

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY[®]

EDITORIAL

Isolation Rooms for Tuberculosis Control 619

MARK NICAS, PHD, MPH, CIH; JOAN E. SPRINSON, MPH, CIH; SARAH E. ROYCE, MD, MPH;
ROBERT J. HARRISON, MD, MPH; JANET M. MACHER, ScD, MPH

ORIGINAL ARTICLES

Evaluation of Rooms with Negative Pressure Ventilation Used for Respiratory
Isolation in Seven Midwestern Hospitals 623

VICTORIA J. FRASER, MD; KRISTA JOHNSON; JONATHAN PRIMACK; MARILYN JONES, BSN; GERALD MEDOFF;
W.C. DUNAGAN

A Case-Control Study of Nosocomial Ampicillin-Resistant Enterococcal
Infection and Colonization at a University Hospital 629

DANIEL J. SEXTON, MD; LIZZIE J. HARRELL, PhD; JACKIE J. THORPE, MS, MT(ASCP);
DEBRA L. HUNT, DRPH; L. BARTH RELLER, MD

A Nosocomial Pseudo-Outbreak of Mycobacterium xenopi Due to a
Contaminated Potable Water Supply: Lessons in Prevention 636

DAVID H. SNIADACK, MD; STEPHEN M. OSTROFF, MD; MICHAEL A. KARLIX, MS; RONALD W. SMITHWICK;
BENJAMIN SCHWARTZ, MD; MARY ANN SPRAUER, MD, MPH; VELLA A. SILCOX; ROBERT C. GOOD, PHD

BRIEF REPORT

State Regulation of Hospital Water Temperature 642

ADAM S. MANDEL; MARY ANN SPRAUER, MD, MPH; DAVID H. SNIADACK, MD; STEPHEN M. OSTROFF, MD

GLOBAL ASPECTS OF INFECTION CONTROL

Global Aspects of Infection Control 646

MARY D. NETTLEMAN, MD, MS

BEYOND INFECTION CONTROL: THE NEW HOSPITAL EPIDEMIOLOGY

The Use of Statistical Process Control Charts in Hospital Epidemiology 649

JOHN A. SELICK, JR., DO

PRODUCT COMMENTARY

Needleless and Needle Protection Devices: A Second Look at Efficacy
and Selection 657

ELIZABETH OWENS-SCHWAB, BSN; VICTORIA J. FRASER, MD

TOPICS IN CLINICAL MICROBIOLOGY

Hantavirus: An Old Bug Learns New Tricks 661

JOHN T. SINNOT IV, MD; JOHN N. GREENE, MD; EVELYN KIM, BA; SANDRA GOMPF, MD

LETTERS TO THE EDITOR

Molecular Epidemiology and Legionnaire's Disease 616

M. SABRIA-LEAL; M.L. PEDRO-BOTET; L. RUIZ; G. GIMENEZ

Nosocomial Infection Control in Latin America 617

MUSSARET ZAIDI, MD

MEDICAL NEWS 670

GINA PUGLIESE, RN, MS

SHEA NEWS 675

VACUTAINER Blood Collection Needles

CAUTION

... samples and blood collection "sharps" (lancets, needles, and blood collection sets) and procedures of your facility. ... medical attention in the event of any exposure to biologic samples (for example, those samples may transmit HBV (HEPATITIS), HIV (AIDS), or other infectious diseases. ... used needle protector, if the blood collection device provides one. Becton Dickinson needles, but the policies and procedures of your facility may differ and should always collection "sharps" in biohazard containers approved for their disposal.

Dickinson VACUTAINER Systems
Franklin Lakes, NJ 07417-1885
VACUTAINER is a trademark of Becton Dickinson and Company.

Made in U.S.A.

WE'RE BRINGING SAFETY TO THE SURFACE

As the world's leading manufacturer of sharps products, Becton Dickinson is committed to helping make today's healthcare workplace safer. Developing products that comply with current regulations and setting new safety standards is a large part of that commitment, but an equally important factor is promoting correct and conscientious usage of all sharps products. As a step toward accomplishing this goal, Becton Dickinson VACUTAINER Systems is now including special safety messages on VACUTAINER Brand Needle packaging as an extra reminder to "handle with care."

Promoting adherence to recommended practices is one important way to prevent dangerous needlestick injuries and exposure to hazardous biologic specimens and we at Becton Dickinson VACUTAINER Systems take this responsibility seriously.

For detailed information on all of our safety products contact your Becton Dickinson VACUTAINER Systems Sales Representative.



**BECTON
DICKINSON**

Becton Dickinson VACUTAINER Systems, Franklin Lakes, New Jersey 07417
PRECISIONGLIDE and VACUTAINER are registered trademarks of Becton Dickinson and Company.
© 1993

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGYTM

CONTENTS

EDITORIAL

Isolation Rooms for Tuberculosis Control 619

MARK NICAS, PhD, MPH, CIH; JOAN E. SPRINSON, MPH, CIH; SARAH E. ROYCE, MD, MPH
ROBERT J. HARRISON, MD, MPH; JANET M. MACHER, ScD, MPH

ORIGINAL ARTICLES

Evaluation of Rooms with Negative Pressure Ventilation Used for Respiratory Isolation in
Seven Midwestern Hospitals 623

VICTORIA J. FRASER, MD; KRISTA JOHNSON; JONATHAN PRIMACK, MARILYN JONES, BSN;
GERALD MEDOFF; W.C. DUNAGAN

A Case-Control Study of Nosocomial Ampicillin-Resistant Enterococcal Infection and
Colonization at a University Hospital 629

DANIEL J. SEXTON, MD; STEPHEN M. OSTROFF, MD; MICHAEL A. KARLIX, MS;
DEBRA L. HUNT, DrPH; L. BARTH RELLER, MD

A Nosocomial Pseudo-Outbreak of *Mycobacterium xenopi* Due to a Contaminated Potable
Water Supply: Lessons in Prevention 636

DAVID H. SNIADACK, MD; STEPHEN M. OSTROFF, MD; MICHAEL A. KARLIX, MS;
RONALD W. SMITHWICK; BENJAMIN SCHWARTZ, MD; MARY ANN SPRAUER, MD, MPH;
VELLA A. SILCOX; ROBERT C. GOOD, PhD

BRIEF REPORT

State Regulation of Hospital Water Temperature 642

ADAM S. MANDEL; MARY ANN SPRAUER, MD, MPH; DAVID H. SNIADACK, MD;
STEPHEN M. OSTROFF, MD

GLOBAL ASPECTS OF INFECTION CONTROL

Global Aspects of Infection Control 646

MARY D. NETTLEMAN, MD, MS

BEYOND INFECTION CONTROL: THE NEW HOSPITAL EPIDEMIOLOGY

The Use of Statistical Process Control Charts in Hospital Epidemiology 649

JOHN A. SELICK, JR., DO

TOPICS IN CLINICAL MICROBIOLOGY

Hantavirus: An Old Bug Learns New Tricks 661

JOHN T. SINNOTT IV, MD; JOHN N. GREENE, MD; EVELYN KIM, BA; SANDRA GOMPFF, MD

DEPARTMENTS

Letters to the Editor 616

Product Commentary 657

Calendar 666

Book Review 668

Medical News 670

SHEA News 675

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-0899823X. 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 1993 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. Printed in the USA.

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: \$20 per year with proof of training status. 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 Robeson, SLACK Incorporated, 6900 Grove Rd., Thorofare, NJ 08086. For reprint orders and prices, contact Lester 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 crating 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. Second-class 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, CCCC

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

Techni-CareTM Surgical Scrub

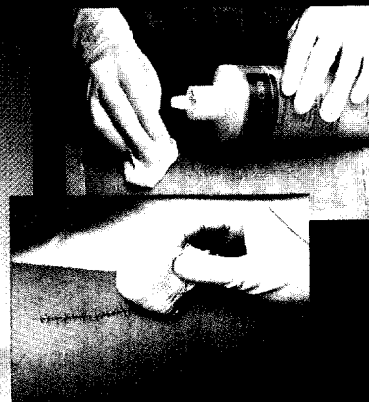
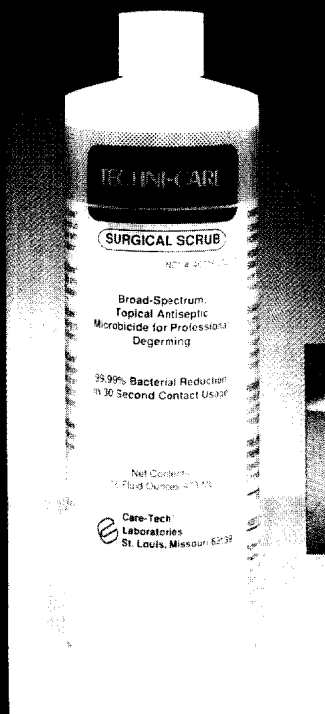
99.99% Bacterial Reduction
in only 30 seconds

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