UTILISATION DU SIH DANS LA SURVEILLANCE DES INFECTIONS ASSOCIEES AUX SOINS

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Merci au Pr M Cuggia pour l'emprunt de certaines diapositives

La surveillance des infections associées aux soins (IAS)

- Challenge de surveillance, prise en charge et prévention
- Objectif : améliorer la qualité des soins
- Différentes stratégies et cibles prioritaires

Astagneau et al. « Reducing surgical site infection incidence through a network: results from the French ISO-RAISIN surveillance system ». J Hosp Infect. 2009; 72: 127-34
Brandt C et al. « Reduction of surgical site infection rates associated with active surveillance ». ICHE. 2006; 27: 1347-51




RÉSEAUX DE SURVEILLANCE DES IAS À TRAVERS LE MONDE

(PANORAMA 2001-2013)

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Journal of Hospital Infection
journal homepage: www.elsevierhealth.com/journals/jhin

Review

Surveillance of prosthetic joint infections: international overview and new insights for hospital databases

L. Grammatico-Guillon [a,b,*], E. Rusch [b], P. Astagneau [c]

Systèmes de surveillance Nationaux

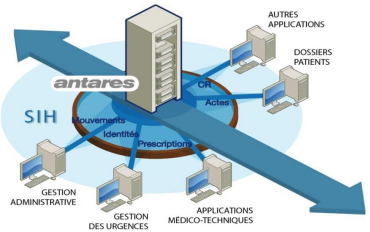
Systèmes de surveillance nationaux	Cible de surveillance parmi les ISO	Période minimale de surveillance	Surveillance après la sortie d'hospitalisation	Définitions des ISO selon le *CDC*	recueil des données/ Bases de collecte	Rapports hospitaliers et analyses
NHSN (USA)	Toute chirurgie, ISO en lien avec une première incision	au moins un an	non	oui	Epidémiologiqte EOH	Système web sécurisé / partenaire de santé publique
INCLIMECC (Espagne)	idem NHSN	> à 6 mois	non (réadmission contrôlée)	oui	Epidémiologiqte Infirmier Epidémiologiste	fiche papier et base de données sur le web
RAISIN (France)	Chirurgie digestive, orthopédique, gynécologique and cardiovasculaire	3 mois par an, 30 jours de suivi	non (réadmission entre un mois et un an)	oui	EOH équipe chirurgicale	Préalablement fiches Epi Info / Récemment création ISOWEB
NNSR (Hongrie)	césarienne, hernie cholécystectomie chirurgie de hanche	au moins 6 mois	non pas de réadmission	oui	Médecin EOH	Sytème web sécurisé (*National Center of Epidemiology*)
KISS (Allemagne)	Toute chirurgie	annuellement	non	oui	EOH Docteurs Infirmier EOH	Fichiers papier puis relais web
SIRO (Finlande)	Chirurgie orthopédique	au moins un an	oui suivi via des questionnaires de consultation	oui	Infirmier EOH	Fichiers électroniques qui remontent vers le centre nationale
PREZIES (Hollande)	Chaque hôpital choisit une procédure: mastectomie, colectomie, remplacement de la tête fémorale, arthroplastie de hanche ou de genou	6 à 60 mois	oui, existence d'un dossier médical ambulatoire	oui	Infirmier EOH Docteur Epidémiologiste	recueil informatisé
SSHAIP (Ecosse)	Chaque hôpital choisit 2 procédures parmi 9 dont une doit être orthopédique	surveillance au moins un mois et suivi post hospitalisation	oui, appel téléphonique avec sortie d'hospitalisation	oui	équipe chirurgicale EOH	questionnaires papier, appels téléphonique
NINSS (Royaume Uni)	plusieurs modules possibles (bactériémie, ISO, Cathéter urinaire)	au moins 3 mois annuellement	non	oui	équipe clinicien Infirmier EOH	recueil informatisé
HELICS (UE)	recueil des données de 14 pays européens pour les ISO	annuellement	non	oui	EOH	recueil informatisé

Conclusion
Réseaux de surveillance

- Systèmes indispensables mais imparfaits
  - Manque de standardisation des méthodes
  - Imperfections des méthodes
  - Pas de suivi à long terme
  - Stratégie peu coût-efficace
- Recherche d'indicateurs plus performants
  - Apport des SIH
  - Utilisation plus systématique pour la surveillance
  - Outil pertinent ?

Bulletin Epidémiologique hebdomadaire. Apports des bases médico-administratives pour l'épidémiologie et la surveillance : regards croisés France-Québec iNVS. déc 2013
Projet Clarté,DHOS-HAS, www.clarte.fr

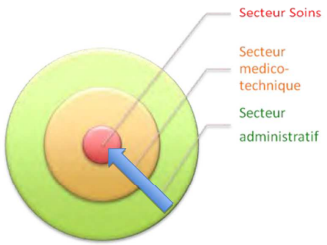
LE SYSTEME D'INFORMATION HOSPITALIER (SIH)



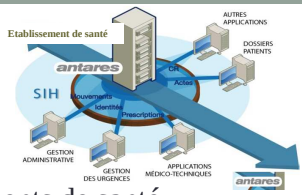
Historique du SIH

Une lente informatisation du cœur de métier

- En 2005, 5% des établissement de santé informatisés au niveau du cœur de métier
- Historiquement:
  - Informatisation des processus administratif :
    - Gestion administrative du patient
    - Gestion financière, paie, RH.
  - Extension au plateau médico-techinique
    - Imagerie
    - Biologie
    - Explorations fonctionnelles…
  - Aujourd'hui : unité de soins



Le SIH actuellement



- Ensemble des informations des établissements de santé
  - Gestion : identités/mouvements, médico-technique
  - Médical : actes, résultats d'analyse, courriers médicaux
  - PMSI : données médico-administratives
- Indispensable à toute structure de soins
  - Diminution du temps de collecte et de classement informations
  - Intégration en temps réel dans bases de données
- Meilleure performance médico-économique

Objectifs du SIH

Objectifs principaux	Objectifs constitutifs
Amélioration de la qualité des soins	•Amélioration des communications •Réduction des délais d'attente •Aide à la décision
Maîtrise des coûts	•Réduction des durées de séjours •Réduction des tâches administratives •Diminution des frais de personnel

Le SIH

- Gisement d'information ++++
- Informations pouvant être réutilisées :
  - EPP : parcours de soins des patients
  - Médico-economie : étude efficacité
  - Vigilance
  - Recherche Clinique : essai
  - Recherche épidémiologique : cohorte historique

Grammatico-Guillon Let al. *Quality assessment of hospital discharge database for routine surveillance of hip and knee arthroplasty-related infections. Infect Control Hosp Epidemiol. 2014 Jun;35(6):646-51*
Grammatico-Guillon Let al. *Infection after a primary hip or knee arthroplasty : regional cohort based on HD databases in France. Inf Control Hosp Epid. 2015 in press*

OBJECTIFS ACTUELS des Réseaux de surveillance des IAS à travers le monde

- Evaluation de pertinence de nouveaux indicateurs de performance pour les IAS => **Surveillance via le SIH en routine**

Data Requirements for Electronic Surveillance of Healthcare-Associated Infections

Keith F. Woeltje, MD, PhD;[1] Michael Y. Lin, MD, MPH;[2] Michael Klompas, MD, MPH;[3,4] Marc Oliver Wright, MT(ASCP), MS, CIC;[5] Gianna Zuccotti, MD, MPH;[4,6] William E. Trick, MD[7]

Electronic surveillance for healthcare-associated infections (HAIs) is increasingly widespread. This is driven by multiple factors: a greater burden on hospitals to provide surveillance data to state and national agencies, financial pressures to be more efficient with HAI surveillance, the desire for more objective comparisons between healthcare facilities, and the increasing amount of patient data available electronically. Optimal implementation of electronic surveillance requires that specific information be available to the surveillance systems. This white paper reviews different approaches to electronic surveillance, discusses the specific data elements required for performing surveillance, and considers important issues of data validation.

Infect Control Hosp Epidemiol 2014;35(9):1083-1091

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY SEPTEMBER 2014, VOL. 35, NO. 9

SHEA WHITE PAPER

Data Requirements for Electronic Surveillance of Healthcare-Associated Infections

Keith F. Woeltje, MD, PhD;[1] Michael Y. Lin, MD, MPH;[2] Michael Klompas, MD, MPH;[3,4] Marc Oliver Wright, MT(ASCP), MS, CIC;[5] Gianna Zuccotti, MD, MPH;[4,6] William E. Trick, MD[7]

TABLE 1. Key Concepts for Describing Data Validation

Validation	Description
Internal	Active efforts by a reporting facility to assure completeness and accuracy of data
External	Survey and audit process by external agency (eg, public health department) to assure quality of surveillance and reporting
Numerator	Primarily performed by external audit, by sampling candidate patient charts from a line list of positive microbiologic culture results
Denominator	Primarily performed by internal audit, by comparing electronically derived device counts with manual (hand) counts

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY SEPTEMBER 2014, VOL. 35, NO. 9

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TABLE 2. Key Data Elements Necessary for Electronic Surveillance of Healthcare-Associated Infections

NHSN surveillance metric	Key electronic data elements	Barriers to fully automated electronic surveillance
Central line–associated line infection	Microbiology cultures (blood and non-blood sites), ADT, central venous catheter presence	Current definition requires judgment regarding the origin of the blood pathogen
Catheter-associated urinary tract infection	Microbiology cultures (urine only), urinalysis, ADT, vital signs (fever), urinary catheter presence	Current definition requires assessment of patient symptoms
Surgical site infection	Microbiology cultures (superficial or deep wound cultures), procedure billing codes (eg, CPT codes), hospital billing codes (eg, ICD-9), ADT (to detect readmissions), antibiotic administration (optional)	Current definition requires judgment as to whether infection occurred, since not all infections have a positive culture; designation of depth of infection is often very nuanced
Ventilator-associated event (VAC, IVAC)	Ventilator settings (PEEP, FiO2), presence of endotracheal intubation device, ADT, antimicrobial use, vital signs (temperature), laboratory (white blood cell count), microbiology culture results	None
MDRO module	Microbiology cultures, ADT	None
Clostridium difficile module	Microbiology (*C. difficile*), ADT	None

NOTE. ADT, admission/discharge/transfer system; CPT, current procedural therapy; FiO2, fraction inspired oxygen; ICD-9, *International Classification of Diseases, 9th Revision*; IVAC, infection-related VAC; MDRO, multidrug-resistant organism; NHSN, National Healthcare Safety Network; PEEP, positive expiratory end pressure; VAC, ventilator-associated condition.

HEALTHCARE EPIDEMIOLOGY Clinical Infectious Diseases

Clinical Infectious Diseases 2014;58(5):688–96

Accuracy of Administrative Code Data for the Surveillance of Healthcare-Associated Infections: A Systematic Review and Meta-Analysis

Michihiko Goto,[1,3] Michael E. Ohl,[1,4] Marin L. Schweizer,[2,4] and Eli N. Perencevich[2,4]

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Administrative code data (ACD), such as *International Classifications of Diseases, Ninth Revision, Clinical Modification* codes, are widely used in surveillance and public reporting programs that seek to identify healthcare-associated infections (HAIs); however, little is known about their accuracy. This systematic review summarizes evidence for the accuracy of ACD for the detection of selected HAIs, including catheter-associated urinary tract infection, *Clostridium difficile* infection (CDI), central line–associated bloodstream infection, ventilator-associated pneumonia/events, postprocedure pneumonia, methicillin-resistant *Staphylococcus aureus*, and surgical site infections (SSIs). We conducted meta-analysis for SSIs and CDIs, where acceptable numbers of primary studies were available. For these 2 conditions, ACD have moderate sensitivity and high specificity, but evidence for detection of other HAIs is limited. With current low prevalence of HAIs, the positive predictive value of ACD algorithms would be low. ACD may be inaccurate for detection of many HAIs and should be used cautiously for surveillance and reporting purposes.

Keywords. healthcare-associated infections; international classification of diseases; surveillance; systematic review.

Table 1. Characteristics of Included Studies

Target HAI	First Author, Year	Location	Sample Size, No.	Study Design	Sensitivity	Specificity	PPV	NPV	Comments
CDI	Chan M, 2011 [13]	Singapore	56 352	Cross-sectional	0.50 (0.44–0.56)	1.00 (1.00–1.00)	0.94 (0.89–0.97)	1.00 (1.00–1.00)	
	Dubberke ER, 2006 [14]	USA	45 486	Retrospective cohort	0.76 (0.73–0.80)	1.00 (0.99–1.00)	0.68 (0.64–0.71)	1.00 (1.00–1.00)	
	Dubberke ER, 2010 [15]	USA	930 692	Retrospective cohort	0.78 (0.77–0.79)	1.00 (1.00–1.00)	0.68 (0.67–0.69)	1.00 (1.00–1.00)	
	Schmiedeskamp M, 2009 [16]	USA	23 920	Retrospective cohort	0.98 (0.94–1.00)	1.00 (1.00–1.00)	0.79 (0.71–0.85)	1.00 (1.00–1.00)	
	Shaklee J, 2011 [17]	USA	27 122	Retrospective cohort	0.81 (0.72–0.87)	1.00 (1.00–1.00)	0.74 (0.65–0.81)	1.00 (1.00–1.00)	
	Jones G, 2012 [18]	France	317 033	Retrospective cohort	0.36 (0.32–0.39)	1.00 (1.00–1.00)	0.79 (0.74–0.84)	1.00 (1.00–1.00)	
	Welker J, 2012 [19]	USA	23 495	Retrospective cohort	0.72 (0.67–0.76)	1.00 (1.00–1.00)	0.72 (0.67–0.76)	1.00 (1.00–1.00)	
SSI	Cadwallader HL, 2001 [20]	Australia	510	Retrospective cohort	0.80 (0.59–0.91)	0.99 (0.98–1.00)	0.77 (0.54–0.91)	0.99 (0.98–1.00)	Orthopedic surgery
	Hebden J, 2000 [21]	USA	423	Cross-sectional	0.96 (0.73–1.00)	0.98 (0.96–0.99)	0.62 (0.39–0.81)	1.00 (0.99–1.00)	Coronary artery bypass graft
	Hollenbeak CS, 2011 [22]	USA	1066	Retrospective cohort	0.21 (0.14–0.30)	0.96 (0.94–0.97)	0.31 (0.20–0.44)	0.93 (0.91–0.94)	General and vascular surgeries
	Olsen MA, 2010 [23]	USA	1200	Nested case–control	0.87 (0.77–0.93)	0.99 (0.99–1.00)	0.88 (0.76–0.94)	0.99 (0.99–1.00)	Mastectomy or breast reconstruction
	Romano PS, 2002 [24]	USA	991	Cross-sectional	0.61 (0.31–0.85)	1.00 (0.99–1.00)	0.71 (0.30–0.95)	1.00 (0.99–1.00)	Lumbar diskectomy
	Stevenson KB, 2008 [25]	USA	3882	Retrospective cohort	0.65 (0.57–0.72)	0.90 (0.89–0.91)	0.21 (0.17–0.25)	0.99 (0.98–0.99)	All surgical procedures
	Verelst S, 2010 [26]	Belgium	763	Case–control	0.79 (0.70–0.85)	0.95 (0.93–0.96)	0.73 (0.64–0.80)	0.96 (0.95–0.98)	All surgical procedures
	Inacio MCS, 2011 [27]	USA	42 173	Retrospective cohort	0.97 (0.95–0.98)	0.92 (0.92–0.92)	0.11 (0.10–0.12)	1.00 (1.00–1.00)	Total joint replacements
	Calderwood MS, 2012 [28]	USA	1666	Retrospective cohort	0.98 (0.83–1.00)	0.94 (0.92–0.95)	0.18 (0.12–0.26)	1.00 (1.00–1.00)	Hip arthroplasty, Knee arthroplasty, Vascular surgery
VAP/VAE	Stevenson KB, 2008 [25]	USA	193	Retrospective cohort	0.42 (0.23–0.63)	0.82 (0.75–0.87)	0.24 (0.13–0.41)	0.91 (0.85–0.96)	
	Verelst S, 2010 [26]	B							
CAUTI	Zahn C, 2009 [29]	U							
	Romano PS, 2002 [24]	U							
CLABSI	Stevenson KB, 2008 [25]	U							
PPP	Romano PS, 2002 [24]	U							
MRSA	Schaefer MK, 2010 [30]	U							
	Schweizer ML, 2011 [31]	U							

This systematic review found that ACD detects CDI and SSI with moderate sensitivity and high specificity compared with traditional surveillance. Among SSIs, sensitivity was higher for orthopedic procedures with less variability. Evidence was limited regarding the accuracy of detection of other HAIs.

Etat de l'art

IAS en réa

- Réseau Ecossais :
  - Surveillance des IAS en réa par automatisation : PAVM, bacteriémie + Bactériémie sur KT,
  - Système d'information
  - Validité

Journal of Hospital Infection 89 (2015) 271–275

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Integrating intensive care unit (ICU) surveillance into an ICU clinical care electronic system

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[c]Information and Statistics Division, NHS National Services Scotland, UK
[d]NHS Lothian, Scotland, UK

for their unit. A total of 260 patient records were reviewed. The study identified that data collection was 94.4% complete and that infection case ascertainment had a sensitivity of 75% and specificity of 95% for VAP and 80% sensitivity and 93% specificity for BSI.[18] These results are within the range reported elsewhere for electronic ICU HCAI surveillance.[4,5]

  - Autres réseaux IAS en réa / automatisation testée
    - Autriche,
    - Belgique,
    - USA

de Bruin JS, Adlassnig KP, Blacky A, Mandl H, Fehre K, Koller W. Effectiveness of an automated surveillance system for intensive care unit-acquired infections. *J Am Med Inform Assoc* 2013;20:369–372.
De Bus L, Diet G, Gadeyne B, *et al.* Validity analysis of a unique infection surveillance system in the intensive care unit by analysis of a data warehouse built through a workflow-integrated software application. *J Hosp Infect* 2014;87:159–164.
van Mourik MS, Troelstra A, van Solinge WW, Moons KG, Bonten MJ. Automated surveillance for healthcare-associated infections: opportunities for improvement. *Clin Infect Dis* 2013;57:85–93.
Koller W, Blacky A, Mandl H, Rappelsberger A, Adlassnig KP. Can we bridge the definition diversity in healthcare-associated infection surveillance? From IT-supported surveillance to IT-supported infection prevention and control. *Stud Health Technol Inform* 2013;192:1112.

Etat de l'art ISO USA

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY JANUARY 2012, VOL. 33, NO. 1

ORIGINAL ARTICLE

Use of Medicare Diagnosis and Procedure Codes to Improve Detection of Surgical Site Infections following Hip Arthroplasty, Knee Arthroplasty, and Vascular Surgery

Michael S. Calderwood, MD;[1] Allen Ma, PhD;[2] Yosef M. Khan, MBBS, MPH;[3] Margaret A. Olsen, PhD, MPH;[4] Dale W. Bratzler, DO, MPH;[2,5] Deborah S. Yokoe, MD, MPH;[6] David C. Hooper, MD;[7] Kurt Stevenson, MD, MPH;[1] Victoria J. Fraser, MD;[4] Richard Platt, MD, MSc;[1] Susan S. Huang, MD, MPH;[8] for the CDC Prevention Epicenters Program

- Chirurgie vasculaire et IPOA
- Cohorte rétrospective dans Medicare ICD-9 et Actes dans Medicare (4 ES)
  - ISO hanche, chir vasculaire = augmentation détection des ISO profondes
    - 5X et 1,6X respectivement,
    - Pas d'augmentation dans les prothèses de genou
    - Validation par le retour aux dossier

Improving Public Reporting and Data Validation for Complex Surgical Site Infections After Coronary Artery Bypass Graft Surgery and Hip Arthroplasty

Michael S. Calderwood,[1,2] Ken Kleinman,[2] Michael V. Murphy,[2] Richard Platt,[2] and Susan S. Huang[3]

[1]Division of Infectious Diseases, Brigham and Women's Hospital, Boston, Massachusetts; [2]Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, Massachusetts; and [3]Division of Infectious Diseases and Health Policy Research Institute, University of California Irvine School of Medicine

Background. Deep and organ/space surgical site infections (D/OS SSI) cause significant morbidity, mortality, and costs. Rates are publicly reported and increasingly used as quality metrics affecting hospital payment. Lack of standardized surveillance methods threaten the accuracy of reported data and decrease confidence in comparisons based upon these data.

Methods. We analyzed data from national validation studies that used Medicare claims to trigger chart review for SSI confirmation after coronary artery bypass graft surgery (CABG) and hip arthroplasty. We evaluated code performance (sensitivity and positive predictive value) to select diagnosis codes that best identified D/OS SSI. Codes were analyzed individually and in combination.

Results. Analysis included 143 patients with D/OS SSI after CABG and 175 patients with D/OS SSI after hip arthroplasty. For CABG, 9 International Classification of Diseases, 9th Revision (ICD-9) diagnosis codes identified 92% of D/OS SSI, with 1 D/OS SSI identified for every 4 cases with a diagnosis code. For hip arthroplasty, 6 ICD-9 diagnosis codes identified 99% of D/OS SSI, with 1 D/OS SSI identified for every 2 cases with a diagnosis code.

Conclusions. This standardized and efficient approach for identifying D/OS SSI can be used by hospitals to improve case detection and public reporting. This method can also be used to identify potential D/OS SSI cases for review during hospital audits for data validation.

Keywords. coronary artery bypass graft surgery; hip arthroplasty; infection prevention and control programs; surgical site infection; surveillance and public reporting.

Etat de l'art ISO en France

- SIH pour 9 types d'ISO
  - PMSI
  - Laboratoire
  - Les 2

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY NOVEMBER 2014, VOL. 35, NO. 11

ORIGINAL ARTICLE

Matching Bacteriological and Medico-Administrative Databases Is Efficient for a Computer-Enhanced Surveillance of Surgical Site Infections: Retrospective Analysis of 4,400 Surgical Procedures in a French University Hospital

Brice Leclère, MD, MSc;[1] Camille Lasserre, PharmD;[1,2] Céline Bourigault, PharmD, MSc;[1] Marie-Emmanuelle Juvin, PharmD;[1] Marie-Pierre Chaillet, MD;[1] Nicolas Mauduit, MD;[1] Jocelyne Caillon, PharmD, PhD;[1,2] Matthieu Hanf, PhD;[1] Didier Lepelletier, MD, PhD[1,2] for the SSI Study Group*

RESULTS. Sensitivity results varied significantly between the three algorithms, from 25% (95% confidence interval, 17–33) when using only administrative codes to 87% (80%–93%) with the bacteriological data and 90% (85%–96%) with the combined algorithm. Fewer variations were observed for specificity (91%–98%), PPV (21%–25%), and NPV (98% to nearly 100%). Overall, performance statistics were higher for deep SSIs than for superficial infections.

- notification chirurgien 18.4% (95% CI: 7.9—31.6) et 100%
- Laboratoires, cultures + 63.2% (95% CI: 47.3—78.9) et 95.1% (95% CI: 92.9—97.1)
- Prescription ATB 68.4% (95% CI: 52.6—81.6) et 87.5% (95% CI: 84.3—90.7)
- CIM-10 26.3% (95% CI: 13.2—42.1) et 99.5% (95% CI: 98.8—100)
- Combinaison des 3 86.8% (95% CI: 76.3 — 97.4) et 85.5% (95% CI: 82.1 — 89.0)

- SSI detection based on the combination of data extracted automatically from the hospital information system performed well. This strategy has been implemented gradually in Lyon University Hospital.

Gerbier-Colomban S, Bourjault M, Cêtre J-C, Baulieux J, Metzger MH. Evaluation study of different strategies for detecting surgical site infections using the hospital information system at Lyon University Hospital, France. *Ann Surg* 2012;255:896–900.

Quality Assessment of Hospital Discharge Database for Routine Surveillance of Hip and Knee Arthroplasty–Related Infections

Leslie Grammatico-Guillon, MD;[1,2,3,4] Sabine Baron, MD;[3,4] Christophe Gaborit, MS;[3,4] Emmanuel Rusch, MD, PhD;[2,3,4] Pascal Astagneau, MD, PhD[3,6]

OBJECTIVE. Surgical site infection (SSI) surveillance represents a key method of nosocomial infection control programs worldwide. However, most SSI surveillance systems are considered to be poorly cost effective regarding human and economic resources required for data collection and patient follow up. This study aims to assess the efficacy of using hospital discharge databases (HDDs) as a routine surveillance system for detecting hip or knee arthroplasty–related infections (HKAIs).

METHODS. A case-control study was conducted among patients hospitalized in the Centre region of France between 2008 and 2010. HKAI cases were extracted from the HDD with various algorithms based on the *International Classification of Diseases, Tenth Revision*, and procedure codes. The control subjects were patients with hip or knee arthroplasty (HKA) without infection selected at random from the HDD during the study period. The gold standard was medical chart review. Sensitivity (Se), specificity (Spe), positive predictive value (PPV), and negative predictive value (NPV) were calculated to evaluate the efficacy of the surveillance system.

RESULTS. Among 18,265 hospital stays for HKA, corresponding to 17,388 patients, medical reports were checked for 1,010 hospital stays [illegible] by routine surveillance. As compared with 480 controls, Se was 98%, Spe was 71%, PPV was 63%, and NPV was 99%. Using a more specific case definition, based on a sample of 681 hospital stays, Se was 97%, Spe was 95%, PPV was 87%, and NPV was 98%.

CONCLUSIONS. This study demonstrates the potential of HDD as a tool for routine SSI surveillance after low-risk surgery, under conditions of having an appropriate algorithm for selecting infections.

Infect Control Hosp Epidemiol 2014;35(6):646-651

YES we can!
Les outils issus du SIH peuvent être intéressants!

Surgical Site Infection After Primary Hip and Knee Arthroplasty: A Cohort Study Using a Hospital Database

Leslie Grammatico-Guillon, MD, PhD;[1] Sabine Baron, MD;[2] Philippe Rosset, MD, PhD;[3] Christophe Gaborit;[2] Louis Bernard, MD, PhD;[4] Emmanuel Rusch, MD, PhD;[1] Pascal Astagneau, MD, PhD[5]

BACKGROUND. Hip or knee arthroplasty infection (HKAI) leads to heavy medical consequences even if rare.

OBJECTIVE. To assess the routine use of a hospital discharge detection algorithm of prosthetic joint infection as a novel additional tool for surveillance.

METHODS. A historic 5-year cohort study was built using a hospital database of people undergoing a first hip or knee arthroplasty in 1 French region (2.5 million inhabitants, 39 private and public hospitals): 32,678 patients with arthroplasty code plus corresponding prosthetic material code were tagged. HKAI occurrence was then tracked in the follow-up on the basis of a previously validated algorithm using *International Statistical Classification of Disease, Tenth Revision*, codes as well as the surgical procedures coded. HKAI density incidence was estimated during the follow-up (up to 4 years after surgery); risk factors were analyzed using Cox regression.

RESULTS. A total of 604 HKAI patients were identified: 1-year HKAI incidence was 1.31%, and density incidence was 2.2/100 person-years in hip and 2.5/100 person-years in knee. HKAI occurred within the first 30 days after surgery for 30% but more than 1 year after replacement for 29%. Patients aged 75 years or older, male, or having liver diseases, alcohol abuse, or ulcer sore had higher risk of infection. The inpatient case fatality in HKAI patients was 11.4%.

CONCLUSIONS. The hospital database method used to measure occurrence and risk factors of prosthetic joint infection helped to survey HKAI and could optimize healthcare delivery.

Infect Control Hosp Epidemiol 2015;00(0):1–10

En route pour l'automatisation de la détection

- En complément de méthodes existantes
- Potentiel d'utilisation du SIH pour la surveillance des IAS, dans les différentes cibles de surveillance des unités à risque d'infections nosocomiales
- A la condition de choisir une définition du cas appropriée et validée

Perspectives

- Etapes supplémentaires
  - Validation sur bases PMSI nationales
  - Lien avec autres bases du SIH (augmentation de la VPP)
- Mesure indirecte du risque d'IPOA
  - Classification des patients selon comorbidités retrouvées études de cohorte PMSI itératives

⇒ Score prédictif d'IPOA (modèle du score de Charlson*)

- Comme un complément du *NNIS*

* Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chronic Dis. 1987;40(5):373-383

Exemples récents scores

PLOS ONE

RESEARCH ARTICLE

Adverse Outcomes after Major Surgery in Patients with Pressure Ulcer: A Nationwide Population-Based Retrospective Cohort Study

Methods

Using reimbursement claims from Taiwan's National Health Insurance Research Database, we conducted a nationwide retrospective cohort study of 17391 patients with preoperative pressure ulcer receiving major surgery in 2008-2010. With a propensity score matching procedure, 17391 surgical patients without pressure ulcer were selected for comparison. Eight major surgical postoperative complications and 30-day postoperative mortality were evaluated among patients with pressure ulcer of varying severity.

Table 2. Adverse events after surgeries in patients with preoperative pressure ulcer.

	No PU, %	PU, %	RR	(95% CI)*
Postoperative complications				
Pneumonia	7.4	21.8	2.94	(2.76–3.13)
Septicemia	7.4	21.1	2.85	(2.68–3.04)
Stroke	6.6	13.3	2.02	(1.88–2.17)
Urinary tract infection	6.3	12.9	2.05	(1.90–2.20)
Acute renal failure	2.0	4.3	2.17	(1.91–2.47)
Deep wound infection	0.9	1.1	1.21	(0.98–1.50)
Acute myocardial infarction	0.6	0.8	1.45	(1.12–1.87)
Postoperative bleeding	0.5	0.5	0.89	(0.67–1.20)
Pulmonary embolism	0.2	0.2	1.04	(0.61–1.78)
Any of the above	23.4	50.0	2.13	(2.06–2.21)
30-day in-hospital mortality	1.1	2.1	1.83	(1.54–2.18)
ICU stay	22.4	36.7	1.64	(1.57–1.70)
Prolonged length of hospital stay	10.3	28.1	2.73	(2.58–2.88)
Increased medical expenditure	13.2	26.8	2.03	(1.94–2.14)

CI, confidence interval; PU, pressure ulcer; ICU, intensive care unit; RR, rate ratio.
*Adjusted for age, sex, low income, urbanization, operation in teaching hospital, types of anesthesia, types of surgery and coexisting diseases.

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A predictive scoring system for deep sternal wound infection after bilateral internal thoracic artery grafting.

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Author information

Abstract

OBJECTIVES: Despite long-term survival benefits, the increased risk of sternal complications limits the use of bilateral internal thoracic artery (BITA) grafts for myocardial revascularization. The aim of the present study was both to analyse the risk factors for deep sternal wound infection (DSWI), which complicates routine BITA grafting and to create a DSWI risk score based on the results of this analysis.

METHODS: BITA grafts were used as skeletonized conduits in 2936 (70.6%) of 4160 consecutive patients with multivessel coronary artery disease who underwent isolated coronary bypass surgery at the authors' institution from 1 January 1999 to 2013. The outcomes of these BITA patients were reviewed retrospectively and a risk factor analysis for DSWI was performed.

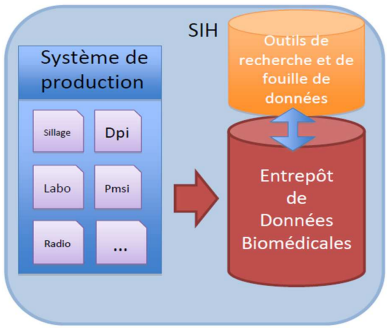
RESULTS: A total of 129 (4.4%) patients suffered from DSWI. Two multivariable analysis models were created to examine preoperative factors either alone or combined with intraoperative and postoperative factors. Female gender, obesity, diabetes, poor glycaemic control, chronic lung disease and urgent surgical priority were the predictors of DSWI common to both models. Two (preoperative and combined) models of a new scoring system were devised to predict DSWI after BITA grafting. The preoperative model performed better than five of six scoring systems for sternal wound infection that were considered; the combined model performed better than three considered scoring systems.

CONCLUSIONS: A weighted scoring system based on risk factors for DSWI was specifically created to predict DSWI risk after BITA grafting. This scoring system outperformed the existing scoring systems for sternal wound infection after coronary bypass surgery. Prospective studies are needed for validation.

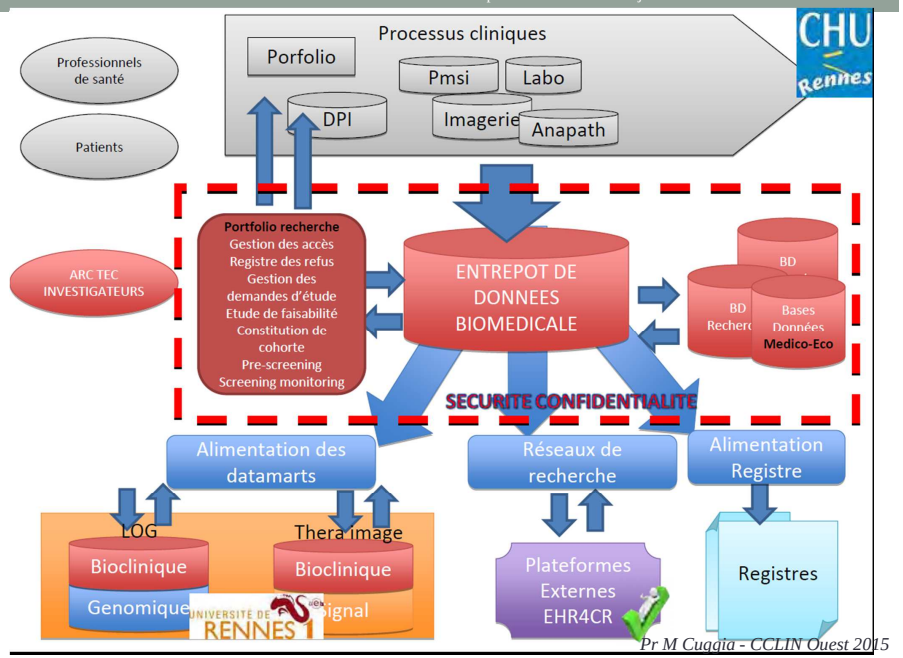
COMMENT UTILISER CE POTENTIEL ???

Merci de votre attention !

Solution :
Entrepôt de données biomédicales



- ✓ Principe de « copie » des données produites par les différents sources du SIH
- ✓ Ne compromet pas la production de soin
- ✓ Permet d'améliorer la qualité des données
- ✓ Permet les analyses transversales trans-domaines
- ✓ Facilite l'exportation des données



Databases issues du SIH (Entrepôt de données)

- HUG Geneve : Archimed (1993)
- Standford : Stride
- Boston : I2B2
- Rennes : Roogle
- DEBUG IT : champ d'application = Infection nosocomiales

C. Bréant, G. Thurler, F. Borst, and A. Geissbuhler, "Design of a Multi Dimensional Database for the Archimed DataWarehouse," Studies in Health Technology and Informatics, vol.116, pp. 169-174, 2005.

H. J. Lowe, T. A. Ferris, P. M. Hernandez, and S. C. Weber, "STRIDE – An Integrated Standards-Based Translational Research Informatics Platform," vol.2009, pp. 391-395, 2009.

R. Nalichowski, D. Keogh, H. C. Chueh, and S. N. Murphy, "Calculating the benefits of a Research Patient Data Repository," AMIA ... Annual Symposium Proceedings / AMIA Symposium. AMIA Symposium, p. 1044, 2006.

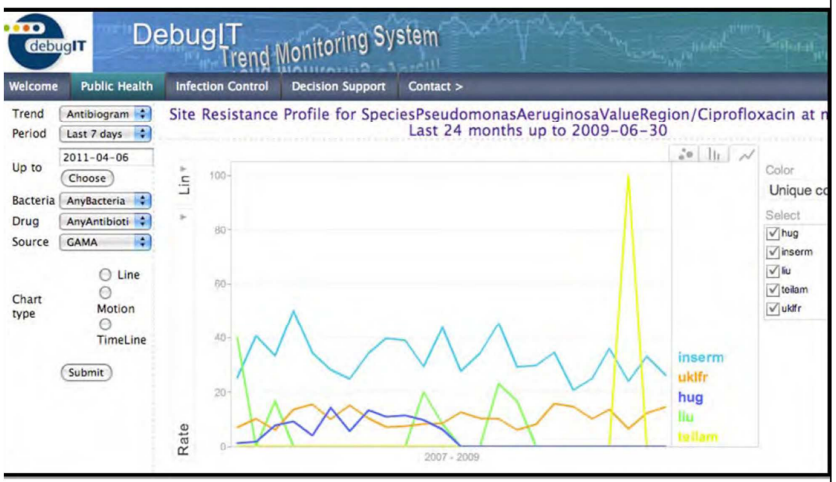
Asselé Kama A1, Choquet R, Mels G, Daniel C, Charlet J, Jaulent MC. An ontological approach for the exploitation of clinical data. Stud Health Technol Inform. 2013;192:142-6.

Sur les IN en France

Champs d'application aux infections nosocomiales : Projet DEBUGIT

- Projet européen FP7
- Objectif : Mettre en place un réseau de surveillance épidémiologique sur les antibio résistances
- Exploitation des Antibiogrammes produits dans les hôpitaux
- Caractérisation des germes (et non des patients)

What is the evolution of the resistance of Pseudomonas Aeroginosa to ciprofloxacin at HUG, INSERM, LIU, TEILAM and UKLFR from 01.06.2007 to 30.06.2009 ?
(use of historic data because the CDRs are not on real time production systems yet)



What is the prevalence of *amoxicillin* resistance bacteria in *urine* samples at HUG from 01.01.2007 to 30.03.2007?