



# **Enquêtes de cohorte et Infections Nosocomiales**

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# Place des enquêtes de cohorte dans la littérature dédiée aux Infections nosocomiales

- ⇒ 3 journaux majeurs
- ⇒ 2 derniers mois
- ⇒ Grande proportion des études de cohorte
  - Surveillance
  - Facteurs de risque

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**Infection control certification: A global priority**

ZA Fleming, BPJ Cook, and G Cunningham

**Should states rely on administrative data alone when publicly reporting health care-associated infections?**

S Onda

**Comparisons of health care-associated infections identification using two mechanisms for public reporting**

PA Stone, TC Hagan, MC Bab, C Flouprey-Kate, and E Larson

**The Certification Board of Infection Control and Epidemiology white paper: The value of certification for infection control professionals**

SA Gordon

**A point prevalence survey of health care-associated infections in pediatric populations in major Canadian acute care hospitals**

D Grant, K Palfrey, M Olan-Aragón, M Lewis, J Johnston, E Bryon, PE Semple, WR Roth, C Goldman, G Taylor, and the Canadian Nosocomial Infection Surveillance Program

**Hospital electronic medical record-based public health surveillance systems deployed during the 2002 Winter Olympic Games**

JF Gundacker, J Olson, SP Smith, M Bass, RR Houston, LJ Satriano, S Peterson, K Duncan, N Staggins, P Annot, and PH Sorenson

**Outbreaks in neonatal intensive care units—They are not the others**

F Geismar, A Lusa, S Stamm-Balderjahn, S Hansen, J Zuchowicz, D Sahn, H Bekke, M Okada, A Pflanzberg, and H Ruten

**Risk factors for late-onset health care-associated bloodstream infections in patients in neonatal intensive care units**

SE Perlman, S Samra, and E Larson

**A 10-year prospective surveillance of nosocomial infections in neonatal intensive care units**

RC Coates, SAM Carvalho, THG Petros, ER Petros, MC Nello, and PH Buzone

**Nosocomial infection in a neonatal intensive care unit: A prospective study in Taiwan**

SH Su, H-Y Hsieh, H-Y Chu, H-C Lin, and H-C Lin

**Implementation of a pilot surveillance program for smaller acute care hospitals**

NE Bennett, AS Sub, DR Durr, DM Spelman, JS Russ, and PS Richards

**Surgical site infection surveillance for neurosurgical procedures: A comparison of passive surveillance by surgeons to active surveillance by infection control professionals**

D Hooper, J Chen, PB Edmund, and GH Beaman

Volume 35 Number 4 April 2007 ISSN 0195-6707

407 700  
56

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**INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY**

VOLUME 35, NUMBER 4 APRIL 2007

**EDITORIAL**

373 **In the Footsteps of the Gods: Janus Revisited and the Pursuit of Timeliness** • Suzanne E. Bradley, MD

**OBITUARY**

375 **Elias Abrutyn, MD, MACP (1940-2007)** • Allan R. Tunkel, MD, PhD; Marie I. Gold, MD

**ORIGINAL ARTICLES**

377 **Predicting Clostridium difficile Toxin in Hospitalized Patients With Antibiotic-Associated Diarrhea** • Nir Peled, MD, PhD; Silvio Piddi, MD; Zohar Sussan, PhD; Arkadi Kaulov, MD; Yoram Rish, MD; Shafik Bishara, MD

381 **Predictive Factors for Pneumonia Onset After Cardiac Surgery in Rio de Janeiro, Brazil** • Mariana Santos, MD, MPH; José Valério Braga, MD, PhD; Rosete Vieira Gomes, MD, MSc; Guilherme L. Werneck, MD, DSc

389 **Pathogens in Early-Onset and Late-Onset Intensive Care Unit–Acquired Pneumonia** • K. M. C. Verhame, MD, PhD; W. De Groot, BSc; L. De Roo, PhD; H. De Boer, PhD; G. Nolle, MD; J. Verbeek, MD; J. Demeyer, MD; F. Jordans, MD

398 **Risk Adjustment for Surgical Site Infection After Median Stereotomy in Children** • Jessica Kagan, BA; Warren B. Bilan, PhD; Ebbing Lautenbach, MD, MPH, MScE; Louis M. Bell, MD; Susan E. Coffin, MD, MPH; Keith H. In. John, MEd, MACP; MS, CRJ; Eva Trautner, RN, CRJ; Troy Dominguez, MD; J. William Gajewski, MD; Janet S. Shah, MD

406 **Risk Factors for Neonatal Methicillin-Resistant Staphylococcus aureus Infection in a Well-Infant Nursery** • Chae M. Nguyen, MD; Elizabeth Baccarelli, MD; Laurence Maradei, MD; Vanessa Guzman, MPH; Lori Tenaldi, BA

412 **Resource Consumption in the Infectious Control Management of Pertussis Exposure Among Healthcare Workers in Pediatrics** • Inel Jindakki, MD; Patricia Hennessey, MD; Robin Hubler, MSc; Sarah S. Long, MD

418 **Nosocomial Bacteremia in Children: A 15-Year Experience at a General Hospital in Mexico** • Luis Fernando Pérez-González, MD; Juan María Ruiz-González, MD; Daniel E. Novillo, MD

423 **Control of an Outbreak of Pandrug-Resistant Acinetobacter baumannii Colonization and Infection in a Neonatal Intensive Care Unit** • Pei-Chun Chen, MD, MPH; Li-Min Huang, MD, PhD; Hui-Chi Liu, BSc; Liun-Yia Chang, MD, PhD; Mao-Ling Chen, MSc; Chao-Ti Lu, MD; Ping-Ping Lee, MD, PhD; Jung-Min Chen, MD; Chiu-Tun Lee, MD, PhD; Hui-Hsi Fan, BSc; Jann-Say Wang, MD; Shan-Chuan Chang, MD, PhD; Yui-Chun Chen, MD, PhD

430 **Outbreak of Varicella-Zoster Virus Infection Among Thai Healthcare Workers** • Anucha Apisarnthanarak, MD; Rangrong Kijphat, MD; Pravee Sawatphong, MD; Kanokporn Thongthubeth, RN; Phippona Apisarnthanarak, MD; Linda M. Staudy, MD

CONTENTS CONTINUED INSIDE

THE OFFICIAL JOURNAL OF THE SOCIETY FOR HEALTHCARE EPIDEMIOLOGY OF AMERICA  
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## AJIC major articles

### **Comparisons of health care–associated infections identification using two mechanisms for public reporting**

Patricia W. Stone, PhD, RN,<sup>a</sup> Teresa C. Horan, MPH,<sup>b</sup> Hsai-Che Shih, MS,<sup>c</sup> Cathy Mooney-Hane, MPH,<sup>d</sup> and Elaine Larson, PhD<sup>a</sup>

Rochester, New York, Atlanta, Georgia, New York, New York

### **Surgical site infection surveillance for neurosurgical procedures: A comparison of passive surveillance by surgeons to active surveillance by infection control professionals**

Diane Heipel, RN, BSN, CIC,<sup>a</sup> Janis J. Ober, RN, BSN, CIC,<sup>a</sup> Michael B. Edmond, MD, MPH, MPA,<sup>a,b</sup> and Gonzalo M. L. Bearman, MD, MPH<sup>a,b</sup>

Richmond, Virginia

### **Risk factors for late-onset health care–associated bloodstream infections in patients in neonatal intensive care units**

Sharon E. Perlman, MPH,<sup>a</sup> Lisa Salzman, MD, MPH,<sup>b,c</sup> and Elaine L. Larson, RN, PhD<sup>a,d</sup>

New York, New York

### **A 10-year prospective surveillance of nosocomial infections in neonatal intensive care units**

Renato C. Couto, MD, PhD,<sup>a</sup> Elaine A. A. Carvalho, MD, MSc,<sup>a</sup> Tânia M. G. Pedrosa, MD, MSc,<sup>a</sup> Ênio R. Pedroso, MD, PhD,<sup>a</sup> Mozar C. Neto, MD,<sup>b</sup> and Fernando M. Biscione, MD<sup>a</sup>

Minas Gerais, Brazil

### **Validation of surgical site infection surveillance in orthopedic procedures**

Kaisa Huotari, MD,<sup>a,b</sup> Niina Agthe, RN,<sup>a</sup> and Outi Lyytikäinen, MD, PhD<sup>a</sup>

Helsinki, Finland

### **Surveillance of multidrug-resistant gram-negative bacilli in a neonatal intensive care unit: prominent role of cross transmission**

Caterina Mammìna, MD,<sup>a</sup> Paola Di Carlo, MD,<sup>b</sup> Domenico Cipolla, MD,<sup>c</sup> Mario Giuffrè, MD,<sup>c</sup> Alessandra Casuccio, BSc,<sup>d</sup> Vincenzo Di Gaetano, MD,<sup>e</sup> Maria Rosa Anna Plano, MD,<sup>a</sup> Emma D'Angelo, MD,<sup>a</sup> Lucina Tizone, MD,<sup>b</sup> and Giovanni Corsello, MD<sup>f</sup>

Palermo, Italy

### **Screening for pulmonary tuberculosis using chest radiography in new employees in an industrial park in Taiwan**

Shih-Bin Su, MD, MS,<sup>a,b</sup> Chien-Fang Chiu, MD,<sup>a</sup> Cheng-Ta Chang, MD,<sup>c</sup> Kow-Tong Chen, MD, PhD,<sup>d</sup> Ching-Yih Lin, MD,<sup>e</sup> and How-Ran Guo, MD, MPH, ScD<sup>a,f</sup>

Tainan, Taiwan

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## Monitoring the occurrence of wound infections after cardiac surgery

C. Sherlaw-Johnson<sup>a,\*</sup>, A.P.R. Wilson<sup>b</sup>, B. Keogh<sup>b</sup>, S. Gallivan<sup>a</sup>

Journal of Hospital Infection (2007) 65, 314–318

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



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## Effect of neonatal intensive care unit environment on the incidence of hospital-acquired infection in neonates

D. Von Dollinger de Brito<sup>a</sup>, H. de Almeida Silva, E. Jose Oliveira, A. Arantes, V.O.S. Abdallah, M. Tannus Jorge, P.P. Gontijo Filho

Journal of Hospital Infection (2007) 65, 319–325

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



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## Reducing neonatal nosocomial bloodstream infections through participation in a national surveillance system

F. Schwab<sup>a,\*</sup>, C. Geffers<sup>a</sup>, S. Bärwolff<sup>a</sup>, H. Rüden<sup>a</sup>, P. Gastmeier<sup>b</sup>

Journal of Hospital Infection (2007) 65, 334–340

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



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## Healthcare-associated infection among residents of long-term care facilities: a cohort and nested case–control study

H.M. Eriksen<sup>a,\*</sup>, A.M. Koch<sup>b</sup>, P. Elstrøm<sup>a</sup>, R.M. Nielsen<sup>b</sup>, S. Harthug<sup>a,b</sup>, P. Aavitsland<sup>a</sup>

Journal of Hospital Infection (2007) 65, 361–367

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## Inadequate treatment of ventilator-associated pneumonia: risk factors and impact on outcomes

P.J.Z. Teixeira<sup>a,b,c,\*</sup>, R. Seligman<sup>b</sup>, F.T. Hertz<sup>a</sup>, D.B. Cruz<sup>a</sup>, J.M.G. Fachel<sup>b</sup>

Journal of Hospital Infection (2007) 66, 15–21

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



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## Prevalence and risk factors for meticillin-resistant *Staphylococcus aureus* in adult emergency admissions – a case for screening all patients?

G. Gopal Rao<sup>a</sup>, P. Michalczyk, N. Nayeem, G. Walker, L. Wigmore

Journal of Hospital Infection (2007) 66, 46–51

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## Surveillance of extended-spectrum $\beta$ -lactamase-producing bacteria and routine use of contact isolation: experience from a three-year period

A. Kola<sup>a</sup>, M. Holst, I.F. Chaberny, S. Ziesing, S. Suerbaum, P. Gastmeier

Journal of Hospital Infection (2007) 66, 71–78

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)



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## Nosocomial bacterial meningitis in adults: a prospective series of 50 cases

M. Weisfelt<sup>a,\*</sup>, D. van de Beek<sup>a</sup>, L. Spanjaard<sup>b</sup>, J. de Gans<sup>a</sup>

# INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY APRIL 2007, VOL. 38, NO. 4

ORIGINAL ARTICLE

## Predicting *Clostridium difficile* Toxin in Hospitalized Patients With Antibiotic-Associated Diarrhea

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INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY APRIL 2007, VOL. 38, NO. 4

ORIGINAL ARTICLE

## Risk Factors for Death Due to Nosocomial Infection in Intensive Care Unit Patients: Findings From the Krankenhaus Infektions Surveillance System

P. Gastmeier, MD; D. Sohr, PhD; C. Geffen, MD; M. Behrke, H. Rüden, MD

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY MAY 2007, VOL. 38, NO. 5

ORIGINAL ARTICLE

## Circumstances of Patient Falls and Injuries in 9 Hospitals in a Midwestern Healthcare System

Melissa J. Krauss, MPH; Sheila L. Nguyen, MPH; Wm. Chalborne Dunagan, MD; Stanley Birge, MD; Eileen Constantinou, MSN, RN; Shirley Johnson, RN, MS, MBA; Barbara Calica, RN; Victoria J. Fraser, MD

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY MAY 2007, VOL. 38, NO. 5

ORIGINAL ARTICLE

## Evaluation of Antimicrobial Therapy Orders Circumventing an Antimicrobial Stewardship Program: Investigating the Strategy of "Stealth Dosing"

Loel Ann LaRosa, PharmD; Neil O. Fishman, MD; Ebbing Lautenbach, MD, MPH, MScE; Ross J. Koppel, PhD; Knutshawn H. Morales, ScD; Darren R. Linkin, MD, MScE

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY MAY 2007, VOL. 38, NO. 5

ORIGINAL ARTICLE

## Associations Between Surgical Site Infection Risk and Hospital Operation Volume and Surgeon Operation Volume Among Hospitals in the Dutch Nosocomial Infection Surveillance Network

Jan Mulwijk, MD; Susan van den Hof, PhD; Jan C. Wille

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY APRIL 2007, VOL. 38, NO. 4

ORIGINAL ARTICLE

## Predicting *Clostridium difficile* Toxin in Hospitalized Patients With Antibiotic-Associated Diarrhea

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H. De Boerhouwer, MD; G. Nolleet, MD; J. Verbeke, MD; I. Dommeyn, MD; P. Jansz, MD

- ⇒ Objectif de l'étude: comparer les pathogènes isolés lors de pneumopathies nosocomiales selon leur survenue précoce ou tardive
- ⇒ Design: Etude de cohorte prospective
- ⇒ Méthode:
  - patients admis en Unité de soins intensifs dans un hôpital de 700 lits
  - 4 groupes: Pneumopathie précoce:  $\leq 7$  j traitée/pas traitée, Tardive:  $> 7$  j traitée/pas traitée
  - Régression logistique

# La cohorte (prospective)

- ⇒ Système de surveillance HELICS\* depuis 2000
- ⇒ Surveillance des infections en USI (24 lits, 2000 patients/an): chaque patient hospitalisé inclus,
- ⇒ Données
  - Administratives
  - Score de gravité, co-morbidités, matériel invasif
  - Infections: bactériémies et pneumopathies (données cliniques, RX et microbiologiques)
- ⇒ Patients inclus du 1er Janvier 1997 au 31 Décembre 2002

# Les cas (analyse rétrospective)

- ⇒ Définition précise
- ⇒ Inclusion des patients avec culture positive d'aspiration trachéale ou bronchique (non ventilés: LBA)
- ⇒ 4 groupes de pneumopathies
- ⇒ Autres données: retour sur les dossiers ou sur les registres de prescription informatisée de la pharmacie

# Résultats

- ⇒ 4200 patients en USI (>48h)
- ⇒ 498 pneumonies (12%), 298 pneumonies acquises en USI, 90% de VAP
- ⇒ Pneumopathies du groupe 1 (< 7 jours, pas d'ABQ préalables)
  - *P. aeruginosa*: 11%
  - *Enterobacter* sp: 10%
  - *S. marcescens*: 15%

# Résultats

TABLE 2. Microorganisms Isolated During 330 Episodes of Intensive Care Unit (ICU)-Acquired Pneumonia, According to Time of Pneumonia Onset and History of Systemic Antibiotic Therapy

Microorganism	No. (%) of episodes, by time of onset and history of therapy			
	Onset <7 days after ICU admission		Onset ≥7 days after ICU admission	
	No antibiotic therapy (n = 141)	Antibiotic therapy (n = 53)	No antibiotic therapy (n = 43)	Antibiotic therapy (n = 93)
<i>Acinetobacter</i> species	0	2 (4)	0	1 (1)
<i>Alcaligenes</i> species	0	0	0	1 (1)
<i>Aspergillus fumigatus</i>	0	1 (2)	0	4 (4)
<i>Burkholderia</i> species	0	1 (2)	0	0
<i>Candida albicans</i>	1 (0.5)	4 (8)	0	1 (1)
<i>Citrobacter</i> species	4 (3)	0	0	2 (2)
<i>Comamonas acidovorans</i>	0	0	0	1 (1)
<i>Enterobacter</i> species	14 (10)	8 (15)	3 (7)	17 (18)
<i>Escherichia coli</i>	22 (16)	2 (4)	8 (19)	19 (20)
<i>Haemophilus influenzae</i>	35 (25)	4 (8)	12 (28)	1 (1)
<i>Klebsiella pneumoniae</i>	19 (13)	2 (4)	6 (14)	13 (14)
<i>Morganella morganii</i>	5 (4)	3 (6)	2 (5)	3 (3)
<i>Moraxella</i> and <i>Neisseria</i> species	4 (3)	1 (2)	1 (2)	2 (2)
<i>Proteus</i> species	19 (13)	4 (8)	6 (14)	4 (4)
<i>Pseudomonas aeruginosa</i>	16 (11)	10 (19)	10 (23)	18 (19)
<i>Serratia marcescens</i>	21 (15)	15 (28)	1 (2)	11 (12)
<i>Stenotrophomonas maltophilia</i>	0	1 (2)	0	1 (1)
<i>Streptococcus pneumoniae</i>	9 (6)	3 (6)	3 (7)	4 (4)
MSSA	22 (16)	5 (9)	9 (21)	15 (16)
MRSA	2 (1)	3 (6)	0	2 (2)
ESBL-producing pathogens				
<i>Enterobacter</i> species	2 (1)	0	0	1 (1)
<i>K. pneumoniae</i>	0	0	0	2 (2)

NOTE. ESBL, extended-spectrum  $\beta$ -lactamase; MRSA, methicillin-resistant *Staphylococcus aureus*; MSSA, methicillin-susceptible *S. aureus*.

## Résultats (2)

- ⇒ 2<sup>ème</sup> analyse en tenant compte de la durée d'hospitalisation: mêmes résultats
- ⇒ Mortalité: 32% (35% pour les pneumonies avec *P. aeruginosa*, *Serratia*, *Enterobacter*, MRSA vs 28% pour les autres)
- ⇒ Après analyse multivariée, les FdR pour retrouver *P. aeruginosa* ou bactéries BLSE: âge, ABQ préalables (C3G, Aminosides, Imipenem)

# Résultats/conclusion

- ⇒ Agents pathogènes multi résistants isolés y compris chez des patients faisant des pneumopathies précoces
- ⇒ Pose le problème de l'inadéquation avec les ABQ probabilistes de première intention chez ces patients (Amox clav ou C2G)
- ⇒ **Consensus thérapeutiques locaux doivent être basés à la fois sur les recommandations internationales mais aussi sur les données locales de surveillance**

**Surgical site infection surveillance  
for neurosurgical procedures:  
A comparison of passive surveillance  
by surgeons to active surveillance  
by infection control professionals**

Diane Heipel, RN, BSN, CIC,<sup>a</sup> Janis F. Ober, RN, BSN, CIC,<sup>a</sup> Michael B. Edmond, MD, MPH, MPA,<sup>a,b</sup>  
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Richmond, Virginia



- ⇒ Objectif de l'étude: comparer la performance des neurochirurgiens dans la détection d'ISO à celle des épidémiologistes/hygiénistes dans le cadre d'une surveillance active
- ⇒ Contexte: perception par les neurochirurgiens d'une ↑ des taux d'ISO
- ⇒ Design: Données de surveillance active vs Etude longitudinale ad'hoc
  - Surveillance active (CDC)
  - Liste des ISO identifiées par les chirurgiens

# Résultats

**Table 1.** Surgical site infections identified in neurosurgical patients stratified by procedure and surveyor

Procedure	Number performed	Number of infections identified	
		Neurosurgeons	ICP
Craniotomy	221	1	3
Spinal fusion	230	4	4
Laminectomy	237	4	8
Ventricular shunt	78	2	2
Total	766	11	17

- ⇒ 1483 interventions sur la période concernée (2004)
- ⇒ 35% des infections non identifiées par les neurochirurgiens
- ⇒ Craniotomies: 3 cas identifiés par les chirurgiens ne répondaient pas aux définitions
  - 1 infection chronique récurrente non liée à la chirurgie
  - Suspicion d'abcès (hématome)
  - ISO mais survenue 30 j après l'intervention sans implant

# Résultats

Détection des ISO par les chirurgiens:

- ⇒ Sensibilité 64%
- ⇒ Spécificité 99.6%
- ⇒ VPP 78.6%
- ⇒ VPN 99.2%

# Conclusion sur la méthodologie

Avantages	Désavantages
<ul style="list-style-type: none"><li>⇒ Mesure directe du taux d'attaque ou du (des) facteurs de risque</li><li>⇒ Expositions rares (professionnelles)</li><li>⇒ Histoire naturelle peut être explorée avec possibilité d'étudier plusieurs outcomes</li><li>⇒  biais (confusion) si la définition n'est pas précise ou la sélection des groupes à comparer (mais moins qu'enquêtes cas-témoins)</li></ul>	<ul style="list-style-type: none"><li>⇒ Logistique, coût</li><li>⇒ Attention si expositions multiples</li></ul>

# Conclusion: un peu de prosélytisme !

Conditions absolues de réussite d'une enquête de cohorte (et d'une surveillance) :

- ⇒ Surveillance suffisamment « légère »
- ⇒ Exhaustivité des données
- ⇒ Equipes motivées et connaissant chacune le travail de l'autre