# INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

VOLUME 32, NUMBER 8

### ORIGINAL ARTICLES

- 737 Terminal Decontamination of Patient Rooms Using an Automated Mobile UV Light Unit John M. Boyce, MD; Nancy L. Havill, MT; Brent A. Moore, PhD
- 743 Are Room Decontamination Units Needed to Prevent Transmission of Environmental Pathogens? William A. Rutala, PhD, MPH; David J. Weber, MD, MPH
- 748 Trends in Catheter-Associated Urinary Tract Infections in Adult Intensive Care Units—United States, 1990–2007 Deron C. Burton, MD, JD, MPH; Jonathan R. Edwards, MStat; Arjun Srinivasan, MD; Scott K. Fridkin, MD; Carolyn V. Gould, MD, MSCR
- 757 An Electronic Catheter-Associated Urinary Tract Infection Surveillance Tool •
  Julie A. Choudhuri, RN, MSPH; Ronald F. Pergamit, MPA; Jeannie D. Chan, PharmD, MPH; Astrid B. Schreuder, PhD;
  Elizabeth McNamara, RN, MN; John B. Lynch, MD; Timothy H. Dellit, MD
- 763 The Prevalence of Health Care-Associated Infection in Older People in Acute Care Hospitals Shona Cairns, MSc; Jacqui Reilly, PhD; Sally Stewart, MSc; Debbie Tolson, PhD; Jon Godwin, PhD; Paul Knight, MD
- Public Reporting of Health Care-Associated Infections (HAIs): Approach to Choosing HAI Measures C. L. Passaretti, MD; P. Barclay, MA; P. Pronovost, MD, PhD, FCCM; and T. M. Perl, MD, MSc; for the Maryland Health Care Commission Health Care-Associated Infection Technical Advisory Committee
- Use of Medicare Claims to Rank Hospitals by Surgical Site Infection Risk following Coronary Artery Bypass Graft Surgery Susan S. Huang, MD, MPH; Hilary Placzek, MPH; James Livingston, MBA; Allen Ma, PhD; Fallon Onufrak, BS; Julie Lankiewicz, MPH; Ken Kleinman, ScD; Dale Bratzler, DO; Margaret A. Olsen, PhD, MPH; Rosie Lyles, MD, MHA; Yosef Khan, MD, MPH; Paula Wright, RN, BSN; Deborah S. Yokoe, MD, MPH; Victoria J. Fraser, MD; Robert A. Weinstein, MD; Kurt Stevenson, MD, MPH; David Hooper, MD; Johanna Vostok, MPH; Rupak Datta, MPH; Wato Nsa, MD, PhD; Richard Platt, MD, MS
- 784 Electronic Measures of Surgical Site Infection: Implications for Estimating Risks and Costs Christopher S. Hollenbeak, PhD; Melissa M. Boltz, DO; Lucas E. Nikkel, BA; Eric Schaefer, MS; Gail Ortenzi, RN, BSN; Peter W. Dillon, MD, MS
- 791 Preoperative Nasal Methicillin-Resistant *Staphylococcus aureus* Status, Surgical Prophylaxis, and Risk-Adjusted Postoperative Outcomes in Veterans Kalpana Gupta, MD, MPH; Judith Strymish, MD; Youmna Abi-Haidar, MD; Sandra A. Williams, SM; Kamal M. F. Itani, MD
- 797 Clinical Effectiveness and Cost Benefit of Universal versus Targeted Methicillin-Resistant

  \*Staphylococcus aureus\*\* Screening upon Admission in Hospitals\*\* Kathryn K. Leonhardt, MD, MPH;

  Olga Yakusheva, PhD; David Phelan, MD; Anne Reeths, RN; Teresa Hosterman, RN; Deborah Bonin, BS;

  Mike Costello, PhD
- An Outbreak of *Burkholderia cepacia* Complex Associated with Intrinsically Contaminated Nasal Spray Susan A. Dolan, RN, MS, CIC; Elaine Dowell, MT, SM(ASCP); John J. LiPuma, MD; Sondra Valdez, RN, BSN; Kenny Chan, MD; John F. James, PhD, MPH, D(ABMM)

CONTENTS CONTINUED INSIDE



THE OFFICIAL JOURNAL OF THE SOCIETY FOR HEALTHCARE EPIDEMIOLOGY OF AMERICA

### **NOW AVAILABLE**





### INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

VOLUME 32, NUMBER 8 AUGUST 2011

CONTENTS CONTINUED FROM COVER

### CONCISE COMMUNICATIONS

- Efficacy of Surveillance for 2009 H1N1 Pandemic within a Healthcare System Sandro Cinti, MD; Karyn Haas; Paul Paliani; Duane Newton, PhD; Carrie Wright; Christy Zalewski, MPH; Jennifer G. Holmes, RN, BSN, MHSA, CEN; Shon Dwyer, BSN, RN, MBA; Candace Friedman, MPH, CIC; Carol Chenoweth, MD
- Prospective Evaluation of 2009 H1N1 Influenza A in Patients Admitted with Fever to an Oncology Unit Karen Seiter, MD; Dhaval Shah, MD; Claudio Sandoval, MD; Delong Liu, MD, PhD; Robert B. Nadelman, MD; Banafsheh Sinaki, MPH; Cristina Cuffari, RN; Qiuhu Shi, PhD; Syed Abid, PhD; Marisa Montecalvo, MD
- Hepatitis B Vaccination Coverage and Documented Seroprotection among Matriculating Healthcare Students at an Academic Institution in the United States Rania A. Tohme, MD, MPH;
  Bruce Ribner, MD, MPH; Michael J. Huey, MD; Philip R. Spradling, MD

### RESEARCH BRIEF

Incidence of Catheter-Associated and Non-Catheter-Associated Urinary Tract Infections in a Healthcare
 System • David J. Weber, MD, MPH; Emily E. Sickbert-Bennett, PhD; Carolyn V. Gould, MD;
 Vickie M. Brown, RN, MS; Kirk Huslage, RN, MS; William A. Rutala, PhD, MPH

### LETTERS TO THE EDITOR

- Infection Control Campaign at Evacuation Centers in Miyagi Prefecture after the Great East Japan Earthquake Hajime Kanamori, MD, PhD; Hiroyuki Kunishima, MD, PhD; Koichi Tokuda, MD, PhD, MPH; Mitsuo Kaku, MD, PhD
- Infection Control Implications of Nosocomial Pertussis Exposure in a Hospitalized Adult during Influenza Season Burke A. Cunha, MD; Nardeen Mickail, MD; Valsamma Thekkel, RN, CIC; Carol Cohan, RN
- Transmission of Extended-Spectrum  $\beta$ -Lactamase *Klebsiella oxytoca* via the Breathing Circuit of a Transport Ventilator: Root Cause Analysis and Infection Control Recommendations S. Schulz-Stübner, MD; E. Kniehl, MD

An Official Publication of the Society for Healthcare Epidemiology of America

### **EDITOR**

Suzanne F. Bradley, MD • Ann Arbor, MI

### **DEPUTY EDITOR**

Carol A. Kauffman, MD • Ann Arbor, MI

### SENIOR ASSOCIATE EDITORS

C. Glen Mayhall, MD • Galveston, TX Gina Pugliese, RN, MS • Chicago, IL William Schaffner, MD • Nashville, TN

### ASSOCIATE EDITORS

Ebbing Lautenbach, MD, MPH • Philadelphia, PA Preeti N. Malani, MD, MSJ • Ann Arbor, MI David Weber, MD, MPH • Chapel Hill, NC

### STATISTICS CONSULTANT

Rodney L. Dunn, MS • Ann Arbor, MI

### SECTION EDITOR FOR GUIDELINES, POSITION PAPERS, AND INVITED REVIEWS

Carol Chenoweth, MD • Ann Arbor, MI

### MANAGING EDITOR

Rob Blixt • Chicago, IL

### PAST EDITORS

### Infection Control

Richard P. Wenzel, MD, 1980–1990 (vols. 1-11)

Infection Control and Hospital Epidemiology
Richard P. Wenzel, MD, 1991–1992 (vols. 12 and 13)

Michael D. Decker, MD, 1993–2001 (vols. 14-22)

Barry M. Farr, MD, 2002–2004 (vols. 23-25)

William R. Jarvis, MD, 2005–2006 (vols. 26 and 27)

### EDITORIAL ADVISORY BOARD

Miriam Alter, PhD, MD • Atlanta, GA Anucha Apisarnthanarak, MD • Pratumthani, Thailand

Lennox Archibald, MD, FRCP • Alachua, FL Hilary Babcock, MD • St. Louis, MO Elise M. Beltrami, MD, MPH • Decatur, GA David Birnbaum, PhD, MPH • Sidney, BC Christian Brun-Buisson, MD • Creteil, France John P. Burke, MD • Salt Lake City, UT David P. Calfee, MD, MS • New York, NY Yehuda Carmeli, MD, MPH • Tel Aviv, Israel Sara E. Cosgrove, MD, MS • Baltimore, MD Donald E. Craven, MD • Burlington, MA Burke A. Cunha, MD • Mineola, NY Erika D'Agata, MD, MPH • Boston, MA Patch Dellinger, MD • Seattle, WA Daniel Diekema, MD . Iowa City, IA Charles E. Edmiston, Jr., PhD • Milwaukee, WI Theodore C. Eickhoff, MD • Denver, CO Martin S. Favero, PhD • Irvine, CA Jon P. Furuno, PhD • Baltimore, MD Petra Gastmeier, MD • Hanover, Germany Dale N. Gerding, MD • Hines, IL Donald A. Goldmann, MD • Boston, MA Donna Haiduven, RN, PhD, CIC • Tampa, FL Anthony D. Harris, MD, MPH • Baltimore, MD David K. Henderson, MD • Bethesda, MD Loreen A. Herwaldt, MD • Iowa City, IA Peter N. R. Heseltine, MD • San Juan, CA Karen Hoffmann, RN, CIC, MS • Chapel Hill, NC Janine Jagger, MPH, PhD • Charlottesville, VA John A. Jernigan, MD, MS • Atlanta, GA James T. Lee, MD, PhD • St. Paul, MN L. Clifford McDonald, MD • Atlanta, GA

Allison McGeer, MD • Toronto, ON Leonard A. Mermel, DO, ScM • Providence, RI Robert R. Muder, MD • Pittsburgh, PA Carlene A. Muto, MD, MS • Pittsburgh, PA Joseph M. Mylotte, MD, CIC • Buffalo, NY David L. Paterson, MBBS, FRACP • Pittsburgh, PA Jan Evans Patterson, MD • San Antonio, TX Sindy M. Paul, MD • Yardley, PA David A. Pegues, MD • Los Angeles, CA Eli Perencevich, MD, MS • Baltimore, MD Michael A. Pfaller, MD • Iowa City, IA Didier Pittet, MD, MS • Geneva, Switzerland Gina Pugliese, RN, MS • Chicago, IL Isaam Raad, MD • Houston, TX Jordi Rello, MD, PhD • Tarragona, Spain Manfred L. Rotter, MD, DipBact • Vienna, Austria Henning Rüden, MD • Berlin, Germany William A. Rutala, PhD, MPH • Chapel Hill, NC Lisa Saiman, MD, MPH • New York, NY Sanjay Saint, MD, MPH • Ann Arbor, MI William E. Scheckler, MD • Madison, WI Lynne M. Sehulster, PhD • Atlanta, GA John A. Sellick, DO • Amherst, NY Kent Sepkowitz, MD • New York, NY Samir Shah, MD, MSCE • Philadelphia, PA Andrew E. Simor, MD • Toronto, ON Philip W. Smith, MD • Omaha, NE Denis W. Spelman, MD • Prahan, Victoria, Australia Jeffrey R. Starke, MD • Houston, TX Janet E. Stout, PhD • Pittsburgh, PA Clyde Thornsberry, PhD • Franklin, TN William Trick, MD • Chicago, IL Antoni Trilla, MD, PhD • Barcelona, Spain Robert A. Weinstein, MD • Chicago, IL Andreas Widmer, MD, MS • Basel, Switzerland Marcus Zervos, MD • Royal Oak, MI

Infection Control and Hospital Epidemiology (ISSN 0899-823X) is published monthly by the University of Chicago Press, 1427 E. 60th St., Chicago, IL 60637-2954 (http://www.journals.uchicago.edu/ICHE/). The editorial office is in Chicago, Illinois.

### **Editorial Office**

Communications should be addressed to the Editor, Infection Control and Hospital Epidemiology, 1427 E. 60th St., Chicago, IL 60637-2954; (e-mail: iche@press.uchicago.edu; telephone: 773-702-2538, fax: 773-753-4247). Contributors should consult the Information for Authors, which is available at the journal's Web site.

### Advertising

Please direct advertising inquiries to Paul Tucker, Breuning Nagle Associates, 59 Grove Street, New Canaan, CT 06840 (e-mail: paul@bna1.com; telephone: 847-669-1096, fax: 203-801-0011). Publication of an advertisement in *Infection Control and Hospital Epidemiology* does not imply endorsement of its claims by the Society for Healthcare Epidemiology of America, by the Editor, or by the University of Chicago. Correspondence regarding advertising should be addressed to the advertising office in Chicago.

### Permissions

Articles may be copied or otherwise reused without permission only to the extent permitted by Sections 107 and 108 of the US Copyright Law. Permission to copy articles for personal, internal, classroom, or library use may be obtained from the Copyright Clearance Center (http://www.copyright.com). For all other uses, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, please contact the Permissions Coordinator, Journals Division, University of Chicago Press, 1427 E. 60th St., Chicago, IL 60637 (e-mail: journalpermissions@press.uchicago.edu; fax:

773-834-3489). Articles in the public domain may be used without permission, but it is customary to contact the author.

### Subscriptions

Individual subscription rates for 2011 are \$185. Institutional print + electronic and e-only subscriptions are available through JSTOR's Current Scholarship Program and include unlimited online access; rates are tiered according to an institution's type and research output: \$413 to \$1,034 (print + electronic), \$332 to \$884 (e-only). Institutional print-only is \$413. Additional taxes and/or postage for non-U.S. subscriptions may apply. Lower rates for fellows, residents, and students are available at http://www.journals.uchicago.edu/ceni/). Individuals have the option to order directly from the University of Chicago Press. Subscription agent for Japan: Kinokuniya Company, Ltd. Free or deeply discounted access is available in most developing nations through the Chicago Emerging Nations initiative (http://www.journals.uchicago.edu/ceni/).

Please direct subscription inquries, requests for back issues, and address changes to Journals Division, University of Chicago Press, P.O. Box 37005, Chicago, IL 60637 (e-mail: subscriptions@press.uchicago.edu; telephone: 773-753-3347 or toll-free in the United States and Canada 877-705-1878; fax: 773-753-0811 or toll-free 877-705-1879).

Postmaster: Send address changes to Infection Control and Hospital Epidemiology, University of Chicago Press, P.O. Box 37005, Chicago, IL 60637-2954.

Periodicals postage paid at Chicago, Illinois, and at an additional mailing office.

Published by the University of Chicago Press, Chicago, Illinois. © 2011 by the Society for Healthcare Epidemiology of America. All rights reserved. This publication is printed on acid-free paper.

## INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

### Call for Manuscripts: Antimicrobial Stewardship

Infection Control and Hospital Epidemiology is pleased to announce that it will publish a peer-reviewed special issue devoted to antimicrobial stewardship and its effect on the prevention and control of infection. This special issue will be published in conjunction with the spring meeting of the Society for Healthcare Epidemiology of America (<a href="www.shea-online.org">www.shea-online.org</a>) to be held in Jacksonville, Florida, April 13-16, 2012, which will include a major leadership forum on antimicrobial stewardship.

The journal seeks submission of robust scientific investigations of various approaches and the impact of antimicrobial stewardship programs in health care. Of particular interest are papers addressing the following:

- Antimicrobial stewardship for special populations, including pediatrics, oncology, hemodialysis, and critical care
- Health outcome and cost effectiveness impact of antimicrobial stewardship
- Use of diagnostic tools and role of microbiology in antimicrobial stewardship
- Effective implementation of programs in community
   hospitals, long-term care acute care facilities, outpatient
   settings and non-acute healthcare settings (e.g., dialysis
   ambulatory care and ambulatory surgery centers)

Authors are invited to submit their work electronically via Editorial Manager (<a href="www.editorialmanager.com/iche/">www.editorialmanager.com/iche/</a>) no later than **October 1, 2011**. Research papers in the form of original articles (up to 3,000 words), concise communications (up to 1,200 words), and research briefs (up to 900 words) will be considered for review.

# INFECTION CONTROLS HOSPITAL EPIDE MILOLOGY \*\*\*PITTELL\*\*\* \*\*\*PITTELL\*\*\* \*\*\*PITTELL\*\*\* \*\*\*PITTELL\*\* \*\*\*PITTELL\*

For manuscript preparation details, please see the journal's Information for Authors webpage (<a href="http://www.jstor.org/page/journal/infeconthospepid/forAuthor.html">http://www.jstor.org/page/journal/infeconthospepid/forAuthor.html</a>) or contact the editorial office (iche@press.uchicago.edu).

Suzanne Bradley, MD, Editor Infection Control and Hospital Epidemiology





### Clinical Governance

An International Journal

Clinical Governance: An International Journal aims to address the doubts, queries, triumphs and practical applications of introducing quality assurance mechanisms into the delivery of care.

The journal takes an international stance and covers key developments worldwide which can inform best practice in health care. Efficiency, effectiveness and economics are the main factors in the assessment of best practice and all are addressed in the research- audit- and evidence-based papers published. All papers are peer reviewed to ensure their validity and value to current debates.

### The journal publishes:

- Research articles which illustrate clear implications for practice
- Results-focused case studies which discuss problems and successes in clinical governance techniques
- Special issues on topical themes

For more information please visit the homepage: www.emeraldinsight.com/cgij.htm

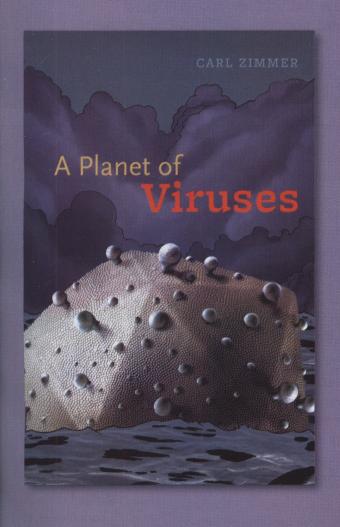
To submit a paper visit: http://mc.manuscriptcentral.com/cgij



Research you can use

"An accessible and gripping narrative on a serious topic that manages to explain, in plain English, how viruses are changing the world."—NATHAN WOLFE, founder and CEO of Global Viral Forecasting

# A Planet of Viruses CARL ZIMMER



"A Planet of Viruses is an important primer on the viruses living within and around all of us—sometimes funny, other times shocking, and always accessible. Whether discussing the common cold and flu, little-known viruses that attack bacteria or protect oceans, or the world's viral future as seen through our encounters with HIV or SARS, Zimmer's writing is lively, knowledgeable, and graced with poetic touches."

—Reвесса Skloot, author of The Immortal Life of Henrietta Lacks

Cloth \$20.00

# Find the latest in infection control research and practice information in **AJIC**



Official Publication of the Association for Professionals in Infection Control and Epidemiology, Inc.

### **American Journal of Infection Control**

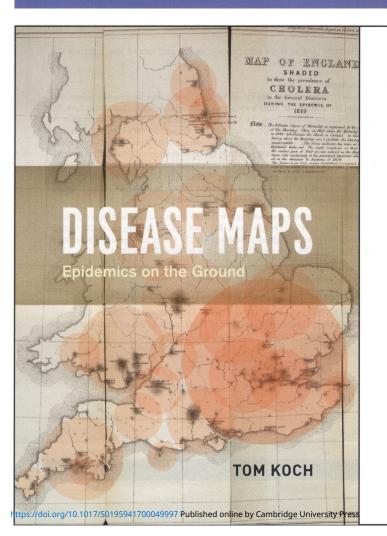
EDITOR: Elaine L. Larson, RN, PhD, FAAN, CIC

**AJIC** covers key topics and issues in infection control and epidemiology. Infection control professionals, including physicians, nurses, and epidemiologists, rely on **AJIC** for peer-reviewed articles covering clinical topics as well as original research. As the official publication of the *Association for Professionals in Infection Control and Epidemiology, Inc. (APIC)*, **AJIC** is the foremost resource on infection control, epidemiology, infectious diseases, quality management, occupational health, and disease prevention. **AJIC** also publishes relevant infection control guidelines. **AJIC** is included in Index Medicus and CINAHL.

Register at ajicjournal.org to receive free access to Tables of Contents and all article abstracts; free access to select full text articles; free e-alerts and search personalization, and more!



### Submit your manuscript at: http://ees.elsevier.com/ajic/



### FORTHCOMING IN MAY

"Disease Maps is an extraordinary visual and narrative treat. I have come to look forward to Tom Koch's books for the wonderful and unique way that he can synthesize data and present it visually and in the process tell us magnificent stories."

Dr. Abraham Verghese, Stanford University School of Medicine

"This is a masterful book in conception and structure. It is also extremely well written. What we find on reading is an exquisite telling of the history of the medical science of disease. The collection of medical maps, diagrams, and other illustrations is impressive in scope—there are many disease maps shown that have not been publicly available before or collected in one place."

Michael Friendly, York University

**CLOTH \$45.00** 

The University of Chicago Press www.press.uchicago.edu