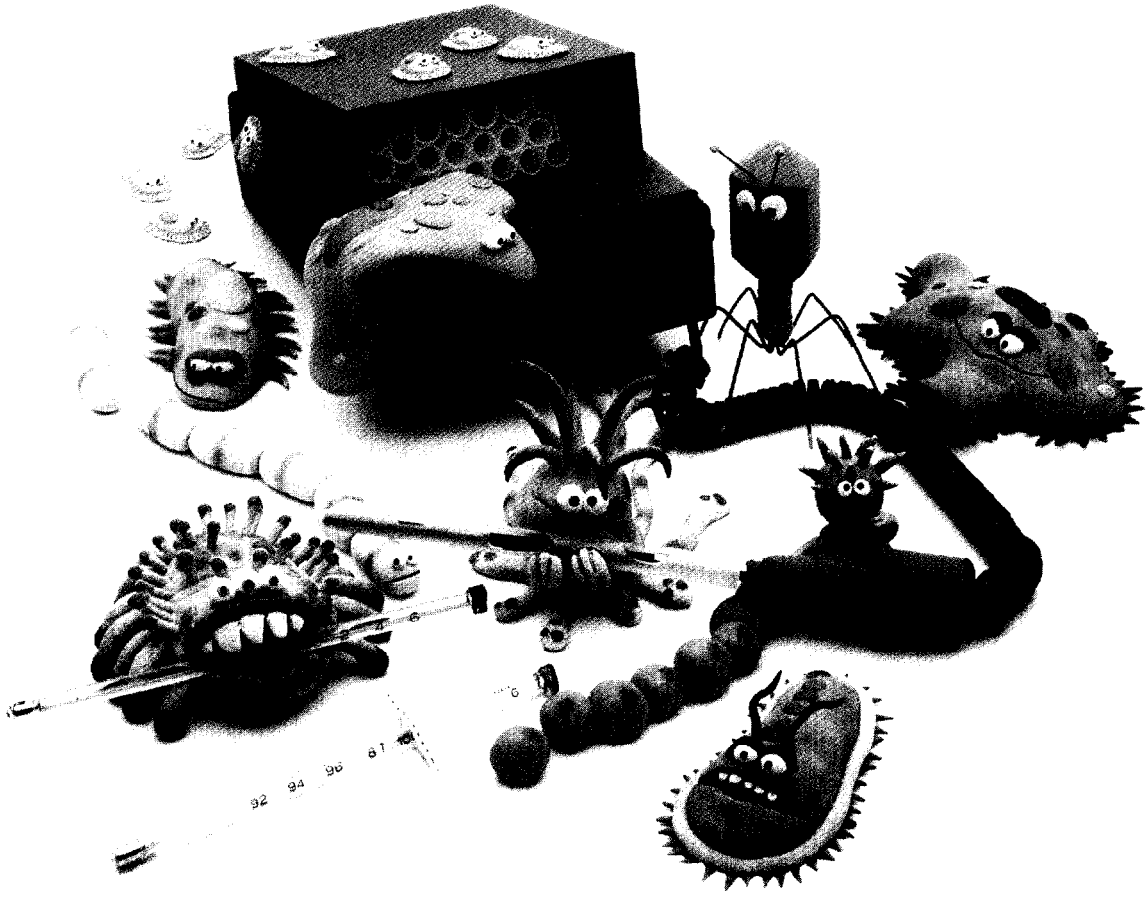
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1. William Valenti, MD: Kathleen Takacs, RN, MS; Infection Control and Clinical Thermometry: Perforation of Soft Plastic Thermometer Sheaths During Temperature Measurement. *American Journal of Infection Control*, February 1981; Vol. 9. No. 1. pp 1-5

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Information for Authors

Manuscripts should consist of new material based on hospital epidemiologic or infection control activities, from the United States or abroad. The Journal welcomes submissions that involve the use of epidemiologic principles and methods to evaluate or improve the delivery of care within healthcare institutions or that address the transmission of infection. Examples of appropriate material include rates, distributions, preventive measures, or cost benefit studies of infections or other adverse events in patients: surveillance; occupational health issues affecting healthcare workers; pertinent regulatory actions; and analyses of resource utilization.

Manuscripts should be accompanied by a cover letter that includes the title of the manuscript and the name, address, telephone, and (if available) fax number of the corresponding author. If blinded review is desired, the cover letter should so request. All manuscripts should be submitted in triplicate (with three copies of figures and tables), typewritten on one side of $8^1/_2 \times 11$-inch paper, double-spaced, and with generous margins. Pages should be numbered consecutively beginning with the title page. The author should keep a complete copy of the manuscript, as submitted manuscripts will not normally be returned (however, original figures, photographs, or other artwork will always be returned).

The organization of the paper should be as follows: title page; abstract; introduction: methods; results; discussion: acknowledgments; references; tables: figures; and figure legends. The main sections and subdivisions should be indicated by side headlines flush with the left margin and two lines above the text. The Arabic numbering system should be used.

CLINICAL TRIALS

The Editor requests that authors reporting the results of clinical trials describe clearly the following: 1) eligibility criteria; 2) whether or not subjects were admitted before allocation to one of the study groups: 3) the method of randomization; 4) whether the study was "masked," what specific information was masked and whether subjects. clinicians, and evaluators were all masked; 5) the method used to identify treatment complications; 6) an explanation and analysis of subjects lost to follow-up; 7) statistical methods employed; 8) information that led to the determination of the size of the study groups and the expected differences between groups; and 9) indications that studies involving human subjects have been reviewed and approved by their institutional review board.

RAPID PUBLICATION

A request for rapid publication must be stated in the cover letter, and manuscripts should not exceed ten double-spaced, typewritten pages. The Editor will send the manuscript for rapid review only if the information contained is a unique, scholarly contribution of special importance. Such papers will be published within three to four months of acceptance. No comments will accompany rejected papers, but manuscripts may be resubmitted under the normal publication procedure.

READERS FORUM

Brief communications are encouraged of approximately four to six typewritten pages containing information that does not represent a formal study. They may summarize unusual experiences or reflect opinions, hypotheses, or impressions related to infection control or hospital epidemiology.

TITLE PAGE

A separate title page should include the following: title of manuscript; author(s): laboratory or institution of origin with city and state: acknowledgment of grant support; name. address, and telephone number of the corresponding author; and (if different) address to be used for reprint requests. An abbreviated title, to be used as a running head, should be included. This should not exceed four words. A preliminary report or abstract should be credited by use of a footnote to the title. Provide three to six key words (MESH terms are preferred) appropriate for indexing the manuscript. If blinded review was requested, include a second title page that contains only the full and abbreviated titles.

ABSTRACT

Authors submitting manuscripts reporting the results of clinical investigations should prepare an abstract of no more than 250 words under the following headings: Objective, Design, Setting, Patients (or Participants), Interventions (if any), Results, and Conclusions. The content following each heading should be as follows:

1. Objective

   The abstract should begin with a clear statement of the precise objective or question addressed in the report. If more than one objective is addressed, the main objective should be indicated and only key secondary objectives stated. If an a priori hypothesis was tested, it should be stated.

2. Design

   The basic design of the study should be described. The duration of follow-up, if any, should be stated. As many of the following terms as apply should be used.

   a. Intervention studies: randomized control trial; nonrandomized control trial; double-blind; placebo control; crossover trial; before/after trial.
   b. For studies of screening and diagnostic tests: criterion standard (ie, a widely accepted standard with which a new or alternative test is being compared; this term is preferred to "gold standard"); blinded or masked comparison.
   c. For studies of prognosis: inception cohort (subjects assembled at a similar and early time in the course of the disorder and followed thereafter); cohort (subjects followed forward in time, but not necessarily from a common starting point): validation cohort or validation sample if the study involves the modeling of clinical predictions.
   d. For studies of causation: randomized control trial; cohort; case-control; survey (preferred to "cross-sectional study").
   e. For descriptions of the clinical features of medical disorders: survey; case series.
   f. For studies that include a formal economic evaluation: cost-effectiveness analysis; cost-utility analysis; cost-benefit analysis. For new analyses of existing data sets, the data set should be named and the basic study design disclosed.

3. Setting

   To assist readers in determining the applicability of the report to their own clinical circumstances, the study setting(s) should be described. Of particular importance is whether the setting is the general community, a primary care or referral center, private or institutional practice, ambulatory, or hospitalized care.

4. Patients or Other Participants

   The clinical disorders, important eligibility criteria, and key sociodemographic features of patients and how they were selected should be provided, including the number of otherwise eligible subjects who were approached but refused. If matching is used for comparison groups. characteristics that are matched should be specified. In follow-up studies, the proportion of participants who completed the study must be indicated. In intervention studies, the number of patients withdrawn for adverse effects should be given.

   For selection procedures, these terms should be used, if appropriate: random sample (here "random" refers to a formal, randomized selection in which all eligible subjects have a fixed and usually equal chance of selection); population-based sample; referred sample; consecutive sample; volunteer sample; convenience sample. These terms assist the reader to determine an important element of the generalizability of the study. They also supplement (rather than duplicate) the terms used by professional indexers when articles are entered into computerized databases.

5. Intervention(s)

   The essential features of any interventions should be described, including their method and duration of administration. The intervention should be named by its most common clinical name (eg, the generic term "chlorthalidone"). Common synonyms should be given as well to facilitate electronic textword searching. This would include the brand name of a drug, if a specific product was studied.

6. Results

   The main results of the study should be given. Measurements that require explanation for the expected audience of the article should be defined. Important measurements not included in the presentation of results should be declared. As relevant, it should be indicated whether observers were blinded to patient grouping, particularly for subjective measurements. Due to the current limitations of retrieval from electronic databases, results must be given in narrative or point form rather than tabular form. If possible, the results should be accompanied by confidence intervals (eg,

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95%) and the exact level of statistical significance. For comparative studies, confidence intervals should relate to the differences between groups. For nonsignificant differences for the major study outcome measure(s), the clinically important difference sought should be stated and the confidence interval for the difference between the groups should be given. When risk changes or effect sizes are given, absolute values should be indicated so that the reader can determine the absolute as well as relative impact of the finding. Approaches such as "number needed to treat" to achieve a unit of benefit are encouraged when appropriate; reporting of relative differences alone is usually inappropriate. If appropriate, studies of screening and diagnostic tests should use the terms sensitivity, specificity and likelihood ratio. If predictive values or accuracy are given, prevalence or pretest likelihood should be given as well. No data should be reported in the abstract that do not appear in the rest of the article.

7. Conclusion(s)
   Only those conclusions of the study that are directly supported by the evidence reported should be given, along with the clinical application (avoiding speculation and over-generalization); indicate whether additional study is required before the information should be used in normal clinical settings. Equal emphasis must be given to positive and negative findings of equal scientific merit.

   To permit quick and selective scanning, the headlines outlined above should be included in the abstract. For brevity, parts of the abstract can be written in phrases rather than complete sentences (eg, 2. *Design. Double-blind randomized trial.* rather than *2. Design. The study was conducted as a double-blind, randomized trial.)* This technique may make reading less smooth but facilitates selection scanning and allows more information to be conveyed per unit of space.

TABLES

Tables should be double-spaced, each on a separate page, and self-contained. Do not use vertical lines or ditto marks. The table number should be typed flush left, with the table title beneath it. Symbols for footnotes are listed below Abbreviations used in a table should be explained at the bottom of the table after the footnotes.

FIGURES

Three sets of unmounted glossy prints should be enclosed in separate envelopes. Indicate lightly on the back margin of each figure the number. name of author, and top.

PHOTOGRAPHS

Three copies of each photograph should be submitted. Any identifiable human subject must sign a release form before the photograph can be used. Radiographs and other black-and-white material should be submitted as unmounted glossy prints; 5 × 7-inch size is preferred. A separate identification label should be pasted on each print: do not write directly on the print or use paper clips or staples. Photomicrographs or other color materials should be submitted as color transparencies. Any charges for separation of color photographs, *as* indicated by the Editor, shall be billed to the author. Actual magnification and staining method should be given where appropriate; electron photomicrographs should have internal scale markers.

LEGENDS

Legends should be double-spaced on a separate page.

REFERENCES

References should be double-spaced and should be cited consecutively in the text with superscript numbers outside punctuation. A reference to a paper "in press" may be included. Citations such as "in preparation," "submitted for publication," "unpublished data," and "personal communication" should be given in parentheses in the text only. At the end of each article, references should be listed in the numerical order in which they appear in the text. The names of all authors should be given unless there are more than six, in which case the names of the first three authors are used, followed by "et al." Abbreviations of the names of the journals should conform to *Index Medicus*. Journal titles should be cited as they existed at the time of publication. Unlisted journals should not be abbreviated. Authors are responsible for bibliographic accuracy.

1. Articles
   Annuniziato D, Goldblum LM. Staphylococcal scalded skin syndrome: a complication of circumcision. *Am J Dis Child.* 1978;132:1187- 1188.
2. Books
   Heoprich PD. *Infectious* Diseases. 2nd ed. New York, NY Harper & Row Pubs Inc; 1977:169.
3. Contributions to Books
   Schaffner W. Psittacosis: ornithosis, parrot fever. In: Beeson PB, McDermott W, Wyngaarden JB. eds. Cecil Textbook of *Medicine*. 15th ed. Philadelphia, Pa: WB Saunders Co; 1979336338.

FOOTNOTES

Footnotes to the text and tables should be as few as possible. Each should be typed at the foot of the appropriate page, separated from the text or table by a horizontal line. Designate footnotes by the following symbols in this order: *, †, ‡, **, ††, ‡‡, etc.

ABBREVIATIONS AND NOMENCLATURE

Abbreviations should conform to the Chicago Manual of Style published by The University of Chicago Press, Chicago, Illinois. Abbreviations should be kept to a minimum, preferably confuted to the tables. Symbols for units of measurement (mm, ml) should not be followed by periods. Chemical or generic names of drugs are preferred. A proprietary name may be given only after it is preceded by the chemical name the first time it appears. Proprietary names must be followed by the manufacturer, city, and state of location. Unfamiliar terms and abbreviations must be defined when first used.

REVIEW PROCESS

Each manuscript will be reviewed by the Editor and at least one other Editorial Board member. Authors will be notified as soon as possible regarding the acceptability of their manuscripts. See "*Infection Control and Hospital Epidemiology:* The Formal Review Process (1991;12[1]:11-13) for more information regarding the review process.

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