The Official Journal of The Society for Healthcare Epidemiology of America

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY®

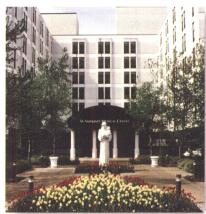
EDITORIAL Nosocomial Candidemia: An Ounce of Prevention Is Better Than a Pound of Cure 624 DANIEL J. DIEKEMA, MD; MICHAEL A. PFALLER, MD **ORIGINAL ARTICLES** Has the Epidemiology of Nosocomial Candidemia Changed? 628 LAURA PUZNIAK, PHD; STEVEN TEUTSCH, MD; WILLIAM POWDERLY, MD; LOUIS POLISH, MD Genetic Relatedness Among Candida tropicalis Isolates From Sporadic Cases of Fungemia in Two University Hospitals in Korea JONG HEE SHIN, MD, PHD; MI-NA KIM, MD, PHD; DONG HYEON SHIN, MD, PHD; SOOK-IN JUNG, MD, PHD; KWANG JIN KIM, MD; DUCK CHO, MD, PHD; SEUNG JUNG KEE, MD, PHD; MYUNG GEUN SHIN, MD, PHD; 634 SOON PAL SUH, MD, PHD; DONG WOOK RYANG, MD, PHD Candida parapsilosis Bloodstream Infection in Pediatric Oncology Patients: Results of an Epidemiologic Investigation BRUNELLA POSTERARO, PHD; STEFANIA BRUNO, MD; STEFANIA BOCCIA, BS; ANTONIO RUGGIERO, MD; MAURIZIO SANGUINETTI, MD; VINCENZO ROMANO SPICA, MD; GUALTIERO RICCIARDI, MD; GIOVANNI FADDA, MD, PHD 641 Central Venous Catheter-Related Bacteremia Due to Gram-Negative Bacilli: Significance of Catheter Removal in Preventing Relapse HEND HANNA, MD, MPH; CLAUDE AFIF, MD; BADIE ALAKECH, MD; MAHA BOKTOUR, MD; JEFFREY TARRAND, MD; RAY HACHEM, MD; ISSAM RAAD, MD 646 Routine Changing of Intravenous Administration Sets Does Not Reduce Colonization or Infection in Central Venous Catheters CLAIRE M. RICKARD, RN, BN, GRADDIPN (CRITCARE); JEFF LIPMAN, FFA (CRITCARE), FJFICM; MARY COURTNEY, RN, PhD; ROSEMARY SIVERSEN, RN, CERTNURS, CERTICU; PETER DALEY, RN, BHSc, CERTICU 650 Predictors of Nosocomial Bloodstream Infections Among Critically Ill Adult Trauma Patients MAHER M. EL-MASRI, RN, PHD; TAREK A. HAMMAD, MD, PHD; SANDRA W. McLESKEY, PHD; MANJARI JOSHI, MD; DENISE M. KORNIEWICZ, RN, DNSc, FAAN 656 In Vitro Assessment of Chlorhexidine Gluconate-Impregnated Polyurethane Foam Antimicrobial Dressing Using Zone of Inhibition Assays SHUBHANGI BHENDE, MS; DANIEL SPANGLER, MS 664 Cost-Benefit Analysis of Chlorhexidine Gluconate Dressing in the Prevention of Catheter-Related Bloodstream Infections ALBERT G. CRAWFORD, PhD; JOSEPH P. FUHR, JR., PhD; BHASKAR RAO, MBA 668 STATISTICS FOR HOSPITAL EPIDEMIOLOGY Application of Data Mining Techniques to Healthcare Data MARY K. OBENSHAIN, MAT 690

Continued inside.



A Tradition of Service... and a Commitment to Healthy Skin

Faithful to its service tradition, St. Anthony's Medical Center in St. Louis provides care marked by excellence, responsible use of resources, and respect and compassion for all people. This progressive healthcare facility is also committed to the promotion of healthy skin.



The PROVON® FMX™ System...

...convenient, effective foaming skin care.







Putting Foaming Handwash everywhere it's needed

Frequent handwashing requires time and effort and can result in dry, irritated and damaged skin. To lead the way in building total hand hygiene compliance in its facility, St. Anthony's is using new PROVON® FMX™ Foaming Handwash everywhere general handwashing is needed.

PROVON FMX foam is pre-lathered, providing a more convenient handwashing experience. Formulas are specifically designed to be effective and include moisturizers that leave the skin feeling soft and clean.

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY®

CONTENTS

Continued from cover

ORIGINAL ARTICLES

Prevention of Central Venous Catheter-Related Bloodstream Infections Using Non-Technologic Strategies

SILVIA ACOSTA GNASS, MSC; LUISA BARBOZA, RN; DAFNE BILICICH, RN; PABLO ANGELORO, MD; WALTER TREIYER, MD; SILVIA GRENÓVERO, MSC; JUAN BASUALDO, MD, MSC

675

An Outbreak of Methicillin-Resistant Staphylococcus aureus Infections Related to Central Venous Catheters for Hemodialysis

SAI-CHEONG LEE, MD; KUO-SU CHEN, MD; CHI-JEN TSAI, MD; CHING-CHANG LEE, MD; HUNG YU CHANG, MD; LAI-CHU SEE, PhD; YU-CHIN KAO, RN; SHU-CHU CHEN, RN; CHENG-HSU WANG, MD

678

Influence of Selective Bowel Decontamination on the Organisms Recovered During Bacteremia in Neutropenic Patients

FLORIAN DAXBOECK, MD; WERNER RABITSCH, MD; ALEXANDER BLACKY, MD; MARIA STADLER, MSC; PAUL A. KYRLE, MD; ALEXANDER M. HIRSCHL, MD; WALTER KOLLER, MD

685

CONCISE COMMUNICATION

Povidone-Iodine Ointment and Gauze Dressings Associated With Reduced Catheter-Related Infection in Seriously Ill Neurosurgical Patients

ATSUSHI FUKUNAGA, MD; HEIJI NARITAKA, MD; RAITA FUKAYA, MD; MASANAO TABUSE, MD; TSUNEO NAKAMURA, MD

696

LETTER TO THE EDITOR

Co-Infection or Co-Colonization With Vancomycin-Resistant Enterococci and Methicillin-Resistant *Staphylococcus aureus* in a Network of Community Hospitals

JAY R. McDonald, MD; John J. Engemann, MD; Keith S. Kaye, MD; Daniel J. Sexton, MD

622

THE PUBLICATION OF ADVERTISING IN THE JOURNAL DOES NOT CONSTITUTE ANY GUARANTEE OR ENDORSEMENT BY THE SOCIETY FOR HEALTHCARE 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-0195-9417, Canadian GST#129780466) is published exclusively by SLACK Incorporated 12 times a year. Address: 6900 Grove Road, Thorofare, NJ 08086. Telephone: (856) 848-1000.

SHEA: 66 Canal Center Plaza, Suite 600, Alexandria, VA 22314; telephone, 703-299-0200; fax, 703-299-0204; e-mail address, info@shea-online.org.

COPYRIGHT 2004 The Society for Healthcare 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-\$139.00; Two years-\$199.00; Three years-\$259.00; Institutional: One year-\$269.00; Two years-\$459.00; Three years-\$639.00. Fellows: \$54.50 per year with proof of training status. Canada: add 7% Goods & Services tax; Overseas: add \$49.00 each year for delivery by air service. Single copies of current issues may be obtained for \$24.00.

Instructions to Authors: Authors may submit electronic versions of their manuscripts prepared in accordance with the 2001 revision of the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals." An electronic version is available at www.icmje.org. Submit to RapidReview.com. All submissions must be accompanied by copyright form(s) signed by all authors.

REPRINTS: All requests to reprint or use material published herein should be addressed to John Kain, SLACK Incorporated, 6900 Grove Road, Thorotare, NJ 08086. For reprint orders and prices, contact Rebecca Fogarty at (856) 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 \$.20 per page is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923; phone (978) 750-8400. 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 6 weeks in advance of effective date. Include old and new addresses with zip codes. The publisher cannot accept responsibility for undelivered copies. Periodicals postage paid at Thorofare, New Jersey 08086-9447 and at additional mailing offices. POSTMASTER: Send address changes to SLACK Incorporated, 6900 Grove Road, 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, Laboratory Performance Information Exchange System, and RNdex Top 100.

EDITORIAL OFFICE

SLACK Incorporated 6900 Grove Road Thorofare, NJ 08086

(856) 848-1000; (856) 848-6091 (FAX)

E-mail: iche@slackinc.com

EDITOR

Barry M. Farr, MD, MSc

DEPUTY EDITORS David P. Calfee, MD, MS

William R. Jarvis, MD

ASSISTANT EDITOR Preeti N. Malani, MD, MSJ

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

Wing Hong Seto, MD Hong Kong

Disinfection and Sterilization

William A. Rutala, PhD. MPH

Chapel Hill, North Carolina From the Laboratory

Marcus Zervos, MD Royal Oak, Michigan

Infections in Immunocompromised

Patients

Kent Sepkowitz, MD New York City, New York

Information Management

John A. Sellick, DO

Amherst, New York 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

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

J. Wesley Alexander, MD Miriam Alter, PhD Hilary Babcock, MD Elise M. Beltrami, MD, MPH

Richard E. Besser, MD Marc J. M. Bonten, MD, PhD John M. Boyce, MD

Christian Brun-Buisson, MD

John P. Burke, MD Yehuda Carmeli, MD, MPH Carol Chenoweth, MD

Sara E. Cosgrove, MD, MS Donald E. Craven, MD

Erika D'Agata, MD, MPH Franz Daschner, MD Patch Dellinger, MD

Charles E. Edmiston, Jr., PhD Theodore C. Eickhoff, MD Jean Yves Fagon, MD, MPH

Mark Farrington, MA, FRCPath Victoria J. Fraser, MD Richard A. Garibaldi, MD

Petra Gastmeier, MD Dale N. Gerding, MD Stephan Harbarth, MD, MS

Anthony D. Harris, MD, MPH David K. Henderson, MD Peter N.R. Heseltine, MD Karen Hoffmann, RN, CIC, MS

Janine Jagger, MPH, PhD John A. Jernigan, MD, MS Jacob L. Kool, MD, PhD

Ebbing Lautenbach, MD, MPH Allison McGeer, MD John E. McGowan, Jr., MD

Leonard A. Mermel, DO, ScM Robert R. Muder, MD Carlene A. Muto, MD, MS Joseph M. Mylotte, MD, CIC

Lindsay Nicolle, MD Juhani Ojajarvi, MD Michael T. Osterholm, PhD, MPH

David L. Paterson, MBBS, FRACP Jan Evans Patterson, MD

Sindy M. Paul, MD David A. Pegues, MD

Michael A. Pfaller, MD Samuel Ponce de Leon, MD, MSc Isaam Raad, MD Jordi Rello, MD, PhD

Manfred L. Rotter, MD, DipBact Henning Rüden, MD Lisa Saiman, MD, MPH

Syed A. Sattar, PhD William E. Scheckler, MD Lynne M. Sehulster, PhD Andrew E. Simor, MD

Denis W. Spelman, FRACP V. Susan Springthorpe, BSc, MSc Jeffrey R. Starke, MD Janet E. Stout, PhD

Clyde Thornsberry, PhD Jerome Tokars, MD, MPH Timothy R. Townsend, MD Antoni Trilla, MD, PhD

Robert A. Weinstein, MD Sergio B. Wey, MD Cincinnati, Ohio Atlanta, Georgia St. Louis, Missouri Decatur, Georgia Atlanta, Georgia

Utrecht, The Netherlands New Haven, Connecticut

Creteil, France Salt Lake City, Utah

Tel Aviv, Israel Ann Arbor, Michigan Baltimore, Maryland

Burlington, Massachusetts Boston, Massachusetts Freiburg, Germany Seattle, Washington

Milwaukee, Wisconsin Denver, Colorado Paris, France

Cambridge, England, United Kingdom St. Louis, Missouri

Farmington, Connecticut Hanover, Germany Hines, Illinois

Geneva, Switzerland Baltimore, Maryland Bethesda, Maryland San Juan, California Chapel Hill, North Carolina

Charlottesville, Virginia Atlanta, Georgia Fort Collins, Colorado

Philadelphia, Pennsylvania Toronto, Ontario, Canada Atlanta, Georgia

Providence, Rhode Island Pittsburgh, Pennsylvania Pittsburgh, Pennsylvania

Buffalo, New York Winnepeg, Manitoba, Canada

Helsinki, Finland Minneapolis, Minnesota Pittsburgh, Pennsylvania San Antonio, Texas

Yardley, Pennsylvania Los Angeles, California Iowa City, Iowa Mexico City, Mexico

Houston, Texas Tarragona, Spain

Vienna, Austria Berlin, Germany New York, New York

Ottawa, Ontario, Canada Madison, Wisconsin Atlanta, Georgia

Toronto, Ontario, Canada Melbourne, Victoria, Australia Ottawa, Ontario, Canada

Houston, Texas Pittsburgh, Pennsylvania Franklin, Tennessee Atlanta, Georgia

Baltimore, Maryland Barcelona, Spain Chicago, Illinois São Paulo, Brazil

SLACK Incorporated, 6900 Grove Road, Thorofare, New Jersey 08086. (856) 848-1000

AMP

Executive Vice President Richard N. Roash

Vice President, Publishing Operations John C. Carter

Editorial Director Jennifer Kilpatrick **Executive Editor** Shirley P. Strunk, ELS

Assistant Editor

Jaime Underwood

Circulation Manager Lester J. Robeson, CCCP **Production Director** Christine Malin Vice President, U.S. Advertising

Wayne McCourt **Director of Association Services**

Kathy Huntley Advertising Sales Representative Scotty Turner

Advertising Sales Administrator Joanne Patterson

Sales Director, Classified/Recruitment Kristy Irwin Classified/Recruitment Sales Elizabeth Roash

Director of Reprint Sales John Kain















Without the right infection prevention system, you may as well operate in the

WAITING ROOM



Introducing 3M Infection Prevention Solutions.

Every step in the infection prevention process is critical, or your operating room could be as contaminated as the common areas. But who can keep up with all of the new products and research developments available today? We can.

At 3M, we are committed to helping health care facilities reduce the risk of nosocomial infections. So we not only

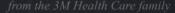
provide you with innovative products – we equip you with a comprehensive *system* of products, services and technical support, as well as educational and in-service programs all customized for your hospital.

For more information, call the 3M Health Care Customer Helpline at **1-800-228-3957** or click on www.3M.com/healthcare. We're with you, step by step.

3M Infection Prevention Solutions. A vital step in Infection Prevention.

© 3M 2004 TM-0185







The Division of Infectious Diseases of the Department of Internal Medicine at the Brody School of Medicine, East Carolina University and its associated teaching hospital, Pitt County Memorial Hospital, seek applications for a Hospital Epidemiologist/Medical Director of Infection Control at the Assistant/ Associate Professor level. This is a unique opportunity to practice academic hospital epidemiology at a 731 bed teaching hospital with all the services of a tertiary care facility. There are seven Infection Control Practitioners. The program will be expanding to hospitals within the immediate referral area. It is expected that the successful applicant will conduct infection control related research and present at appropriate national meetings. The position is through the Division of Infectious Diseases, which entails attending on the ID service, teaching fellows, housestaff and students and seeing patients in the outpatient clinic. The successful candidate will be board eligible/certified in internal medicine and infectious diseases with formal training in hospital epidemiology.

Interested applicants should send a cover letter and CV to Thomas M. Kerkering, M.D., Division Chief Division of Infectious Diseases, Brody School of Medicine Brody 3E-113, 600 Moye Blvd., Greenville, North Carolina 27834. The letter and CV may also be emailed to kerkeringt@mail.ecu.edu.

East Carolina University is an Equal Opportunity Employer.

THE PRICE OF OUR **TUBERCULOSIS CONTROL WON'T**

COUGHING

LEAVE VOU

And you will breathe easier knowing you're also getting the smallest, quietest, most effective HEPA filtration machine in its

Small: Weighing in at 53 pounds and dimensions of 40"X12"X18" the Recirculator II is the smallest, most portable unit available.

Quiet: At 53 dbA the Recirculator II is an average of 6 dbA lower than other competing brands.

Effective: With 535 cubic feet per minute and dual HEPA filtration, the Recirculator II is the only choice for your tuberculosis BIOSENSE control needs.

\$ 1,895.00



Phone (800) 941-2844 Fax (408) 270-4457

Submit Manuscripts Online INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY is pleased to announce it is now processing manuscript submissions

INFECTION CONTROL AND

Take advantage of these benefits:

Quicker and easier manuscript submission

Submitting manuscripts has never been easier!

■ Immediate acknowledgement of submissions

via Rapid Review - a comprehensive tool to manage manuscripts, reviewers, correspondence and workflow.

- Authors can check an article status online
- Password-protected site for privacy

To submit your manuscripts online, visit RapidReview.com

HOSPITAL EPIDEMIOLOGY

Improved Skin Quality - Reduced Risk of Infection

...AND MORE THAN JUST OUR WORD TO BACK IT UP

