

Volume 41, No 6

ICHEE

JUNE 2020



SIR JOHN PRINGLE

Medicine

Books and Journals from
Cambridge University Press

The Cambridge Medicine programme focuses its book publishing in a defined set of core clinical areas with our great strength in the clinical brain sciences. Other specialties of significant focus include reproductive medicine/obstetrics and gynaecology, anaesthesia and critical care, emergency medicine and pathology.

Our journals programme covers a broad spectrum of medical disciplines including emergency and disaster medicine, epidemiology and infectious diseases, biomedical science, genetics, nutrition, mental health and psychiatry, and neuroscience.

We partner with many learned societies including The Society for Healthcare Epidemiology of America, the Neuroscience Education Institute, and the Royal College of Obstetricians and Gynaecologists.

For further details visit:

[cambridge.org/core-medicine](https://www.cambridge.org/core-medicine)

Cambridge
Core



CAMBRIDGE
UNIVERSITY PRESS

CONTENTS

Original Articles

- 635** Effect of antibiotic time-outs on modification of antibiotic prescriptions in nursing homes
Chi-Yin Liao, David A. Nace, Christopher J. Crnich, Mozhdeh Bahrainian and James H. Ford II
- 641** Burden of antibiotic allergy labels in Australian aged care residents: Findings from a national point-prevalence survey
Laura Travis, Leon J. Worth, Jason Trubiano, Karin Thursky and Noleen Bennett
- 645** Perioperative antimicrobial decision making: Focused ethnography study in orthopedic and cardiothoracic surgeries in an Australian hospital
Trisha N. Peel, Eliza Watson, Kelly Cairns, Ho Yin (Ashley) Lam, Heidi Zhangrong Li, Ganan Ravindran, Jayan Seneviratne, David Daly, Susan Liew, David McGiffin, Paul Myles and Darshini Ayton
- 653** Antiseptic efficacy of an innovative perioperative surgical skin preparation: A confirmatory FDA phase 3 analysis
Charles E. Edmiston Jr, Philip Lavin, Maureen Spencer, Gwen Borlaug, Gary R. Seabrook and David Leaper
- 660** Lack of utility of tracheal aspirates in the management of suspected pneumonia in intubated neonates
Seth J. Langston, Neema Pithia, Myung Shin Sim, Meena Garg, Annabelle de St Maurice and Alison Chu
- 666** Understanding antibiotic prophylaxis prescribing in pediatric surgical specialties
Sara M. Malone, Natalie S. Seigel, Jason G. Newland, Jacqueline M. Saito and Virginia R. McKay
- 672** Evaluation of clinicians' knowledge, attitudes, and planned behaviors related to an intervention to improve acute respiratory infection management
Hayli R. Hruza, Tania Velasquez, Karl J. Madaras-Kelly, Katherine E. Fleming-Dutra, Matthew H. Samore and Jorie M. Butler
- 680** Intensive care unit rounding checklists to reduce catheter-associated urinary tract infections
Nicholas J. Nassikas, Joao Filipe G. Monteiro, Barbara Pashnik, Judith Lynch, Gerardo Carino and Andrew T. Levinson
- 684** The impact of changing reflexive to clinician-ordered *Clostridioides difficile* polymerase chain reaction (PCR) testing for indeterminate cases: Cost savings without associated adverse events
Eva L. Sullivan, Rohit Majumdar, Courtney Ortiz, Patricia K. Riggs and Nancy F. Crum-Cianflone
- 691** A systematic review of the effectiveness of cohorting to reduce transmission of healthcare-associated *C. difficile* and multidrug-resistant organisms
Cybele L. Abad, Anna K. Barker and Nasia Safdar

- 710** Intervention to reduce carbapenem-resistant *Acinetobacter baumannii* in a neonatal intensive care unit
Anucha Thatrimontrichai, Pia S. Pannaraj, Waricha Janjindamai, Supaporn Dissaneevate, Gunlawadee Maneenil and Anucha Apisarnthanarak
- 716** Statewide surveillance of carbapenemase-producing carbapenem-resistant *Escherichia coli* and *Klebsiella* species in Washington state, October 2012–December 2017
Mimi R. Precit, Kelly Kauber, William A. Glover, Scott J. Weissman, Tashina Robinson, Michael Tran and Marisa D'Angeli
- 723** Characterizing healthcare delivery in the United States using Census Bureau's County Business Patterns (2000-2016)
Astha KC, Melissa K. Schaefer, Nimalie D. Stone and Joseph Perz

Commentary

- 729** Unprecedented solutions for extraordinary times: Helping long-term care settings deal with the COVID-19 pandemic
Swati Gaur, Ghinwa Dumyati, David A. Nace and Robin L. P. Jump

Concise Communications

- 731** Selective reporting of fluoroquinolone susceptibility as a stewardship measure is of marginal benefit
Geraldine Foo Ting Ting, Ka Lip Chew, Xier Emily Yeo, Roland Jureen, Dale Fisher and Natasha Bagdasarian
- 734** Trends in methicillin-resistant *Staphylococcus aureus* bloodstream infections using statewide population-based surveillance and hospital discharge data, Connecticut, 2010-2018
Ashley N Rose, Paula Clogher, Kelly M Hatfield, Runa H Gokhale, Isaac See and Susan Petit

Letter to the Editor

- 737** Re: Evaluation of dilute hydrogen peroxide technology for continuous room decontamination of multidrug-resistant organisms
Eric Schlote
- 738** Reply to Eric Schlote regarding "Evaluation of dilute hydrogen peroxide technology for continuous room decontamination of multidrug-resistant organisms"
William A. Rutala, Hajime Kanamori, Maria F. Gergen, Emily E. Sickbert-Bennett, Deverick J. Anderson, Daniel J. Sexton, David J. Weber and for the CDC Prevention Epicenters Program
- 739** Potential problems of inadequate air removal and presence of non-condensable gasses in a steam sterilization process: A brief discussion
Tapan Kumar Das, Samir Kumar Laha and Debabrata Basu
- 740** Enhanced survival of ST-11 carbapenem-resistant *Klebsiella pneumoniae* in the intensive care unit
Ying Liu, Xiaoxia Zhang, Lin Cai and Zhiyong Zong

- 742** Transmission of human immunodeficiency virus (HIV) to a family caregiver through a conjunctival blood splash
Raynell Lang, Taj P. Jadavji, Guido van Marle, Jennifer J. Bishop, Kevin Fonseca and M. John Gill
- 744** Involving antimicrobial stewardship programs in COVID-19 response efforts: All hands on deck
Michael P. Stevens, Payal K. Patel and Priya Nori
- 745** Protecting Chinese healthcare workers while combating the 2019 novel coronavirus
Pengcheng Zhou, Zebing Huang, Yinzong Xiao, Xun Huang and Xue-Gong Fan
- 746** The role of masks and respirator protection against SARS-CoV-2
Qiang Wang and Chaoran Yu
- 748** Impact of COVID-19 infection on pregnancy outcomes and the risk of maternal-to-neonatal intrapartum transmission of COVID-19 during natural birth
Suliman Khan, Liangyu Peng, Rabeea Siddique, Ghulam Nabi, Nawsherwan, Mengzhou Xue, Jianbo Liu and Guang Han
- 750** COVID-19 and gender-specific difference: Analysis of public surveillance data in Hong Kong and Shenzhen, China, from January 10 to February 15, 2020
Shi Zhao, Peihua Cao, Marc K.C. Chong, Daozhou Gao, Yijun Lou, Jinjun Ran, Kai Wang, Weiming Wang, Lin Yang, Daihai He and Maggie H. Wang
- 752** A potential protective role of losartan against coronavirus-induced lung damage
Mehrdad Zeinalian, Azhar Salari-Jazi, Amin Jannesari and Hossein Khanahmad
- 753** SARS-CoV-2 enterocolitis with persisting to excrete the virus for approximately two weeks after recovering from diarrhea: A case report
Tomohiro Hosoda, Mitsuo Sakamoto, Hideaki Shimizu and Nobuhiko Okabe
- 754** Coronavirus disease 2019 (COVID-19) outbreak in Iran: Actions and problems
Milad Abdi

MICROBIAL SURVEILLANCE TESTING MADE EASY

Healthmark offers the One-Two Punch to Identify and Document the Efficacy of Your Endoscope Reprocessing

SCREEN WITH THE **NOW! TEST**

Rapid Indicator of Gram-Negative bacteria

Immediate, practical screening test. Simply flush the lumen of a flexible endoscope, such as a duodenoscope, and follow the procedure for gram-negative bacteria detection in less than 12 hours.

< 10 CFU



 **healthmark**

AUDIT WITH THE **FLEXIBLE ENDOSCOPE SAMPLING KIT**

Surveillance tool for the random testing of duodenoscopes in compliance with CDC guidelines - In association with Nelson Laboratories



A simple and complete kit. After flushing and brushing the lumen and elevator mechanism of a duodenoscope, simply follow the procedure to have the sample solution & brush heads quickly sent to Nelson Laboratories - the leader in independent testing of flexible endoscopes. All tools are included for testing and shipment.


**NELSON
LABORATORIES**

HEALTHMARK INDUSTRIES | WWW.HMARK.COM | 800.521.6224 | 33671 DOREKA DRIVE FRASER, MI 48026

An Official Publication of the Society for Healthcare Epidemiology of America

EDITOR

Suzanne F. Bradley, MD • Ann Arbor, MI

DEPUTY EDITOR

Carol Chenoweth, MD • Ann Arbor, MI

ASSOCIATE EDITORS

David P. Calfee, MD, MS • New York, NY
Lindsay E. Nicolle, MD • Winnipeg, Manitoba
Trevor C. Van Schooneveld, MD • Omaha, NE
David Weber, MD, MPH • Chapel Hill, NC

STATISTICS CONSULTANTS

Jon P. Furuno, PhD • Portland, OR
Jessina C. McGregor, PhD • Portland, OR

MANAGING EDITOR

Lindsay MacMurray • New York, NY

PAST EDITORS

Infection Control • Portland, OR
Richard P. Wenzel, MD, 1980-1987 (vols. 1-8)
Infection Control & Hospital Epidemiology
Richard P. Wenzel, MD, 1988-1992 (vols. 9-13)
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

Deverick Anderson, MD, MPH • Durham, NC
Anucha Apisarnthanarak, MD • Pratumthani, Thailand
Lennox Archibald, MD, FRCP • Alachua, FL
Shailen Banerjee, PhD • Atlanta, GA

Elise M. Beltrami, MD, MPH • Atlanta, GA
Jo Anne Bennett, RN, PhD • New York, NY
David Birnbaum, PhD, MPH • Sidney, BC
Marc Bonten, MD • Utrecht, Netherlands
Christian Brun-Buisson, MD • Creteil, France
John P. Burke, MD • Salt Lake City, UT
Yehuda Carmeli, MD, MPH • Tel Aviv, Israel
Donald E. Craven, MD • Burlington, MA
Christopher Crnich, MD, MS • Madison, WI
Erika D'Agata, MD, MPH • Boston, MA
Daniel Diekema, MD • Iowa City, IA
Erik Dubberke, MD, MSPH • St. Louis, MO
Charles E. Edmiston, Jr., PhD • Milwaukee, WI
Mohamad Fakhri, MD, MPH • Grosse Pointe Woods, MI
Petra Gastmeier, MD • Berlin, Germany
Jeffrey Gerber, MD, PhD • Philadelphia, PA
Dale N. Gerding, MD • Hines, IL
Donald A. Goldmann, MD • Boston, MA
Nicholas Graves, PhD • Brisbane, Australia
Donna Haiduven, RN, PhD, CIC • Tampa, FL
Anthony D. Harris, MD, MPH • Baltimore, MD
Elizabeth Henderson, PhD • Calgary, AB
David K. Henderson, MD • Bethesda, MD
Loreen A. Herwaldt, MD • Iowa City, IA
Peter N. R. Hestline, MD • Brea, CA
John A. Jernigan, MD, MS • Atlanta, GA
Mini Kamboj, MD • New York, NY
Carol A. Kauffman, MD • Ann Arbor, MI
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
Linda Mundy, MD • Collegeville, PA
Joseph M. Mylotte, MD, CIC • Buffalo, NY
Jan Evans Patterson, MD • San Antonio, TX
David A. Pegues, MD • Philadelphia, PA
Didier Pittet, MD, MS • Geneva, Switzerland
Isaam Raad, MD • Houston, TX
Manfred L. Rotter, MD, DipBact • Vienna, Austria
William A. Rutala, PhD, MPH • Chapel Hill, NC
Lisa Saiman, MD, MPH • New York, NY
Sanjay Saint, MD, MPH • Ann Arbor, MI
Sorana Segal-Maurer, MD • Flushing, NY
Lynne M. Schulster, PhD • Atlanta, GA
John A. Sellick, DO • Amherst, NY
Andrew E. Simor, MD • Toronto, ON
Philip W. Smith, MD • Omaha, NE
Kurt Stevenson, MD, MPH • Columbus, OH
Nimalie Stone, MD • Atlanta, GA
Thomas Talbot, MD, MPH • Nashville, TN
Paul Tambyah, MBBS • Singapore
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 • Detroit, MI

Infection Control & Hospital Epidemiology (ISSN 0899-823X) is published monthly by Cambridge University Press, One Liberty Plaza, New York, NY 10006, USA.

Editorial Office

Communications should be addressed to the Editor, *Infection Control & Hospital Epidemiology*, One Liberty Plaza, New York, NY 10006 (email: iche.managingeditor@cambridge.org). Contributors should consult the Instructions for Contributors, which is available at the journal's Web site.

Advertising

Please direct advertising inquiries to M. J. Mrvica Associates, 2 West Taunton Avenue, Berlin, NJ 08009 (e-mail: mjmrvica@mrvica.com; telephone: 856-768-9360, fax: 856-753-0064). Publication of an advertisement in *Infection Control & Hospital Epidemiology* does not imply endorsement of its claims by the Society for Healthcare Epidemiology of America, by the Editor, or by Cambridge University Press.

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>, email: info@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 Cambridge University Press. Full details may be found at: www.cambridge.org/about-us/rights-permissions.

Subscriptions

The individual subscription rate for 2020 is \$287. Individuals have the option to order directly from Cambridge University Press. Institutional print + electronic and e-only subscriptions are available from Cambridge University Press and include unlimited online access; rates are tiered according to an institution's type and research output and may be reviewed at the journal's homepage on Cambridge Core: cambridge.org/ICHE.

Please direct subscription inquiries and requests for back issues to Customer Services at Cambridge University Press, e-mail: subscriptions_newyork@cambridge.org (USA, Canada, and Mexico) or journals@cambridge.org (outside of USA, Canada, and Mexico).

Postmaster: Send address changes to *Infection Control & Hospital Epidemiology*, Cambridge University Press, One Liberty Plaza, New York, NY 10006 USA.

About the cover:



Since 2015, the cover format of each volume of *Infection Control and Hospital Epidemiology* has been changed to honor one of the many professionals throughout history who recognized not only how disease might be spread but also how those principles could be applied to reduce healthcare-associated infections.

Sir John Pringle (1707–1782) was born into a prominent Scottish family. He initially studied the classics and philosophy followed by 1 year of medical study at the University of Edinburgh. He planned to leave medicine for a mercantile career. While in the Netherlands, Pringle met Boerhaave, and his interest in medicine was re-energized. He received his medical degree in 1730 from the University of Leyden. In 1734, he assumed a chair in the Faculty of Arts in “Pneumatical and Ethical Philosophy” and practiced medicine at the University of Edinburgh.

At the age of 35, Pringle was appointed surgeon to the British Forces, which had formed an alliance with the Habsburg Dynasty against France. In 1745, as Physician General of the Army, Pringle played a role in assuring the humane treatment of prisoners of war and neutrality for military hospitals hundreds of years before the Geneva Convention and the formation of the Red Cross.

In 1748, Pringle returned to London and published his experiences in military hospitals. He recognized that hospital fever and jail fever were spread from person to person and that both syndromes were due to typhus. He mandated that prisoners be washed, that their clothing burnt, and that clean clothes be provided at public expense. He understood that hospitals were a major cause of patient sickness: crowding, filth, and lack of hygiene facilitated the spread of disease. Decades before Florence Nightingale, Pringle advocated for fresh air, cleanliness, and hygiene. He observed that fomites contaminated with body fluids, like bedding, spread sepsis. He adopted microscopy and understood that the mites he saw caused scabies. Many years before Lister and Semmelweis, Pringle used acids and distilled spirits to reduce the spread of sepsis, and the first use of the term “antiseptis” was attributed to him.

During his lifetime, Pringle was recognized for his work as President of the Royal College of Physicians (RCP), Member of the Academy of Sciences, and receipt of the prestigious Copley Gold Medal. He was made a Baronet in 1766 and physician to the King in 1774. By 1780, he retired from medicine and returned to Scotland, but the cold climate did not agree with him. Pringle returned to London, but not before he gifted 10 volumes of his *Medical and Physical Observations* to the RCP (Edinburgh) with the understanding that they would never be published or lent out. He died 4 months later.

The major advances in infection control that Pringle made to the field have too often been attributed to others, and few reminders of him survive to this day. His birthplace was demolished and his grave destroyed during World War II; 2 paintings remain. A memorial to Sir John Pringle can be found in Westminster Abbey albeit in Poets’ Corner; this location is ironic, as one friend noted that an inadequate appreciation of English poetry was one of Pringle’s few failings.

Cover image: Sir John Pringle, 1707-1782. Oil Painting. Credit: Wellcome Collection. CCBY.



-Studies show non-compliance with stethoscope cleaning despite CDC recommendations.

-Covering stethoscopes will decrease cross contamination and lowers bio-burden on stethoscopes compared to cleaning.

-ScopeShield provides Polyethylene isolation gowns with a protective cover for your stethoscopes.

Get rid of the isolation stethoscopes and partner with ScopeShield to:

- ✓ Decrease Infections
- ✓ Lower Costs
- ✓ Save Lives



ScopeShield, Inc.

3959 Van Dyke Rd, Suite 187 Lutz, FL 33558

 813-344-4468 E: info@scopeshield.com

Cambridge Core

Access
leading
journals in
your subject

Explore today at [cambridge.org/core](https://www.cambridge.org/core)

Cambridge Core



CAMBRIDGE
UNIVERSITY PRESS