

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY[®]

EDITORIAL

- Needlestick Prevention: New Paradigms for Research 257
JULIE LOUISE GERBERDING, MD, MPH

ORIGINAL ARTICLES

- Reported Hospital Needlestick Injuries in Relation to Knowledge/Skill, Design, and Management Problems 259
JUDITH FAY BOYLAN ENGLISH, RN, MSN, CIC

- A Five-Year Study of Needlestick Injuries: Significant Reduction Associated With Communication, Education, and Convenient Placement of Sharps Containers 265
DONNA J. HAIDUVEN, BSN, MSN, CIC; TAMMY M. DEMAIO; DAVID STEVENS, MD

- Prevention of Infectious Diseases in Ambulatory Care: Immunoprophylaxis and Chemoprophylaxis 272
TINA G. WALD, MD; JOANNE K. TOBACMAN, MD

- A Cluster of Severe Postoperative Bleeding Following Open Heart Surgery 282
MARGARITA E. VILLARINO, MD, MPH; STEVEN M. GORDON, MD; CAROL VALDON, RN, CIC, MS; DIANA POTTS, RNC, CIC, MS; KEVIN FISH, MD; HARLES UYEDA, PHD; PATRICK M. MCCARTHY, MD; LEE A. BLAND, MA, MPH; ROGER L. ANDERSON, PHD; WILLIAM R. JARVIS, MD

BEYOND INFECTION CONTROL: THE NEW HOSPITAL EPIDEMIOLOGY

- Continuous Quality Improvement in a Hospital System: Implications for Hospital Epidemiology 288
WILLIAM E. SCHECKLER, MD

TOPICS IN CLINICAL MICROBIOLOGY

- Predictive Value of Blood Cultures 293
VICTOR LORIAN, MD; LEONARD AMARAL, PHD

PRODUCT COMMENTARY

- Needlestick Prevention Devices: A Pointed Discussion 295
LEE WUGOFSKI, MD, MPH

READERS' FORUM

- Bland Soap Handwash or Hand Antisepsis? The Pressing Need for Clarity 299
N. JOEL EHRENKRANZ, MD

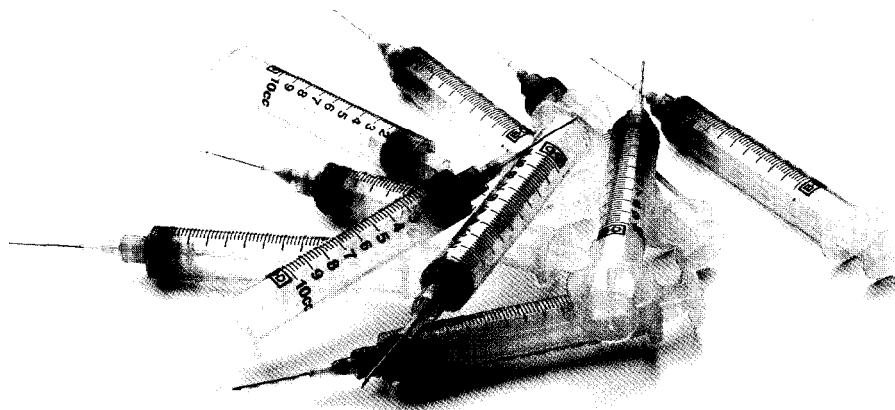
LETTERS TO THE EDITOR

- Nosocomial Infection and Pseudoinfection From Contaminated Endoscopes Could Have Been Avoided 254
F.D. DASCHNER, MD

- Hepatitis C Virus Antibodies in Patients on Hemodialysis 254
G. SAN MIGUEL; J. CRESPO; S. ECHEVARRIA; A. D'FRANCISCO; P. GOMEZ ULLATE; F. PONS ROMERO

- SHEA NEWS 305

HBV positive!



If you're concerned about infection control at your hospital, you already know that sharps placed in sharps containers are not enough. . . you need a system! That's why more than 1700 hospitals nationwide have already chosen BFI Medical Waste Systems.

At BFI, we've built the largest medical waste disposal company in the world by providing individualized programs for hospitals nationwide. That includes:

- Establishing a waste handling system that's aimed at controlling the exposure to bloodborne pathogens such as HBV and HIV.
- Providing safe and reliable packaging that reduces the risk of accidental needle sticks and other exposures.
- Training hospital personnel on proper identification and separation of medical waste which may result in significant cost savings.

HBV negative!



** This symbolizes BFI's comprehensive array of services and is not intended to represent any sharps disposal box or container.*

- Training hospital personnel on safe handling procedures for medical waste.
- Providing training and information to assist in complying with federal, state and local regulations, plus OSHA Bloodborne Pathogen Regulations.

To find out more about how BFI can reduce the risk and the cost of your medical waste treatment and disposal, call us at 1-800-950-2010. Or come by Exhibit #413 at

APIC '92 in San Francisco. We'll be happy to provide you with additional literature that supports the effectiveness of BFI Medical Waste Systems.

Hospitals today can't just rely on containers for sharps and medical waste disposal. Out of site is not out of mind. That's why more and more hospitals are relying on a medical waste system from BFI.

The World's #1 Choice for Medical Waste Services

Visit us at **APIC '92 booth #413** in San Francisco.

KEEP UP WITH NEW JCAHO REQUIREMENTS BY USING AICE®

The AICE® Software System is continuously being enhanced to keep you abreast of changing Joint Commission demands.

"Compliance" and "easy" are not words normally heard in the same sentence--not until the **AICE Software System** was developed to meet the complex demands of infection control. AICE enables compliance with the epidemiologic and statistical standards using an easy step-by-step model. Use AICE to:

- ◆ Calculate specific infection rates (by surgeon, service, unit, etc.)
- ◆ Provide 3-way rate tables stratified by risk
- ◆ Easily feedback these rates to the employees/physicians who can make a difference
- ◆ Send follow-up lists and letters to physicians
- ◆ Conduct priority-directed/targeted, problem-oriented, and/or total house surveillance
- ◆ Identify clusters of infections on incidence graphs
- 4 Track thresholds on graphic reports
- ◆ Perform case-control and special studies
- ◆ Compare hospital infections in-house with data trend analyses
- ◆ Watch the decline of infection rates and patient morbidity!

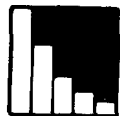
Today's hospital information management systems require ways to transfer data back and forth between computers. Do you want **to** download data from the operating room computer into **AICE**? Do you want to upload **AICE** data into other hospital databases or even into the Joint Commission's beta test software? **AICE** has solutions for you.

AICE is designed for both the novice and experienced computer user. With our 6 months of toll-free support, we will have you up and running on **AICE** in no time!

It is time to deal yourself a winning hand.



Order AICE Today!
For more information write or call



Infection Control and
Prevention Analysts, Inc.
4425 South MoPac Expressway
Suite 205
Austin, TX 78735

(800) 426-8015

Come by our booth #108 at APIC.

***Ask about Respond! EHMS®
our software for Employee Health.***

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY™

CONTENTS

EDITORIAL

- Needlestick Prevention: New Paradigms for Research 257

JULIE LOUISE GERBERDING, MD, MPH

ORIGINAL ARTICLES

- Reported Hospital Needlestick Injuries in Relation to Knowledge/Skill, Design, and Management Problems 259

JUDITH FAY BOYLAN ENGLISH, RN, MSN, CIC

- A Five-Year Study of Needlestick Injuries: Significant Reduction Associated With Communication, Education, and Convenient Placement of Sharps Containers 265

DONNA J. HAIDUVEN, BSN, MSN, CIC; TAMMY M. DEMAIO; DAVID A. STEVENS, MD

- Prevention of Infectious Diseases in Ambulatory Care: Immunoprophylaxis and Chemoprophylaxis 272

TINA G. WALD, MD; JOANNE K. TOBACMAN, MD

- A Cluster of Severe Postoperative Bleeding Following Open Heart Surgery 282

MARGARITA E. VILLARINO, MD, MPH; STEVEN M. GORDON, MD; CAROL VALDON, RN, CIC, MS; DIANA POTTS, RNC, CIC, MS; KEVIN FISH, MD; CHARLES UYEDA, PHD; PATRICK M. MCCARTHY, MD; LEE A. BLAND, MA, MPH; ROGER L. ANDERSON, PHD; WILLIAM R. JARVIS, MD

BEYOND INFECTION CONTROL: THE NEW HOSPITAL EPIDEMIOLOGY

- Continuous Quality Improvement in a Hospital System: Implications for Hospital Epidemiology 288

WILLIAM E. SCHECKLER, MD

TOPICS IN CLINICAL MICROBIOLOGY

- Predictive Value of Blood Cultures 293

VICTOR LORIAN, MD; LEONARD AMARAL, PhD

PRODUCT COMMENTARY

- Needlestick Prevention Devices: A Pointed Discussion 295

LEE WUGOFSKI, MD, MPH

DEPARTMENTS

- Information for Authors 248

- Letters to the Editor 254

- Readers' Forum 299

- SHEA News 305

- Medical News 308

- Calendar of Events 312

THE PUBLICATION OF ADVERTISING IN THE JOURNAL DOES NOT CONSTITUTE ANY GUARANTEE OR ENDORSEMENT BY THE SOCIETY FOR HOSPITAL EPIDEMIOLOGY OF AMERICA OR SLACK INCORPORATED OF THE ADVERTISED PRODUCT OR SERVICE OR OF CLAIMS MADE BY THE ADVERTISER. THE PUBLICATION OF ARTICLES AND OTHER EDITORIAL MATERIAL IN THE JOURNAL DOES NOT NECESSARILY REPRESENT THE POLICY RECOMMENDATIONS OR ENDORSEMENT BY THE SOCIETY.

PUBLISHER: Infection Control and Hospital Epidemiology (ISSN-0899-823X, Canadian GST#129780466) is published exclusively by SLACK Incorporated 12 times a year. Address: 6900 Grove Rd., Thorofare, NJ 08086. Telephone: (609) 848-1000.

COPYRIGHT 1992 by The Society for Hospital Epidemiology of America, Inc. and SLACK Incorporated. All rights reserved. No part of this publication may be reproduced without written permission from the publisher.

SUBSCRIPTIONS: Requests should be addressed to the publisher (except Japan). In Japan, contact Woodbell Incorporated, 4-22-11, Kitakasai, Edogawaku, Tokyo 134, Japan. Subscription rates in the United States and possessions: Individual: One year-\$80.00; Two years-\$115.00; Three years-\$145.00; Institutional: One year-\$90.00; Two years-\$130.00; Three years-\$170.00. Fellows: \$40 per year. Canada: \$18.00 additional each year plus 7% for Canadian Goods & Services tax; all other countries: \$36.00 additional each year. Single copies of current issues may be obtained for \$15.00, United States and possessions: \$20.00 all other countries.

REPRINTS: All requests to reprint or use material published herein should be addressed to Lester J. Robeson, SLACK Incorporated, 6900 Grove Rd., Thorofare, NJ 08086. For reprint orders and prices, contact Lester T. Robeson at (609) 848-1000. Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by SLACK Incorporated, provided that the base fee of \$1.00 per copy, plus \$.15 per page is paid directly to Copyright Clearance Center, 27 Congress St., Salem, MA 01970. This consent does not extend to other kinds of copying, such as for general distribution, resale, advertising and promotional purposes, or for creating new collective works.

CHANGE OF ADDRESS: Notice should be sent to the publisher six weeks in advance of effective date. Include old and new addresses with zip codes. The publisher cannot accept responsibility for undelivered copies. Secondclass postage is paid at Thorofare, New Jersey 08086, and additional entry points. **POSTMASTER:** Send address changes to SLACK Incorporated, 6900 Grove Rd., Thorofare, NJ 08086.

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY is listed in Index Medicus, Current Contents-Clinical Practice, Hospital Literature Index, Cumulative Index to Nursing & Allied Health Literature, Nursing Abstracts, and Laboratory Performance Information Exchange System.

EDITORIAL OFFICES

Vanderbilt University School of Medicine
A-1131 Medical Center North
Nashville, TN 37232-2637
(615) 343-1095; (615) 343-1882 (FAX)
Email: iche@mcmail.vanderbilt.edu

EDITOR

Michael D. Decker, MD, MPH

MANAGING EDITOR

Susan Cantrell

STATISTICAL EDITOR

Beverly G. Mellen, PhD

SENIOR ASSOCIATE EDITORS

C. Glen Mayhall, MD

Gina Pugliese, RN, MS

William Schaffner, MD

ASSOCIATE EDITORS

Donald A. Goldmann, MD

Didier Pittet, MD, MS

Andreas Widmer, MD, MS

SECTION EDITORS

Beyond Infection Control:

The New Hospital Epidemiology

Bryan P. Simmons, MD

Stephen B. Kritchevsky, PhD

Memphis, Tennessee

Wing Hong Seto, MD

Hong Kong

Disinfection and Sterilization

William A. Rutala, PhD, MPH

Chapel Hill, North Carolina

Emerging Infectious Diseases

Larry J. Strausbaugh, MD

Portland, Oregon

Robert W. Pinner, MD

Atlanta, Georgia

From the Laboratory

Marcus Zervos, MD

Royal Oak, Michigan

Fred C. Tenover, PhD

Atlanta, Georgia

Information Management

John A. Sellick, DO

Buffalo, New York

The International Perspective

Mary D. Nettleman, MD, MS

Richmond, Virginia

Issues in Surgery

James T. Lee, MD, PhD

St. Paul, Minnesota

Medical News

Gina Pugliese, RN, MS

Chicago, Illinois

Martin S. Favero, PhD

Irvine, California

Practical Healthcare Epidemiology

Loreen A. Herwaldt, MD

Iowa City, Iowa

SHEA News

Murray D. Batt, MD

Clarksburg, West Virginia

Statistics for Hospital Epidemiology

David Birnbaum, PhD, MPH

Sidney, British Columbia, Canada

Topics in Long-Term Care

Philip W. Smith, MD

Omaha, Nebraska

Topics in Occupational Medicine

David Weber, MD, MPH

Chapel Hill, North Carolina

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY®

EDITORIAL ADVISORY BOARD

Jacques F. Acar, MD	Paris, France
J. Wesley Alexander, MD	Cincinnati, Ohio
Paul Arnow, MD	Chicago, Illinois
Graham A.J. Ayliffe, MD	Birmingham, United Kingdom
Neil L. Barg, MD	Yakima, Washington
Elizabeth Ann Bolyard, RN, MPH, CIC	Atlanta, Georgia
John M. Boyce, MD	Providence, Rhode Island
Professor Dr. Ilja Braveny	Munich, Federal Republic of Germany
Charles Bryan, MD	Columbia, South Carolina
Christian Brun-Buisson, MD	Creteil, France
Donald E. Craven, MD	Boston, Massachusetts
Sue Crow, MSN, RN, CIC	Shreveport, Louisiana
Franz Daschner, MD	Freiburg, Federal Republic of Germany
Leigh G. Donowitz, MD	Charlottesville, Virginia
Charles E. Edmiston, Jr., PhD	Milwaukee, Wisconsin
Theodore C. Eickhoff, MD	Denver, Colorado
Bruce Farber, MD	Manhasset, New York
Victoria J. Fraser, MD	St. Louis, Missouri
Peter C. Fuchs, MD, PhD	Black Butte, Oregon
Richard A. Garibaldi, MD	Farmington, Connecticut
Velvl Greene, PhD, MPH	Beer Sheva, Israel
Robert Gaynes, MD	Atlanta, Georgia
David W. Gregory, MD	Nashville, Tennessee
David K. Henderson, MD	Bethesda, Maryland
Peter N.R. Heseltine, MD	Los Angeles, California
Karen Hoffmann, RN, CIC, MS	Chapel Hill, North Carolina
Marguerite McMillan Jackson, RN, PhD	San Diego, California
Janine Jagger, MPH, PhD	Charlottesville, Virginia
William R. Jarvis, MD	Atlanta, Georgia
Douglas S. Kernodle, MD	Nashville, Tennessee
Robert H. Latham, MD	Nashville, Tennessee
Lewis B. Lefkowitz, MD	Nashville, Tennessee
Hsieh-Shong Leu, MD, MSc	Taipei, Taiwan
Jack Levy, MD	Brussels, Belgium
Victor Lorian, MD	Bronx, New York
Dennis G. Maki, MD	Madison, Wisconsin
Professor Dr. Walter Marget	Munich, Federal Republic of Germany
William J. Martone, MD	Bethesda, Maryland
Allison McGeer, MD	Toronto, Ontario, Canada
John E. McGowan, Jr., MD	Atlanta, Georgia
Jonathan L. Meakins, MD, DSc	Montreal, Quebec, Canada
Raf Mertens, MD	Brussels, Belgium
Robert R. Muder, MD	Pittsburgh, Pennsylvania
Joseph M. Mylotte, MD, CIC	Buffalo, New York
Lindsay Nicolle, MD	Winnipeg, Manitoba, Canada
Juhani Ojajarvi, MD	Helsinki, Finland
Michael T. Osterholm, PhD, MPH	Minneapolis, Minnesota
Jan Evans Patterson, MD	San Antonio, Texas
Sindy M. Paul, MD	Trenton, New Jersey
Michael A. Pfaller, MD	Iowa City, Iowa
Samuel Ponce de Leon, MD, MSc	Mexico City, Mexico
Isaam Raad, MD	Houston, Texas
Manfred L. Rotter, MD, DipBact	Vienna, Austria
Theodore Sacks, MD	Jerusalem, Israel
William E. Scheckler, MD	Madison, Wisconsin
Kent Sepkowitz, MD	New York City, New York
Denis Spelman, MD	Prahran Victoria, Australia
Michael L. Tapper, MD	New York, New York
Clyde Thornsberry, PhD	Brentwood, Tennessee
Professor Leonid P. Titov	Minsk, Republic of Belarus
Timothy R. Townsend, MD	Millwood, Virginia
Antoni Trilla, MD, PhD	Barcelona, Spain
Professor Wang Shu-Qun	Beijing, People's Republic of China
J. John Weems, Jr., MD	Greenville, South Carolina
Robert A. Weinstein, MD	Chicago, Illinois
Professor Dr. W. Weuffen	Greifswald, Federal Republic of Germany
Sergio B. Wey, MD	São Paulo, Brazil
Rebecca Wurtz, MD	Evanston, Illinois

SLACK Incorporated

6900 Grove Road
Thorofare, New Jersey 08086
(609) 848-1000

Vice President/Group Publisher

Richard N. Roash

Publisher

John C. Carter

Editorial Director

Jennifer Kilpatrick

Production Editor

Shirley P. Strunk, ELS

Assistant Editor

Eileen C. Anderer

Circulation Manager

Lester J. Robeson, CCCP

Production Director

Christine Malin

Production Coordinator

Joanne Patterson

Publishing Director/ Advertising

Wayne McCourt

Pharmaceutical Group Sales Director

Michael LoPresti

Advertising Sales Representative

Jennine Kane

Classified/Recruitment Sales Manager

Michele Burch



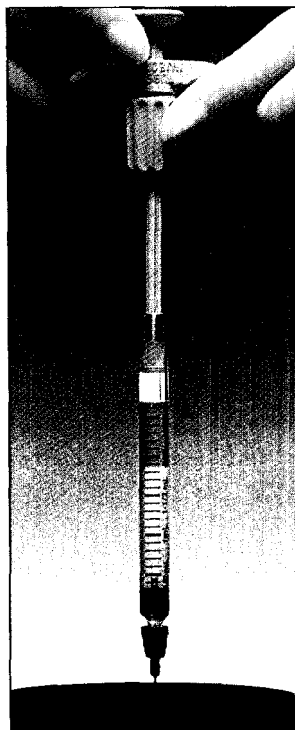
**YOUR JOB
CAN BE LESS OF A
THREAT**

**INJECTOR
Tubex®**
(closed injection system) Wyeth-Ayerst

TUBEX®, the unique injector that puts you farther from the needle and cartridge than any other injection system.

There's no touching... shaking... manipulation of cartridge or needle. Just twist and drop.

In a recent survey, 1,522 hospital nurses recommended TUBEX® almost 2:1 over Carpuject®,¹* which is one more reason to **adopt** TUBEX®--the injection system designed as if your life depended on it.



***FARTHER
FROM THE
POINT OF
DANGER''***

TUBEX® Brand Injectors are available free of charge--just contact your Wyeth-Ayerst representative for a supply.

*Carpuject® is a registered trademark of Winthrop Pharmaceuticals

Reference
1. 1991 Survey of the Nurse Universe Rochester, NY
Harvey Research Organization, Inc. 1991 59

Visit us at APIC Booth #604

**WYETH-AYERST
LABORATORIES**
Philadelphia, PA 19101

©1991, Wyeth-Ayerst Laboratories.
63245

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGYTM

The Society for Hospital Epidemiology of America (SHEA) and SLACK Inc. Copyright and Republication Policy

The Society for Hospital Epidemiology of America (SHEA) and SLACK Inc. hold copyright on *Infection Control and Hospital Epidemiology*. We request that all authors of works transfer to SHEA and SLACK Inc. all rights, title, and interest to such works, including copyright. In accord with the Copyright Act of 1976, we must acquire every author's signature to effect the transfer. A written work cannot be considered for publication until the 'Assignment of Copyright' form is signed by the author or authors and is on file at the editorial offices. Please submit this signed form with your manuscript. In the event that a manuscript is not accepted for publication, this agreement will be returned to the authors.

Signed 'Assignment of Copyright' forms confirm that a work submitted has not previously been published, is not subject to copyright or other rights except those of the author to be transferred to SHEA and SLACK Inc., and is not under consideration for publication elsewhere, except under circumstances communicated to us in writing at the time the work is submitted.

Permission to reproduce any part of the works published by SHEA and SLACK Inc. in *Infection Control and Hospital Epidemiology* in any form or by any means, electronic or mechanical, is not permitted without written permission from SLACK Inc.

Assignment of Copyright

In consideration of SLACK Incorporated and The Society for Hospital Epidemiology of America (collectively called the 'Publisher') in publishing my (our) submitted manuscript, the undersigned hereby transfer(s), assign(s), and otherwise convey(s) all copyright in the manuscript to the Publisher. The undersigned declares that the manuscript is original and, to the best of the undersigned's knowledge, contains no matter that is libelous or unlawful or that infringed upon anyone else's rights of copyright.

In addition, we affirm that the work is the work of every author listed, and is not under consideration for publication elsewhere, except under circumstances communicated to us in writing at the time the work is submitted.

MANUSCRIPT NUMBER (if known) _____ DATE _____

AUTHORS _____

TITLE _____

ALL AUTHORS

Signature _____ Date _____

Signature _____ Date _____

Signature _____ Date _____

Signature _____ Date _____

Signature _____ Date _____

Signature _____ Date _____

Signature _____ Date _____

This form may be photocopied.

Techni-CareTM Surgical Scrub

99.99% Bacterial Reduction
in only 30 seconds

Techni-Care...A new technology in a surgical scrub exhibits outstanding antimicrobial efficacy *without* dermal irritation.

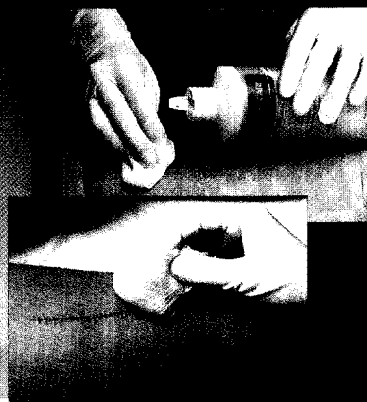
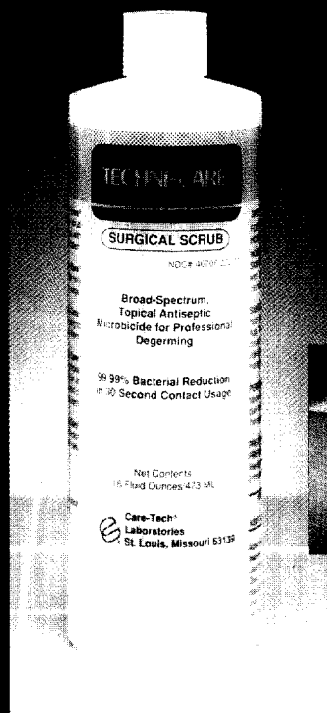
Fully substantiated by independent testing in vivo and in vitro, Techni-Care Surgical Scrub both disinfects and conditions in less time than any prior technology available to healthcare personnel.

Results of Time Kill tests demonstrate that Techni-Care eliminates gram negative and gram positive bacteria at 99.99% in 30 second contact.

Outstanding Bactericidal Activity without skin irritation

Techni-Care's active ingredient, chloroxylenol (PCMX) at 3%, eliminates bacteria, while a host of skin conditioning agents work synergistically to condition and soften the skin. Exceptionally mild, Techni-Care's dermal conditioning ingredients, include cocamidopropyl PG-Dimonium Chloride Phosphate, Aloe Vera Gel, Collagen and Propylene Glycol.

Techni-Care has rated a "minimal irritation" in the Draize Dermal irritation test. Specially blended formulation for dermal conditioning, as well as for bacterial reduction. Techni-Care Surgical Scrub is soothing to dermal tissue while phospholipids promote natural turgor.



CARE-TECH[®] LABORATORIES

Advanced Skin Care Technology

1-800-325-9681