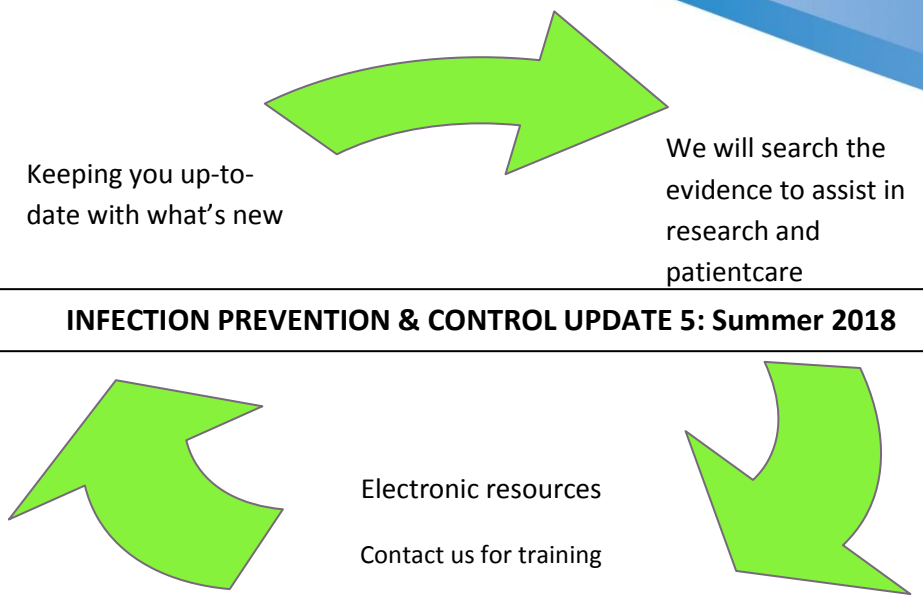

INFECTION PREVENTION & CONTROL UPDATE 5: Summer 2018

Welcome to this edition of Infection Prevention & Control Update.

The aims of this publication are:

- To bring together a range of recently-published research reports, articles and electronic resources to help Infection Control professionals keep up-to-date with developments.
- To remind readers of IP&C Update of the services available from the Library & Knowledge Service – we can supply you with 1:1 or small group training in evidence searching skills; obtain full-text articles for you; or provide an evidence search service for you to help you with your research tasks.
- To respond to your information needs – if you have any suggestions on the type of information or sources you would find helpful in future editions of IP&C Update, then please let us know – contact details are below.

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Accessing Research Papers

The following abstracts are taken from a selection of recently published papers.

If the article is available electronically, this is noted in the Abstract with a hyperlink available. [Press CTRL-click to open the link. You will need to be registered for Athens (see above) to be able to access the full text.]
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Healthcare Databases – Articles found in Medline and British Nursing Index (BNI) databases

The articles selected below have been published February 2017 – November 2017.

Items are ordered with the most recent first. Follow blue hyperlinks to access full text where available.

1. Use of prophylactic Saccharomyces boulardii to prevent Clostridium difficile infection in hospitalized patients: a controlled prospective intervention study.

Author(s): Carstensen, Jeppe West; Chehri, Mahtab; Schønning, Kristian; Rasmussen, Steen Christian; Anhøj, Jacob; Godtfredsen, Nina Skavlan; Andersen, Christian Østergaard; Petersen, Andreas Munk

Source: European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology; Aug 2018; vol. 37 (no. 8); p. 1431-1439

Publication Date: Aug 2018

Publication Type(s): Journal Article

PubMedID: 29725956

Abstract: Clostridium difficile infection (CDI) is a common complication to antibiotic use. Saccharomyces boulardii has shown effect as a prophylactic agent. We aimed to evaluate the efficacy of S. boulardii in preventing CDI in unselected hospitalized patients treated with antibiotics. We conducted a 1 year controlled prospective intervention study aiming to prescribe Sacchaflor (S. boulardii 5 × 109, Pharmaforce ApS) twice daily to hospitalized patients treated with antibiotics. Comparable departments from three other hospitals in our region were included as controls. All occurrences of CDI in patients receiving antibiotics were reported and compared to a baseline period defined as 2 years prior to intervention. Results were analyzed using run chart tests for non-random variation in CDI rates. In addition, odds ratios for CDI were calculated. S. boulardii compliance reached 44% at the intervention hospital, and 1389 patients were treated with Sacchaflor. Monthly CDI rates dropped from a median of 3.6% in the baseline period to 1.5% in the intervention period. S. boulardii treatment was associated with a reduced risk of CDI at the intervention hospital: OR = 0.06 (95% CI 0.02-0.16). At two control hospitals, CDI rates did not change. At one control hospital, the median CDI rate dropped from 3.5 to 2.4%, possibly reflecting the effects of simultaneous multifaceted intervention against CDI at that hospital. The results from this controlled prospective interventional study indicate that S. boulardii is effective for the prevention of CDI in an unselected cohort of mainly elderly patients from departments of internal medicine.

Database: Medline

2. Effect of an antimicrobial stewardship programme on antimicrobial utilisation and costs in patients with leukaemia: a retrospective controlled study.

Author(s): So, M; Mamdani, M M; Morris, A M; Lau, T T Y; Broady, R; Deotare, U; Grant, J; Kim, D; Schimmer, A D; Schuh, A C; Shajari, S; Steinberg, M; Bell, C M; Husain, S

Source: Clinical microbiology and infection : the official publication of the European Society of Clinical Microbiology and Infectious Diseases; Aug 2018; vol. 24 (no. 8); p. 882-888

Publication Date: Aug 2018

Publication Type(s): Journal Article

PubMedID: 29138099

Abstract:OBJECTIVESTo examine the effectiveness of an antimicrobial stewardship programme on utilization and cost of antimicrobials in leukaemia patients in Canada.METHODSWe conducted a multisite retrospective observational time series study from 2005 to 2013. We implemented academic detailing as the intervention of an antimicrobial stewardship programme in leukaemia units at a hospital, piloted February-July 2010, then fully implemented December 2010-March 2013, with no intervention in August-November 2010. Internal control was the same hospital's allogeneic haematopoietic stem-cell transplantation unit. External control was the combined leukaemia-haematopoietic stem-cell transplantation unit at another hospital. Primary outcome was antimicrobial utilization (antibiotics and antifungals) in defined daily dose per 100 patient-days (PD). Secondary outcomes were antimicrobial cost (Canadian dollars per PD); cost and utilization by drug class; length of stay; 30-day inpatient mortality; and nosocomial Clostridium difficile infection. We used autoregressive integrated moving average models to evaluate the impact of the intervention on outcomes.RESULTSThe intervention group included 1006 patients before implementation and 335 during full implementation. Correspondingly, internal control had 723 and 264 patients, external control 1395 and 864 patients. Antimicrobial utilization decreased significantly in the intervention group ($p < 0.01$, 278 vs. 247 defined daily dose per 100 PD), increased in external control ($p = 0.02$, 237.4 vs. 268.9 defined daily dose per 100 PD) and remained stable in internal control ($p = 0.66$). Antimicrobial cost decreased in the intervention group ($p = 0.03$; $154.59 per PD vs. $128.93 per PD), increased in external control ($p = 0.01$; $109.4 per PD vs. $135.97 per PD) but was stable in internal control ($p = 0.27$). Mortality, length of stay and nosocomial C. difficile rate in intervention group remained stable.CONCLUSIONSThe antimicrobial stewardship programme reduced antimicrobial use in leukaemia patients without affecting inpatient mortality and length of stay.

Database: Medline

3. Planning to halve GNBSI: getting to grips with healthcare-associated Escherichia coli bloodstream infection sources.

Author(s): Otter, Jonathan; Galletly, Tracey; Davies, Frances; Hitchcock, Jan; Gilchrist, Mark; Dyakova, Eleonora; Mookerjee, Siddharth; Holmes, Alison; Brannigan, Eimear

Source: The Journal of hospital infection; Jul 2018

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 30059746

Abstract:BACKGROUNDA thorough understanding of the local sources, risks, and antibiotic resistance for E. coli bloodstream infection (BSI) is required to focus prevention initiatives and therapy.AIMWe reviewed the sources and antibiotic resistance of healthcare-associated E. coli BSI.METHODSSources and antibiotic resistance profiles of all 250 healthcare-associated (post 48 hour) E. coli BSIs that occurred within our secondary and tertiary care hospital group from April 2014 to March 2017 were reviewed. Epidemiological associations with urinary source, gastrointestinal source, and febrile neutropaenia related BSIs were analysed using univariable and multivariable binary logistic regression models.FINDINGSE. coli BSIs increased 9% from 4.0 to 4.4 per 10,000 admissions comparing the 2014/15 and 2016/17 financial years. 89 cases (36%) had a urinary source; 30 (34%) of these were classified as urinary catheter-associated UTIs. 45 (18%) were related to febrile neutropaenia, and 38 (15%) had a gastrointestinal source. Cases were rarely associated with surgical procedures (11, 4%) or indwelling vascular devices (7, 3%). Female gender (odds ratio 2.3, 95% confidence interval 1.2-4.6) and older age (OR 1.02, CI 1.00-1.05) were significantly associated with a urinary source. No significant associations were identified for gastrointestinal source or febrile neutropaenia related BSIs. 47% of the isolates were resistant to ciprofloxacin, 37% to third-

generation cephalosporins, and 22% to gentamicin.CONCLUSIONSThe gastrointestinal tract and febrile neutropaenia together accounted for one third of E. coli BSI locally but were rare associations nationally. These sources need to be targeted locally to reduce an increasing trend of E. coli BSIs.

Database: Medline

4. Changing the paradigm for hospital outbreak detection by leading with genomic surveillance of nosocomial pathogens.

Author(s): Peacock, Sharon J; Parkhill, Julian; Brown, Nicholas M

Source: Microbiology (Reading, England); Jul 2018

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 30052172

Abstract: The current paradigm for hospital outbreak detection and investigation is based on methodology first developed over 150 years ago. Daily surveillance to detect patients positive for pathogens of particular importance for nosocomial infection is supported by epidemiological investigation to determine their relationship in time and place, and to identify any other factor that could link them. The antibiotic resistance pattern is commonly used as a surrogate for bacterial relatedness, although this lacks sensitivity and specificity. Typing may be used to define bacterial relatedness, although routine methods lack sufficient discriminatory power to distinguish relatedness beyond the level of bacterial clones. Ultimately, the identification of an outbreak remains a predominately subjective process reliant on the intuition of experienced infection control professionals. Here, we propose a redesign of hospital outbreak detection and investigation in which bacterial species associated with nosocomial transmission and infection undergo routine prospective whole-genome sequencing. Further investigation is based on the probability that isolates are associated with an outbreak, which is based on the degree of genetic relatedness between isolates. Evidence is provided that supports this model based on studies of MRSA (methicillin-resistant Staphylococcus aureus), together with the benefits of a 'Sequence First' approach. The feasibility of implementation is discussed, together with residual barriers that need to be overcome prior to implementation.

Database: Medline

5. Multicentre study to examine the extent of environmental contamination by potential bacterial pathogens, including antibiotic resistant bacteria, in hospital washrooms according to hand-drying method.

Author(s): E, Best; P, Parnell; J, Couturier; F, Barbut; A, Le Bozec; L, Arnoldo; A, Madia; S, Brusaferro; Mh, Wilcox

Source: The Journal of hospital infection; Jul 2018

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 30006281

Abstract:BACKGROUNDHand hygiene is a fundamental component of infection prevention, but few studies have examined whether hand-drying method affects the risk of dissemination of potential pathogens.MATERIALS/METHODSWe performed a multicentre, internal-crossover study comparing bacterial contamination levels in washrooms with hand-drying by either paper towels (PT) or jet air dryer (JAD, Dyson). 120 sampling sessions occurred over 12 weeks in each of 3 hospitals

(UK/France/Italy). Bacteria were cultured from air, multiple surfaces and dust. Washroom footfall (patients/visitors/staff) was monitored externally.RESULTSFootfall was nine times higher in UK washrooms. Bacterial contamination was lower in PT vs JAD washrooms; contamination was similar in France/UK, but markedly lower in Italy washrooms. Total bacterial recovery was significantly greater from JAD versus PT dispenser surfaces at all sites (median 100-300vs0-10 CFU; all p<0.0001). In UK/France, significantly more bacteria were recovered from JAD washroom floors (median 24vs191 CFU, p<0.00001). UK MSSA recovery was 3x more frequent and 6-fold higher for JADs vs PTs surfaces (both p<0.0001). UK MRSA recovery was 3x more frequent (21vs7 CFU) from JAD versus PT surfaces or floors. Significantly more enterococci and ESBL-producing bacteria were recovered from UK JAD versus PT washroom floors (p<0.0001). In France, ESBL-producing bacteria were recovered from dust twice as often during JAD versus PT use.CONCLUSIONSMultiple examples of significant differences in surface bacterial contamination, including by faecal and antibiotic resistant bacteria, were observed, with higher levels in JAD versus PT washrooms. Hand-drying method affects the risk of (airborne) dissemination of bacteria in real world settings.

Database: Medline

6. The Standardized Antimicrobial Administration Ratio: A New Metric for Measuring and Comparing Antibiotic Use.

Author(s): van Santen, Katharina L; Edwards, Jonathan R; Webb, Amy K; Pollack, Lori A; O'Leary, Erin; Neuhauser, Melinda M; Srinivasan, Arjun; Pollock, Daniel A

Source: Clinical infectious diseases : an official publication of the Infectious Diseases Society of America; Jul 2018; vol. 67 (no. 2); p. 179-185

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 29409000

Abstract: BackgroundTo provide a standardized, risk-adjusted method for summarizing antibiotic use (AU), enable hospitals to track their AU over time and compare their AU data to national benchmarks, the Centers for Disease Control and Prevention developed the Standardized Antimicrobial Administration Ratio (SAAR).MethodsHospitals reporting to the National Healthcare Safety Network (NHSN) AU Option collect and submit aggregated AU data electronically as antimicrobial days of therapy per patient days present. SAARs were developed for specific NHSN adult and pediatric patient care locations and cover five antimicrobial agent categories: (1) broad-spectrum agents predominantly used for hospital-onset/multi-drug resistant bacteria; (2) broad-spectrum agents predominantly used for community-acquired infections; (3) anti-methicillin-resistant Staphylococcus aureus agents; (4) agents predominantly used for surgical site infection prophylaxis; and (5) all antibiotic agents. The SAAR is an observed-to-predicted use ratio where predicted use is estimated from a statistical model; a SAAR of 1 indicates that observed use and predicted use are equal.ResultsMost location-level SAARs were statistically significantly different than 1: adult locations up to 52% lower than 1 and up to 41% higher than 1. Median SAARs in adult and pediatric ICUs had a range of 0.667-1.119. SAAR distributions serve as an external comparison to national SAARs.ConclusionsThis is the first aggregate AU metric that uses point-of-care, antimicrobial administration data electronically reported to a national surveillance system to enable risk-adjusted, AU comparisons across multiple hospitals. Endorsed by the National Quality Forum, SAARs provide AU benchmarks that stewardship programs can use to help drive improvements.

Database: Medline

7. Vitamin D supplementation to persistent carriers of MRSA-a randomized and placebo-controlled clinical trial.

Author(s): Björkhem-Bergman, Linda; Missailidis, Catharina; Karlsson-Valik, John; Tammelin, Ann; Ekström, Lena; Bottai, Matteo; Hammar, Ulf; Lindh, Gudrun; Bergman, Peter

Source: European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology; Jun 2018

Publication Date: Jun 2018

Publication Type(s): Journal Article

PubMedID: 29931657

Abstract: Methicillin-resistant Staphylococcus aureus (MRSA) is resistant to all beta-lactam antibiotics and can cause severe infections that are difficult to treat. Eradication strategies with conventional antibiotics are not always effective and alternative approaches are warranted. Here, we tested the hypothesis that daily supplementation with vitamin D for 12 months would reduce MRSA carriage rates among a group of persistent carriers. This was a double-blind, placebo-controlled randomized trial with n = 65 persistent MRSA carriers with 25-hydroxy vitamin D3 (25OHD) < 75 nmol/L, who were followed up with bacterial cultures at baseline and every 3 months for 1 year. The primary endpoint was the decline in MRSA positivity during the study period. The study was conducted in two MRSA outpatient clinics at the Karolinska University Hospital, Stockholm, Sweden. In total, n = 65 persistent MRSA carriers were randomized and n = 3 were lost to follow-up. Only patients deficient in vitamin D (< 75 nmol/L) were included. Vitamin D (4000 IU) or placebo/day was administered for 12 months. The decline in MRSA positivity was equal in the vitamin D and placebo group during the study period (OR, 1.00; 95% CI, 0.97-1.03; p = 0.928) and approximately 40% in both groups were MRSA-negative after 12 months. The vitamin D group produced 103 positive cultures out of 318 cultures (32.4%) from nose, throat, and perineum over the study period, whereas the placebo group produced 135/393 positive cultures (34.0%) (Fisher's exact test, p = 0.94). Vitamin D supplementation did not influence MRSA carriage. Thus, available data does not support vitamin D supplementation to persistent MRSA carriers.TRIAL REGISTRATIONwww.clinicaltrials.gov ; NCT02178488.

Database: Medline

8. [Clostridium difficile Infection: Epidemiology, Clinical Presentation, Therapy and Prevention].

Author(s): Kaffarnik, Magnus; Isner, Caroline; Hamsen, Uwe

Source: Zentralblatt fur Chirurgie; Jun 2018; vol. 143 (no. 3); p. 241-249

Publication Date: Jun 2018

Publication Type(s): English Abstract Journal Article

PubMedID: 29190854

Abstract: Clostridium difficile infections (CDI) are common causes of diarrhoea in hospitalised medical and surgical patients. Clinical presentation ranges from mild diarrhoea to pseudomembraneous enterocolitis of the colon and sometimes the small intestines, with development of a toxic megacolon. Recurrent infections are common. Early diagnosis is necessary because of high rates of complications and mortality. Knowledge of risk factors for the development of CDI is recommended. Early initiation of therapy is recommended to avoid complications and standard therapy is antibiotics, while therapy with monoclonal antibodies and vaccination is under research and development. Fulminant septic courses indicate surgical source control. Minimally invasive surgical therapy establishing a loop ileostomy and antibiotic installation via enema has to be considered as early surgical intervention. Fecal microbiotic transplantation is a new therapeutic

option for recurrent infection. Provisions for prevention and control have to be established to avoid in-hospital spread of pathogenic agents. This includes isolation of patients, personalisation of instruments, restriction of in-hospital transports, protective clothing and gloves, strict hand washing and antibiotic stewardship (ABS).

Database: Medline

9. Metronidazole in the prevention of antibiotic-associated diarrhoea and Clostridium difficile infection in high-risk hospitalised patients.

Author(s): Tobar-Marcillo, Marco; Guerrero-Duran, Maria; Avecillas-Segovia, Ariana; Pacchiano-Aleman, Lillana; Basante-Díaz, Roberto; Vela-Vizcaino, Hiram; Espinosa-Aznar, Eduardo; Castorena García, Pedro; Santiago-Ramírez, Ricardo; Rivas-Bucio, Ixel

Source: Gastroenterologia y hepatologia; 2018; vol. 41 (no. 6); p. 362-368

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 29759925

Abstract:BACKGROUNDIn-hospital diarrhoea has a high impact on morbidity and mortality rates among hospitalised patients. Chemoprophylaxis with antibiotics in selected patients could be a cost-effective tool for prevention.METHODSA prospective randomised, open-label study was conducted in a tertiary hospital in Mexico City, selecting patients at high risk of acquiring in-hospital diarrhoea and assigning them to a group taking metronidazole 500mg orally every eight hours for seven days or an observation group. The primary endpoint was the presence of antibiotic-associated diarrhoea and Clostridium difficile (C. difficile) infection during the seven days of evaluation. The study was approved by the institutional ethics committee. Registration number (11.2017) of 14 March 2017.RESULTSOf the 116 patients who met the inclusion criteria, 96 were analysed, 41 in the intervention group and 55 in the observation group: 4.9% of patients in the intervention group and 16.4% in the observation group developed antibiotic-associated diarrhoea (odds ratio [OR] 0.26 (0.05-1.29); p =.109). 0% of patients in the intervention group and 9.1% in the observation group developed C. difficile infection (odds ratio [OR] 0.91 (0.84-0.99); p =.069).CONCLUSIONSMetronidazole prophylaxis did not result in a reduction in antibiotic-associated diarrhoea. It could, however, be an effective measure for preventing C. difficile infection in selected high-risk patients. This was the first prospective study designed for this purpose. New studies that involve a larger number of patients are required in the future.

Database: Medline

10. Tomatidine Is a Lead Antibiotic Molecule That Targets Staphylococcus aureus ATP Synthase Subunit C.

Author(s): Lamontagne Boulet, Maxime; Isabelle, Charles; Guay, Isabelle; Brouillette, Eric; Langlois, Jean-Philippe; Jacques, Pierre-Étienne; Rodrigue, Sébastien; Brzezinski, Ryszard; Beauregard, Pascale B; Bouarab, Kamal; Boyapelly, Kumaraswamy; Boudreault, Pierre-Luc; Marsault, Éric; Malouin, François

Source: Antimicrobial agents and chemotherapy; Jun 2018; vol. 62 (no. 6)

Publication Date: Jun 2018

Publication Type(s): Journal Article

PubMedID: 29610201

Abstract: Methicillin-resistant Staphylococcus aureus (MRSA) is a leading cause of deadly hospital-acquired infections. The discovery of anti-Staphylococcus antibiotics and new classes of drugs not susceptible to the mechanisms of resistance shared among bacteria is imperative. We recently showed that tomatidine (TO), a steroidal alkaloid from solanaceous plants, possesses potent antibacterial activity against S. aureus small-colony variants (SCVs), the notoriously persistent form of this bacterium that has been associated with recurrence of infections. Here, using genomic analysis of in vitro-generated TO-resistant S. aureus strains to identify mutations in genes involved in resistance, we identified the bacterial ATP synthase as the cellular target. Sequence alignments were performed to highlight the modified sequences, and the structural consequences of the mutations were evaluated in structural models. Overexpression of the atpE gene in S. aureus SCVs or introducing the mutation found in the atpE gene of one of the high-level TO-resistant S. aureus mutants into the Bacillus subtilis atpE gene provided resistance to TO and further validated the identity of the cellular target. FC04-100, a TO derivative which also possesses activity against non-SCV strains, prevents high-level resistance development in prototypic strains and limits the level of resistance observed in SCVs. An ATP synthesis assay allowed the observation of a correlation between antibiotic potency and ATP synthase inhibition. The selectivity index (inhibition of ATP production by mitochondria versus that of bacterial ATP synthase) is estimated to be >105-fold for FC04-100.

Database: Medline

11. Prevalence and Molecular Characterization of S. aureus and MRSA on Children's Playgrounds.

Author(s): Thapaliya, Dipendra; Kadariya, Jhalka; Capuano, Mike; Rush, Haleigh; Yee, Clair; Oet, Mark; Lohani, Sapana; Smith, Tara C

Source: The Pediatric infectious disease journal; May 2018

Publication Date: May 2018

Publication Type(s): Journal Article

PubMedID: 29746375

Abstract:BACKGROUNDStaphylococcus aureus is a major public health concern due to the emergence of virulent and drug resistant strains such as methicillin-resistant Staphylococcus aureus (MRSA). Although numerous studies have been conducted to assess the environmental contamination of S. aureus in health-care and household settings, little is known about the prevalence and epidemiology of S. aureus, including MRSA, on environmental surfaces of children's playgrounds. This study investigated the prevalence and molecular epidemiology of S. aureus and MRSA at playgrounds in northeast Ohio (NEO).METHODSA total of 280 environmental samples were collected from 10 playgrounds in NEO in July 2016. Sampling sites were selected based on playground size and availability of equipment located in both small and large cities and their suburbs. Samples were analyzed using established microbiology methods, and resulting S. aureus isolates were typed by spa typing. PCR was used to detect the presence of the Panton-Valentine leukocidin (PVL) and mecA genes. Antibiotic susceptibility was tested via the Vitek-2 System.RESULTSThe overall prevalence of S. aureus and MRSA was 31.8% (89/280) and 3.9% (11/280) respectively. A total of 43 spa types were detected from 257 S. aureus isolates. Overall, t189 was the most common spa type, accounting for 15.6% (40/257) of the isolates. Sixteen isolates (6.2%) were t002 (ST5/USA100), a common hospital-associated strain, and 11 isolates (4.3%) were t008 (ST8/USA300), a common community-associated strain. Five livestock-associated strain (t571/ST398) were also identified. Twenty-nine (11.3%) isolates were resistant to oxacillin, and sixty-six (25.7%) were multi-drug resistant S. aureus.CONCLUSIONSThe results of this study indicate that environmental surfaces of playgrounds in northeastern Ohio were contaminated with S. aureus and

MRSA. These data reinforce the need for implementing effective prevention strategies to mitigate the risk imposed to children by environmental contamination of MRSA.

Database: Medline

12. The role of dalbavancin in the multi-disciplinary management of wound infections in orthopaedic surgery.

Author(s): Arena, Fabio; Romanini, Emilio; Rosi, Elia; Salomone, Carlo; Tucci, Gabriele; Pempinello, Ciro; Fantoni, Massimo

Source: Journal of chemotherapy (Florence, Italy); May 2018; vol. 30 (no. 3); p. 131-139

Publication Date: May 2018

Publication Type(s): Journal Article

PubMedID: 29168673

Abstract: Antimicrobial resistance is continuously increasing among bacterial clinical isolates (especially methicillin resistance in Staphylococcus aureus, MRSA), negatively impacting on outcomes of patients with Surgical Site Infections (SSIs). A multi-disciplinary team work is essential for SSIs prevention and for the choice of antibiotic therapy of orthopaedic SSIs. In particular, an Antibiotic Stewardship (AS) approach is recommended for preserving the activity of old and new antimicrobials. Dalbavancin is a novel antimicrobial agent, belonging to the lipoglycopeptides family, recently approved by FDA for the treatment of ABSSSIs (Acute Bacterial Skin and Skin Structure Infections) and can be considered as a candidate for the treatment of orthopaedic superficial SSIs. An antimicrobial activity directed against MRSA and other multi-resistant Gram-positive pathogens, a bactericidal effect and an extremely extended half-life are among key features of this drug. Dalbavancin gives to clinicians the option to provide an intravenous antimicrobial agent shown to be as effective as conventional therapies, without requiring prolonged admission into the hospital, drastically reducing the length of hospital stay (without reducing the treatment compliance) and total cost per patient. In this paper, we analyze general, microbiological and pharmacological features of dalbavancin, aiming at supporting clinicians while positioning this drug in the context of orthopaedic SSIs.

Database: Medline

13. Incidence, Risk Factors, and Outcomes of Clostridium difficile Infections in Kidney Transplant Recipients.

Author(s): Li, George; Trac, Justin; Husain, Shahid; Famure, Olusegun; Li, Yanhong; Kim, S Joseph

Source: Transplantation; Apr 2018

Publication Date: Apr 2018

Publication Type(s): Journal Article

PubMedID: 29620613

Abstract:BACKGROUNDKidney transplant recipients (KTR) may be at increased risk for Clostridium difficile infections (CDI) but risk factors and outcomes in this population have not been well studied.METHODSAn observational cohort study was conducted to determine the incidence, risk factors, and outcomes of CDI in KTR. A total of 1,816 KTR transplanted between 2000 and 2013 at Toronto General Hospital were included. Sixty-eight patients developed CDI. Controls were selected at a 4:1 ratio using risk-set sampling and risk factors were explored using conditional logistic regression models. The impact of CDI on graft outcomes was evaluated using Cox proportional hazards models.RESULTSThe incidence rate of CDI was 0.64 cases/100 person-years. Independent

predictors of CDI included antibiotic use (OR 2.88 [95%CI: 1.35, 6.15]), increased duration of hospitalization posttransplant (OR 1.04 [95%CI: 1.02, 1.06]), receiving a deceased donor kidney (OR 2.98 [95%CI: 1.47, 6.05]), and a history of biopsy-proven acute rejection (OR 5.82 [95%CI: 2.22, 15.26]). In the Cox proportional hazards model, CDI was found to be an independent risk factor for the subsequent development of biopsy-proven acute rejection (HR 2.18 [95% CI: 1.34, 3.55]).CONCLUSIONSOur results confirm that transplant-specific factors place KTR at a higher risk for CDI. CDI may increase the risk of adverse outcomes such as biopsy-proven acute rejection. These findings emphasize the importance of preventive strategies to reduce the morbidity associated with CDI in KTR.

Database: Medline

14. A comparative study of hand hygiene and alcohol-based hand rub use among Irish nursing and medical students.

Author(s): Kingston, Liz M; O'Connell, Nuala H; Dunne, Colum P

Source: Nurse education today; Apr 2018; vol. 63 ; p. 112-118

Publication Date: Apr 2018

Publication Type(s): Journal Article Observational Study

PubMedID: 29432997

Abstract:BACKGROUNDIn Ireland, the setting for this study, the national prevalence rate of health care-associated infection (HCAI) in acute-care facilities is 5.2%. Hand hygiene and in particular hand rubbing using alcohol-based hand rub (ABHR) is highly efficacious in preventing HCAI transmission. Yet, compliance among healthcare professionals is sub-optimal. Less is known about the practices of nursing and medical students and no study comparing practices among these groups in Ireland was found. Hence, the aim of this study was to provide insight into the current hand hygiene and hand rubbing practices of nursing and medical students in Ireland and, by doing so, contribute to the broader understanding of this topic.METHODSThis observational study employed a cross-sectional, self-reported design. An electronically administered questionnaire was sent to all nursing and medical students from one university. Data were analysed using appropriate software.RESULTSThe response rate was 37% (323/872). Higher compliance with the World Health Organisation 'my five moments for hand hygiene' model was reported among nursing students (NS) than medical students (MS), with scope for improvement in both disciplines identified. Hand hygiene compliance was highest after body fluid exposure (99.5% NS, 91% MS) and lowest after touching a patient's surroundings (61.5% NS, 57.5% MS). Attitudes towards hand rubbing were largely positive in both disciplines. 16% of NS were not aware of the clinical contraindications to ABHR use, compared to 45% of MS. 9% of NS did not know when to use soap and water and when to use ABHR, compared to 36% of MS. In contrast, more medical students (46%) than nursing students (22%) were routinely using alcohol-based hand rub for decontamination of hands as recommended.CONCLUSIONSResults suggest scope to review current hand hygiene curricula focusing on the knowledge gaps, the practice deficits and the barriers to ABHR usage identified.

Database: Medline

15. Muddy puddles - the microbiology of puddles located outside tertiary university teaching hospitals.

Author(s): Furukawa, M; McCaughan, J; Stirling, J; Millar, B C; Bell, J; Goldsmith, C E; Reid, A; Misawa, N; Moore, J E

Source: Letters in applied microbiology; Apr 2018; vol. 66 (no. 4); p. 284-292

Publication Date: Apr 2018

Publication Type(s): Journal Article

PubMedID: 29377174

Abstract: In the British Isles, the frequency of rain results in the formation of puddles on footpaths and roads in/around hospitals. No data are available demonstrating the microbiological composition of such puddles and therefore a study was undertaken to examine the microbiology of puddles in the grounds of two tertiary university-teaching hospitals (18 sites) and compared with control puddles from non-hospital rural environments (eight sites), estimating (i) total viable count; (ii) identification of organisms in puddles; (iii) enumeration of Escherichia coli: (iv) detection of Extended Spectrum β-Lactamase producing organisms and (v) direct antimicrobial susceptibility testing. A mean count of 2·3 × 103 CFU per ml and 1·0 × 109 CFU per ml was obtained for hospital and non-hospital puddles respectively. Isolates (n = 77; 54 hospital and 23 non-hospital) were isolated comprising of 23 species among 17 genera (hospital sites), where the majority (10/16; 62·5%) of genera identified were Gram-negative approximately, a fifth (20·6%) were shared by hospital and non-hospital rural samples. Escherichia coli was detected in half of the hospital puddles and under-half (37·5%) of the rural puddles extended spectrum β-lactamase organisms were not detected in any samples examined. Rainwater puddles from the hospital and non-hospital environments contain a diverse range of bacteria, which are capable of causing infections.SIGNIFICANCE AND IMPACT OF THE STUDYThis study demonstrated the presence of a wide diversity of bacterial taxa associated with rainwater puddles around hospitals, many of which are capable of causing human disease. Of clinical significance is the presence of Pseudomonas aeruginosa isolated from a hospital puddle, particularly for patients with cystic fibrosis. The presence of potentially disease-causing bacteria in puddles in and around hospitals identifies a new potential environmental reservoir of bacteria. Furthermore work is now needed to define their potential of entering or exiting hospital wards by contaminated footwear.

Database: Medline

16. Early Results of Fecal Microbial Transplantation Protocol Implementation at a Community-based University Hospital.

Author(s): Duarte-Chavez, Rodrigo; Wojda, Thomas R; Zanders, Thomas B; Geme, Berhanu; Fioravanti, Gloria; Stawicki, Stanislaw P

Source: Journal of global infectious diseases; 2018; vol. 10 (no. 2); p. 47-57

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 29910564

Available at Journal of Global Infectious Diseases - from Europe PubMed Central - Open Access

Available at Journal of Global Infectious Diseases - from ProQuest (Hospital Premium Collection) - NHS Version

Available at Journal of Global Infectious Diseases - from jgid.org

Abstract: IntroductionClostridium difficile (CD) is a serious and increasingly prevalent healthcare-associated infection. The pathogenesis of CD infection (CDI) involves the acquisition of CD with a concurrent disruption of the native gut flora. Antibiotics are a major risk although other contributing factors have also been identified. Clinical management combines discontinuation of the offending antibiotic, initiation of CD-specific antibiotic therapy, probiotic agent use, fecal microbiota transplantation (FMT), and surgery as the "last resort" option. The aim of this study is to review short-term clinical results following the implementation of FMT protocol (FMTP) at our community-

based university hospital.MethodsAfter obtaining Institutional Review Board and Infection Control Committee approvals, we implemented an institution-wide FMTP for patients diagnosed with CDI. Prospective tracking of all patients receiving FMT between July 1, 2015, and February 1, 2017, was conducted using REDCap™ electronic data capture system. According to the FMTP, indications for FMT included (a) three or more CDI recurrences, (b) two or more hospital admissions with severe CDI, or (c) first episode of complicated CDI (CCDI). Risk factors for initial infection and for treatment failure were assessed. Patients were followed for at least 3 months to monitor for cure/failure, relapse, and side effects. Frozen 250 mL FMT samples were acquired from OpenBiome (Somerville, MA, USA). After 4 h of thawing, the liquid suspension was applied using colonoscopy, beginning with terminal ileum and proceeding distally toward mid-transverse colon. Monitored clinical parameters included disease severity (Hines VA CDI Severity Score or HVCSS), concomitant medications, number of FMT treatments, non-FMT therapies, cure rates, and mortality. Descriptive statistics were utilized to outline the study results.ResultsA total of 35 patients (mean age 58.5 years, 69% female) were analyzed, with FMT-attributable primary cure achieved in 30/35 (86%) cases. Within this subgroup, 2/30 (6.7%) patients recurred and were subsequently cured with long-term oral vancomycin. Among five primary FMT failures (14% total sample), 3 (60%) achieved medical cure with long-term oral vancomycin therapy and 2 (40%) required colectomy. For the seven patients who either failed FMT or recurred, long-term vancomycin therapy was curative in all but two cases. For patients with severe CDI (HVCSS ≥3), primary and overall cure rates were 6/10 (60%) and 8/10 (80%), respectively. Patients with CCDI (n = 4) had higher HVCSS (4 vs. 3) and a mortality of 25%. Characteristics of patients who failed initial FMT included older age (70 vs. 57 years), female sex (80% vs. 67%), severe CDI (80% vs. 13%), and active opioid use during the initial infection (60% vs. 37%) and at the time of FMT (60% vs. 27%). The most commonly reported side effect of FMT was loose stools.ConclusionsThis pilot study supports the efficacy and safety of FMT administration for CDI in the setting of a community-based university hospital. Following FMTP implementation, primary (86%) and overall (94%) nonsurgical cure rates were similar to those reported in other studies. The potential role of opioids as a modulator of CDI warrants further clinical investigation.

Database: Medline

17. Validation of Active Surveillance Testing for Clostridium difficile Colonization Using the cobas Cdiff Test.

Author(s): Patel, Parul A; Schora, Donna M; Singh, Kamaljit; Peterson, Lance R

Source: Journal of clinical microbiology; Apr 2018; vol. 56 (no. 4)

Publication Date: Apr 2018

Publication Type(s): Journal Article

PubMedID: 29367295

Available at Journal of Clinical Microbiology - from HighWire - Free Full Text

Available at Journal of Clinical Microbiology - from Europe PubMed Central - Open Access

Abstract: Clostridium difficile infection (CDI) is not declining in the United States. Nucleic acid amplification tests (NAAT) are used as part of active surveillance testing programs to prevent health care-associated infection. The objective of this study was to validate the cobas Cdiff Test on the cobas 4800 System (cobas) within a four-hospital system using prospectively collected perirectal swabs from asymptomatic patients at admission and during monthly intensive care unit (ICU) screening in an infection control CDI reduction program. Performance of the cobas was compared to that of toxigenic culture. Each positive cobas sample and the next following negative patient swab were cultured. The study design gave 273 samples processed by both cobas (137 positive and 136 negative) and culture (one negative swab was not cultured). Discrepant analysis was performed using a second NAAT, the Xpert C. difficile Epi test (Xpert). This strategy was compared to a medical

record review for antibiotic receipt that would inhibit growth of C. difficile in colonic stool. None of the cobas-negative samples were culture positive. The cobas positive predictive value was 75.2% (95% confidence interval [CI], 66.9% to 82%) and positive percent agreement was 100% (95% CI, 96.0% to 100%). Overall agreement between cobas and direct toxigenic culture was 87.6% (95% CI, 83.1% to 91%). For the cobas-positive/culture-negative (discrepant) samples, 7 Xpert-positive samples were from patients receiving inhibitory antimicrobials; only 4 of 23 Xpert-negative samples received these agents (P = 0.00006). Our results support use of the cobas as a reliable assay for an active surveillance testing program to detect asymptomatic carriers of toxigenic C. difficile.

Database: Medline

18. [Piperacillin/Tazobactam Shortage: Central Restriction and Alternative Recommendations as Effective Antibiotic-Stewardship Intervention at a Maximal Care Hospital].

Author(s): Kessel, Johanna; Dolff, Barbara; Wichelhaus, Thomas; Keiner, Nils; Hogardt, Michael; Reinheimer, Claudia; Wieters, Imke; Harder, Sebastian; Kempf, Volkhard A J; Stephan, Christoph; für das Antibiotic-Stewardship-Team (UKF)

Source: Deutsche medizinische Wochenschrift (1946); Apr 2018; vol. 143 (no. 8); p. e59

Publication Date: Apr 2018

Publication Type(s): Journal Article

PubMedID: 29237206

Abstract:BACKGROUND Drug supply bottleneck is a worldwide challenge, e. g. the antibiotics Piperacillin/Tazobactam shortage in 2016/2017. The efficacy of an appropriate replacement management was evaluated at the University Hospital Frankfurt (UHF).METHODS The Antibiotic-Stewardship (ABS)-Team at UHF decreed a restriction of PIP/TAZ and provided alternative antibiotic therapy recommendations during the shortage period. Consequences of this intervention on antibiotic consumption and overall costs were investigated.RESULTS Over 12-weeks, PIP/TAZ-mean application rate was reduced by 71 % and was predominantly used to treat hospital acquired pneumonia (62 %), febrile neutropenian children (12 %), followed by other indications (< 10 %, each). Alternative substances' use increased (Ceftazidim + 229 %, Imipenem/Cilastatin + 18 %, Meropenem + 27 %, Ceftriaxon + 26 %, Levofloxacin + 11 %, Ciprofloxacin + 14 %, Ampicillin/Sulbactam + 83 %), however the overall antibiotic consumption declined by -5.8 % (cost savings: 13 %). Simultaneously, additional personnel costs have been noted (+ 4300 €). The evidence rate of bloodstream infections with resistant bacteria and detection of Clostridium-difficile-toxin were both not significantly elevated, compared to windows just ahead, after and one year before intervention period.CONCLUSION Drug shortages challenge hospital antibiotic-stewardship programs by enforced use of broad spectrum-antibiotics, endanger patient safety and require rational replacement strategies, following infectious diseases- and microbiological outlines. Whilst personnel expenditures are higher, antimicrobial-stewardship interventions may successfully contribute to prevent additional medication costs.

Database: Medline

19. Understanding Clostridium difficile Colonization.

Author(s): Crobach, Monique J T; Vernon, Jonathan J; Loo, Vivian G; Kong, Ling Yuan; Péchiné, Séverine; Wilcox, Mark H; Kuijper, Ed J

Source: Clinical microbiology reviews; Apr 2018; vol. 31 (no. 2)

Publication Date: Apr 2018

Publication Type(s): Journal Article Review

PubMedID: 29540433

Abstract: Clostridium difficile is the main causative agent of antibiotic-associated and health care-associated infective diarrhea. Recently, there has been growing interest in alternative sources of C. difficile other than patients with Clostridium difficile infection (CDI) and the hospital environment. Notably, the role of C. difficile-colonized patients as a possible source of transmission has received attention. In this review, we present a comprehensive overview of the current understanding of C. difficile colonization. Findings from gut microbiota studies yield more insights into determinants that are important for acquiring or resisting colonization and progression to CDI. In discussions on the prevalence of C. difficile colonization among populations and its associated risk factors, colonized patients at hospital admission merit more attention, as findings from the literature have pointed to their role in both health care-associated transmission of C. difficile and a higher risk of progression to CDI once admitted. C. difficile colonization among patients at admission may have clinical implications, although further research is needed to identify if interventions are beneficial for preventing transmission or overcoming progression to CDI.

Database: Medline

20. Impact of Vancomycin MIC on Clinical Outcomes of Patients with Methicillin-Resistant Staphylococcus aureus Bacteremia Treated with Vancomycin at an Institution with Suppressed MIC Reporting.

Author(s): Adani, Shaili; Bhowmick, Tanaya; Weinstein, Melvin P; Narayanan, Navaneeth

Source: Antimicrobial agents and chemotherapy; Apr 2018; vol. 62 (no. 4)

Publication Date: Apr 2018

Publication Type(s): Journal Article

PubMedID: 29378704

Available at Antimicrobial Agents and Chemotherapy - from HighWire - Free Full Text

Available at Antimicrobial Agents and Chemotherapy - from Europe PubMed Central - Open Access

Abstract: Methicillin-resistant Staphylococcus aureus (MRSA) is a leading cause of bacteremia and is associated with significant morbidity and mortality. Prior studies evaluating the association of vancomycin MICs with clinical outcomes in patients with MRSA bacteremia have been inconsistent. This study evaluated the association between vancomycin MICs and 30-day in-hospital mortality rates for patients with MRSA bacteremia. This was a retrospective cohort study of patients with MRSA bacteremia treated with vancomycin for ≥72 h from January 2013 to August 2016. Vancomycin MICs were determined by broth microdilution via automated susceptibility testing methods. Study groups consisted of patients with MRSA isolates that had vancomycin MICs of <2 μg/ml and those with vancomycin MICs of 2 μg/ml. Covariates included demographics, severity of illness, comorbidities, intensive-care unit (ICU) admission, infectious disease consultation, infectious sources, and hospital onset of bacteremia. The primary outcome was 30-day in-hospital mortality. Secondary outcomes included the duration of bacteremia, persistent bacteremia for ≥7 days, recurrence within 30 days, change to alternative antibiotic therapy, and length of hospital stay. Multivariate logistic regression models were analyzed to control for potential confounding variables. A total of 166 patients were included for analysis: 91 patients with vancomycin MICs of <2 μg/ml and 75 patients with vancomycin MICs of 2 μg/ml. In the multivariate logistic regression model, a vancomycin MIC of 2 μg/ml, compared to a MIC of <2 μg/ml, was not significantly associated with 30-day in-hospital mortality after adjustment for confounders. Additionally, all secondary outcomes were not statistically significantly different between study groups. In patients with MRSA bacteremia treated with vancomycin, the vancomycin MIC was not associated with differences in clinical outcomes.

Database: Medline

21. Economic evaluation of S. boulardii CNCM I-745 for prevention of antibioticassociated diarrhoea in hospitalized patients.

Author(s): Vermeersch, S J; Vandenplas, Y; Tanghe, A; Elseviers, M; Annemans, L

Source: Acta gastro-enterologica Belgica; 2018; vol. 81 (no. 2); p. 269-276

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 30024698

Available at Acta gastro-enterologica Belgica - from EBSCO (MEDLINE Complete)

Abstract: Interest in administration of probiotics to prevent antibiotic-associated diarrhoea (AAD) in hospitalized patients is increasing. We determined the cost of antibiotic-associated diarrhoea in hospital settings for non-complicated and Clostridium difficile (C.diff) complicated AAD, and performed a health-economic analysis of AAD prevention with S. boulardii CNCM I-745 (S. boulardii) from data collected in 1 university and 3 regional hospitals in Flanders. Using a decision tree analytic model, costs and effects of S. boulardii for AAD prevention are calculated. Incremental costs due to AAD, including increased length of hospitalization, were calculated using bottom-up and top-down costing approaches from a hospital, healthcare payer (HCP) and societal perspective. Model robustness was tested using sensitivity analyses. Additional costs per hospitalized patient range from € 277.4 (hospital) to € 2,150.3 (societal) for non-complicated and from € 588.8 (hospital) to € 2,239.1 (societal) for C. diff. complicated AAD. Using S. boulardii as AAD prevention results in cost savings between € 50.3 (bottom-up) and € 28.1 (topdown) per patient treated with antibiotics from the HCP perspective; and € 95.2 and € 14.7 per patient from the societal and hospital perspectives. Our analysis shows the potential for using S. boulardii as AAD prophylactic treatment in hospitalized patients. Based on 831,655 hospitalizations with antibiotic administration in 2014 and € 50.3 cost saving per patient on antibiotics, generalized use of S. boulardii could result in total annual savings up to € 41.8 million for the Belgian HCP.

Database: Medline

22. Lactobacillus paracasei CNCM I-3689 reduces vancomycin-resistant Enterococcus persistence and promotes Bacteroidetes resilience in the gut following antibiotic challenge.

Author(s): Crouzet, Laureen; Derrien, Muriel; Cherbuy, Claire; Plancade, Sandra; Foulon, Mélanie; Chalin, Benjamin; van Hylckama Vlieg, Johan E T; Grompone, Gianfranco; Rigottier-Gois, Lionel; Serror, Pascale

Source: Scientific reports; Mar 2018; vol. 8 (no. 1); p. 5098

Publication Date: Mar 2018

Publication Type(s): Journal Article

PubMedID: 29572473

Available at Scientific Reports - from Nature Publishing Group - Open Access

Available at Scientific Reports - from Europe PubMed Central - Open Access

Available at Scientific Reports - from ProQuest (Hospital Premium Collection) - NHS Version

Available at Scientific Reports - from PubMed Central

Abstract: Enterococci, in particular vancomycin-resistant enterococci (VRE), are a leading cause of hospital-acquired infections. Promoting intestinal resistance against enterococci could reduce the

risk of VRE infections. We investigated the effects of two Lactobacillus strains to prevent intestinal VRE. We used an intestinal colonisation mouse model based on an antibiotic-induced microbiota dysbiosis to mimic enterococci overgrowth and VRE persistence. Each Lactobacillus spp. was administered daily to mice starting one week before antibiotic treatment until two weeks after antibiotic and VRE inoculation. Of the two strains, Lactobacillus paracasei CNCM I-3689 decreased significantly VRE numbers in the feces demonstrating an improvement of the reduction of VRE. Longitudinal microbiota analysis showed that supplementation with L. paracasei CNCM I-3689 was associated with a better recovery of members of the phylum Bacteroidetes. Bile salt analysis and expression analysis of selected host genes revealed increased level of lithocholate and of ileal expression of camp (human LL-37) upon L. paracasei CNCM I-3689 supplementation. Although a direct effect of L. paracasei CNCM I-3689 on the VRE reduction was not ruled out, our data provide clues to possible anti-VRE mechanisms supporting an indirect anti-VRE effect through the gut microbiota. This work sustains non-antibiotic strategies against opportunistic enterococci after antibiotic-induced dysbiosis.

Database: Medline

23. Risk of Subsequent Sepsis Within 90 Days After a Hospital Stay by Type of Antibiotic Exposure.

Author(s): Baggs, James; Jernigan, John A; Halpin, Alison Laufer; Epstein, Lauren; Hatfield, Kelly M; McDonald, L Clifford

Source: Clinical infectious diseases : an official publication of the Infectious Diseases Society of America; Mar 2018; vol. 66 (no. 7); p. 1004-1012

Publication Date: Mar 2018

Publication Type(s): Journal Article

PubMedID: 29136126

Abstract: BackgroundWe examined the risk of sepsis within 90 days after discharge from a previous hospital stay by type of antibiotic received during the previous stay.MethodsWe retrospectively identified a cohort of hospitalized patients from the Truven Health MarketScan Hospital Drug Database. We examined the association between the use of certain antibiotics during the initial hospital stay, determined a priori, and the risk of postdischarge sepsis controlling for potential confounding factors in a multivariable logistic regression model. Our primary exposure was receipt of antibiotics more strongly associated with clinically important microbiome disruption. Our primary outcome was a hospital stay within 90 days of the index stay that included an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) discharge diagnosis of severe sepsis (ICD-9-CM code 995.92) or septic shock (785.52).ResultsAmong 516 hospitals, we randomly selected a single stay for eligible patients. In 0.17% of these patients, severe sepsis/septic shock developed within 90 days after discharge. The risk of sepsis associated with exposure to our high-risk antibiotics was 65% higher than in those without antibiotic exposure.ConclusionsOur study identified an increased risk of sepsis within 90 days of discharge among patients with exposure to high-risk antibiotics or increased quantities of antibiotics during hospitalization. Given that a significant proportion of inpatient antimicrobial use may be unnecessary, this study builds on previous evidence suggesting that increased stewardship efforts in hospitals may not only prevent antimicrobial resistance, Clostridium difficile infection, and other adverse effects, but may also reduce unwanted outcomes potentially related to disruption of the microbiota, including sepsis.

Database: Medline

24. The effect of triclosan-coated sutures on the rate of surgical site infection after hip and knee arthroplasty: a double-blind randomized controlled trial of 2546 patients.

Author(s): Sprowson, A P; Jensen, C; Parsons, N; Partington, P; Emmerson, K; Carluke, I; Asaad, S; Pratt, R; Muller, S; Ahmed, I; Reed, M R

Source: The bone & joint journal; Mar 2018; vol. 100

Publication Date: Mar 2018

Publication Type(s): Randomized Controlled Trial Multicenter Study Journal Article

PubMedID: 29589500

Abstract: AimsSurgical site infection (SSI) is a common complication of surgery with an incidence of about 1% in the United Kingdom. Sutures can lead to the development of a SSI, as micro-organisms can colonize the suture as it is implanted. Triclosan-coated sutures, being antimicrobical, were developed to reduce the rate of SSI. Our aim was to assess whether triclosan-coated sutures cause a reduction in SSIs following arthroplasty of the hip and knee.Patients and MethodsThis two-arm, parallel, double-blinded study involved 2546 patients undergoing elective total hip (THA) and total knee arthroplasty (TKA) at three hospitals. A total of 1323 were quasi-randomized to a standard suture group, and 1223 being quasi-randomized to the triclosan-coated suture group. The primary endpoint was the rate of SSI at 30 days postoperatively.ResultsThe baseline characteristics of age, gender and comorbidities were well matched in the two groups. The rates of superficial SSI were 0.8% in the control group and 0.7% in the intervention group (p = 0.651), and when deep and superficial SSIs were combined the rates were 2.5% and 1.8 (p = 0.266). The length of stay in hospital and the rates of medical complications did not differ significantly between the groups (p = 1.000).ConclusionThis trial provided no evidence that the use of triclosan-coated sutures at THA and TKA leads to a reduction in the rate of SSI. Cite this article: Bone Joint J 2018;100-B:296-302.

Database: Medline

25. Comparison of Different Strategies for Providing Fecal Microbiota Transplantation to Treat Patients with Recurrent Clostridium difficile Infection in Two English Hospitals: A Review.

Author(s): Goldenberg, Simon D; Batra, Rahul; Beales, Ian; Digby-Bell, Jonathan Leith; Irving, Peter Miles; Kellingray, Lee; Narbad, Arjan; Franslem-Elumogo, Ngozi

Source: Infectious diseases and therapy; Mar 2018; vol. 7 (no. 1); p. 71-86

Publication Date: Mar 2018

Publication Type(s): Journal Article Review

PubMedID: 29450831

Available at Infectious Diseases and Therapy - from Europe PubMed Central - Open Access

Available at Infectious Diseases and Therapy - from ProQuest (Hospital Premium Collection) - NHS Version

Available at Infectious Diseases and Therapy - from PubMed Central

Abstract: Fecal microbiota transplant (FMT) has emerged as a highly efficacious treatment for difficult cases of refractory and/or recurrent Clostridium difficile infection (CDI). There have been many well-conducted randomized controlled trials and thousands of patients reported in case series that describe success rates of approximately 90% following one or more FMT. Although the exact mechanisms of FMT have yet to be fully elucidated, replacement or restoration of a 'normal' microbiota (or at least a microbiota resembling those who have never had CDI) appears to have a positive effect on the gut dysbiosis that is thought to exist in these patients. Furthermore, despite being aesthetically unappealing, this 'ultimate probiotic' is a particularly attractive solution to a difficult problem that avoids repeated courses of antibiotics. The lack of clarity about the exact mechanism of action and the 'active ingredient' of FMT (e.g., individual or communities of bacteria, bacteriophage, or bioactive molecules such as bile acids) has hindered the ability to produce a

standardized and well-characterized FMT product. There is no standard method to produce material for FMT, and there are a multitude of factors that can vary between institutions that offer this therapy. Only a few studies have directly compared clinical efficacy in groups of patients who have been treated with FMT prepared differently (e.g., fresh vs. frozen) or administered by different route (e.g., by nasojejunal tube, colonoscopy or by oral administration of encapsulated product). More of these studies should be undertaken to clarify the superiority or otherwise of these variables. This review describes the methods and protocols that two English NHS hospitals independently adopted over the same time period to provide FMT for patients with recurrent CDI. There are several fundamental differences in the methods used, including selection and testing of donors, procedures for preparation and storage of material, and route of administration. These methods are described in detail in this review highlighting differing practice. Despite these significant methodological variations, clinical outcomes in terms of cure rate appear to be remarkably similar for both FMT providers. Although both hospitals have treated only modest numbers of patients, these findings suggest that many of the described differences may not be critical factors in influencing the success of the procedure. As FMT is increasingly being proposed for a number of conditions other than CDI, harmonization of methods and techniques may be more critical to the success of FMT, and thus it will be important to standardize these as far as practically possible.

Database: Medline

26. How Common-and How Serious- Is Clostridium difficile Colitis After Geriatric Hip Fracture? Findings from the NSQIP Dataset.

Author(s): Bovonratwet, Patawut; Bohl, Daniel D; Russo, Glenn S; Ondeck, Nathaniel T; Nam, Denis; Della Valle, Craig J; Grauer, Jonathan N

Source: Clinical orthopaedics and related research; Mar 2018; vol. 476 (no. 3); p. 453-462

Publication Date: Mar 2018

Publication Type(s): Journal Article

PubMedID: 29443839

Abstract:BACKGROUNDPatients with geriatric hip fractures may be at increased risk for postoperative Clostridium difficile colitis, which can cause severe morbidity and can influence hospital quality metrics. However, to our knowledge, no large database study has calculated the incidence of, factors associated with, and effect of C. difficile colitis on geriatric patients undergoing hip fracture surgery.QUESTIONS/PURPOSESTo use a large national database with in-hospital and postdischarge data (National Surgical Quality Improvement Program [NSQIP®]) to (1) determine the incidence and timing of C. difficile colitis in geriatric patients who underwent surgery for hip fracture, (2) identify preoperative and postoperative factors associated with the development of C. difficile colitis in these patients, and (3) test for an association between C. difficile colitis and postoperative length of stay, 30-day readmission, and 30-day mortality.PATIENTS AND METHODSThis is a retrospective study. Patients who were 65 years or older who underwent hip fracture surgery were identified in the 2015 NSQIP database. The primary outcome was a diagnosis of C. difficile colitis during the 30-day postoperative period. Preoperative and procedural factors were tested for association with the development of C. difficile colitis through a backward stepwise multivariate model. Perioperative antibiotic type and duration were not included in the model, as this information was not recorded in the NSQIP. The association between C. difficile colitis and postoperative length of stay, 30-day readmission, and 30-day mortality were tested through multivariate regressions, which adjusted for preoperative and procedural characteristics such as age, comorbidities, and surgical procedure. A total of 6928 patients who were 65 years or older and underwent hip fracture surgery were identified.RESULTSThe incidence of postoperative C. difficile colitis was 1.05% (95% CI, 0.81%-1.29%; 73 of 6928 patients). Of patients who had C. difficile colitis

develop, 64% (47 of 73 patients) were diagnosed postdischarge and 79% (58 of 73 patients) did not have a preceding infectious diagnosis. Preoperative factors identifiable before surgery that were associated with the development of C. difficile colitis included admission from any type of chronic care facility (versus admitted from home; relative risk [RR] = 1.98; 95% CI, 1.11-3.55; p = 0.027), current smoker within 1 year (RR = 1.95; 95% CI, 1.03-3.69; p = 0.041), and preoperative anemia (RR = 1.76; 95% CI, 1.07-2.92; p = 0.027). Patients who had pneumonia (RR = 2.58; 95% CI, 1.20-5.53; p = 0.015), sepsis (RR = 4.20; 95% CI, 1.27-13.82; p = 0.018), or "any infection" (RR = 2.26; 95% CI, 1.26-4.03; p = 0.006) develop after hip fracture were more likely to have C. difficile colitis develop. Development of C. difficile colitis was associated with greater postoperative length of stay (22 versus 5 days; p < 0.001), 30-day readmission (RR = 3.41; 95% CI, 2.17-5.36; p < 0.001), and 30-day mortality (15% [11 of 73 patients] versus 6% [439 of 6855 patients]; RR = 2.16; 95% CI, 1.22-3.80; p = 0.008).CONCLUSIONSC. difficile colitis is a serious infection after hip fracture surgery in geriatric patients that is associated with 15% mortality. Patients at high risk, such as those admitted from any type of chronic care facility, those who had preoperative anemia, and current smokers within 1 year, should be targeted with preventative measures. From previous studies, these measures include enforcing strict hand hygiene with soap and water (not alcohol sanitizers) if a provider is caring for patients at high risk and those who are C. difficile-positive. Further, other studies have shown that certain antibiotics, such as fluoroquinolones and cephalosporins, can predispose patients to C. difficile colitis. These medications perhaps should be avoided when prescribing prophylactic antibiotics or managing infections in patients at high risk. Future prospective studies should aim to determine the best prophylactic antibiotic regimens, probiotic formula, and discharge timing that minimize postoperative C. difficile colitis in patients with hip fractures.LEVEL OF EVIDENCELevel III, therapeutic study.

Database: Medline

27. Colonization With Multiresistant Bacteria: Impact on Ventricular Assist Device Patients.

Author(s): Papathanasiou, Maria; Pohl, Julia; Jánosi, Rolf Alexander; Pizanis, Nikolaus; Kamler, Markus; Rassaf, Tienush; Luedike, Peter

Source: The Annals of thoracic surgery; Feb 2018; vol. 105 (no. 2); p. 557-563

Publication Date: Feb 2018

Publication Type(s): Journal Article

PubMedID: 29174784

Abstract:BACKGROUNDAlthough the effect of infections with multidrug-resistant bacteria (MDRB) in left ventricular assist device (LVAD) recipients is well characterized, the influence of perioperative colonization on the development of infections in this patient cohort remains unknown. The study evaluated the effect of MDRB colonization on patient outcomes after LVAD implantation.METHODSWe retrospectively analyzed the microbiological screening studies of nasal, throat, wound, and rectal swabs in 82 consecutive patients who received an LVAD at our center between 2010 and 2015. Four categories of MDRB were determined: methicillin-resistant Staphylococcus aureus, vancomycin-resistant Enterococcus, and Gram-negative bacterium resistant to three or four of four predefined pharmacologic categories of antibiotics. We also compared the long-term outcome of patients with and without colonization.RESULTSThere were 28 patients (34.1%) diagnosed as being colonized with at least 1 species of an MDRB. MDRB colonization was associated with the occurrence of fatal infections from any pathogen (MDRB positive, 63.2%; MDRB negative, 34.4%; p = 0.04) and fatal MDRB-specific infections (MDRB positive, 31.6%; MDRB negative, 6.3%; p = 0.04), significantly longer intensive care unit stay (p < 0.0001), and longer cumulative hospital stay (p = 0.04).CONCLUSIONSOur study demonstrates that the colonization with MDRB is a highly prevalent risk factor for infection-associated death in the vulnerable LVAD

population. Routine screening for MDRB before and after LVAD implantation should be considered to identify high-risk individuals and facilitate effective prevention of infectious complications.

Database: Medline

28. Risk of drug resistance in repeat gram-negative infections among patients with multiple hospitalizations.

Author(s): Agarwal, Mansi; Larson, Elaine L

Source: Journal of critical care; Feb 2018; vol. 43 ; p. 260-264

Publication Date: Feb 2018

Publication Type(s): Multicenter Study Journal Article

PubMedID: 28946105

Available at Journal of Critical Care - from PubMed Central

Abstract:PURPOSEDrug resistance in gram-negative bacterial hospital-acquired infections (GNB HAIs) has become ubiquitous in recent years. Patients who experience multiple hospitalizations are at high risk of developing repeat GNB HAIs. This study aims to evaluate the relationship between repeat GNB HAIs and antibiotic susceptibility patterns.METHODSUsing electronic medical records from three hospitals, 4053 patients were identified with at least one HAI caused by K. pneumoniae or P. aeruginosa over multiple hospitalizations in a 9-year period. Modified Poisson regression was used to evaluate the risk of drug resistance with increasing number of prior susceptible infections. Drug resistance was defined as resistant to carbapenems for K. pneumoniae and resistant to levofloxacin for P. aeruginosa.RESULTSIn patients with repeat infections, almost 15% of consecutive infections changed from susceptible to drug-resistant. Patients with K. pneumoniae infections had a 1.14 times increased risk of acquiring a drug-resistant HAI with each prior HAI, after adjusting for potential confounders and antibiotic use prior to infection. Patients with P. aeruginosa infections had a 1.23 times increased risk of a drug-resistant infection with each prior P. aeruginosa HAI.CONCLUSIONSPrevention of repeat infections in high healthcare utilizers may be important in reducing drug resistance in this population.

Database: Medline

29. Efficacy of Antimicrobial Catheters for Prevention of Catheter-Associated Urinary Tract Infection in Acute Cerebral Infarction.

Author(s): Muramatsu, Keiji; Fujino, Yoshihisa; Kubo, Tatsuhiko; Otani, Makoto; Fushimi, Kiyohide; Matsuda, Shinya

Source: Journal of epidemiology; Jan 2018; vol. 28 (no. 1); p. 54-58

Publication Date: Jan 2018

Publication Type(s): Journal Article

PubMedID: 29093305

Available at Journal of Epidemiology - from Europe PubMed Central - Open Access

Available at Journal of Epidemiology - from ProQuest (Hospital Premium Collection) - NHS Version

Available at Journal of Epidemiology - from PubMed Central

Abstract:BACKGROUNDCatheter-associated urinary tract infection (CAUTI) is a common nosocomial infection. However, the effectiveness of antimicrobial catheters in reducing CAUTI in cerebral infarction patients is unknown. The purpose of this study was to determine whether antimicrobial catheters protect against CAUTI in cerebral infarction patients.METHODSWe identified 27,548

patients from the Japanese Diagnosis Procedure Combination Database who had been admitted from April 1, 2012 through March 31, 2014 for acute management of cerebral infarction and had used at least an indwelling urethral catheter. We extracted data on patient sex, age, comorbidity, length of stay, activities of daily living (ADL), surgery, hospital case volume, and catheter type. We defined CAUTI as a urinary tract infection arising during admission. We performed multi-level logistic regression analysis to analyze the reduction in CAUTI using antimicrobial catheters.RESULTSThe rate of CAUTI was 8.8% and 8.3% in the control and antimicrobial catheter groups, respectively. Significant risk factors for CAUTI were age, diabetes requiring insulin therapy, low ADL score, and long hospitalization. Incidence rate was significantly lower in operated cases and those treated with tissue plasminogen activator. For all cases overall, the use of an antimicrobial catheter was not associated with a lower CAUTI rate. However, use was associated with a lower rate of CAUTI in diabetic patients on insulin.CONCLUSIONSAntimicrobial catheter use was not associated with a lower incidence rate of CAUTI in acute cerebral infarction patients. However, stratified analysis suggested that use was associated with a lower incidence in diabetic patients on insulin.

Database: Medline

30. The issue of delivery room infections in the Italian law. A brief comparative study with English and French jurisprudence.

Author(s): Zaami, Simona; Montanari Vergallo, Gianluca; Napoletano, Simona; Signore, Fabrizio; Marinelli, Enrico

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; Jan 2018; vol. 31 (no. 2); p. 223-227

Publication Date: Jan 2018

Publication Type(s): Journal Article

PubMedID: 28076992

Abstract: Delivery room infections are frequent, and many of them could be avoided through higher standards of care. The authors examine this issue by comparing it to English and French reality. Unlike England, in Italy and France the relationship established between health facility, physician and patient is outlined in a contract. In England, the judges' decisions converge toward a better and higher protection of the patient-the actor-and facilitate the probative task. In case of infections, including those occurring in the delivery room, three issues are evaluated: the hospital's negligent conduct, damages if any and causal nexus. Therefore, the hospital must demonstrate to have taken the appropriate asepsis measures according to current scientific knowledge concerning not only treatment, but also diagnosis, previous activities, surgery and post-surgery. In order to avoid a negative sentence, both physicians and hospital have to demonstrate their correct behavior and that the infection was caused by an unforeseeable event. The authors examine the most significant rulings by the Courts and the Supreme Court. They show that hospitals can avoid being accused of negligence and recklessness only if they can demonstrate to have implemented all the preventive measures provided for in the guidelines or protocols.

Database: Medline

31. Incidence, Risk Factors, and Impact of Clostridium difficile Colitis Following Primary Total Hip and Knee Arthroplasty.

Author(s): Bovonratwet, Patawut; Bohl, Daniel D; Malpani, Rohil; Nam, Denis; Della Valle, Craig J; Grauer, Jonathan N

Source: The Journal of arthroplasty; Jan 2018; vol. 33 (no. 1); p. 205

Publication Date: Jan 2018

Publication Type(s): Journal Article

PubMedID: 28870746

Abstract:BACKGROUNDAn improved understanding of Clostridium difficile is important as it is used as a measure of hospital quality and is associated with substantial morbidity. This study utilizes the National Surgical Quality Improvement Program to determine the incidence, timing, risk factors, and clinical implications of C difficile colitis in patients undergoing primary total hip or knee arthroplasty (THA or TKA).METHODSPatients who underwent primary THA or TKA as part of the 2015 National Surgical Quality Improvement Program were identified. The primary outcome was a diagnosis of C difficile colitis within the 30-day postoperative period. Risk factors for the development of C difficile colitis were identified using Poisson multivariate regression.RESULTSA total of 39,172 patients who underwent primary THA or TKA were identified. The incidence of C difficile colitis was 0.10% (95% confidence interval [CI] 0.07-0.13). Of the cases that developed C difficile colitis, 79% were diagnosed after discharge and 84% had not had a preceding infection diagnosed. Independent preoperative and procedural risk factors for the development of C difficile colitis were greater age (most notably ≥80 years old, relative risk [RR] 5.28, 95% CI 1.65-16.92, P = .008), dependent functional status (RR 4.05, 95% CI 1.44-11.36, P = .008), preoperative anemia (RR 2.52, 95% CI 1.28-4.97, P = .007), hypertension (RR 2.51, 95% CI 1.06-5.98, P = .037), and THA (vs TKA; RR 2.25, 95% CI 1.16-4.36, P = .017). Postoperative infectious risk factors were urinary tract infection (RR 10.66, 95% CI 3.77-30.12, P < .001), sepsis (RR 17.80, 95% CI 3.77-84.00, P < .001), and "any infection" (RR 6.60, 95% CI 2.66-16.34, P < .001).CONCLUSIONHigh-risk patients identified in this study should be targeted with preventative interventions and have perioperative antibiotics judiciously managed.

Database: Medline

32. Performance comparison of the cobas Liat and Cepheid GeneXpert systems for Clostridium difficile detection.

Author(s): Granato, Paul A; Hansen, Glen; Herding, Emily; Chaudhuri, Sheena; Tang, Shaowu; Garg, Sachin K; Rowell, Catherine R; Sickler, Joanna Jackson

Source: PloS one; 2018; vol. 13 (no. 7); p. e0200498

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 30040852

Available at PLOS ONE - from Public Library of Science (PLoS)

Available at PLOS ONE - from Europe PubMed Central - Open Access

Available at PLOS ONE - from EBSCO (MEDLINE Complete)

Available at PLOS ONE - from PubMed Central

Abstract: Clostridium difficile infection (CDI) is a high burden and significant cause of healthcare-acquired infectious diarrhea in the United States (US). Timely and accurate diagnosis of CDI enables the rapid initiation of antibiotic therapy and infection control policies to minimize disease transmission. Polymerase chain reaction (PCR) assays have become a preferred modality for diagnosing CDI in the US. The cobas Liat Cdiff PCR test is a novel assay that can be performed on-demand for hospital-based testing with a rapid 20-minute turnaround time from specimen collection to result reporting. We compared the clinical performance of the cobas Liat Cdiff test to the previously introduced Xpert C. difficile/Epi test; both tests are FDA-cleared PCR assays that detect the toxin B (tcdB) gene of C. difficile. Prospectively collected and remnant stool specimens from 310

patients with suspected CDI were obtained for analysis. The cobas Liat Cdiff and Xpert PCR tests showed an overall percent agreement of 97.4% (302/310; 95% CI: 95.0-98.9). Low bacterial burdens of toxigenic C. difficile, indicated by significantly delayed PCR cycle threshold (Ct) values, explained most of the discordance. Positive and negative percent agreement of the cobas Liat Cdiff test compared to the Xpert PCR test were 94.5% (52/55) and 98.0% (250/255), respectively. The clinical performance of the cobas Liat Cdiff test, combined with its simplicity of use and rapid result reporting, provides a reliable option for clinical laboratory use.

Database: Medline

33. Implementation of global antimicrobial resistance surveillance system (GLASS) in patients with bacteremia.

Author(s): Sirijatuphat, Rujipas; Sripanidkulchai, Kantarida; Boonyasiri, Adhiratha; Rattanaumpawan, Pinyo; Supapueng, Orawan; Kiratisin, Pattarachai; Thamlikitkul, Visanu

Source: PloS one; 2018; vol. 13 (no. 1); p. e0190132

Publication Date: 2018

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 29298323

Available at PLoS ONE - from Public Library of Science (PLoS)

Available at PLoS ONE - from Europe PubMed Central - Open Access

Available at PLoS ONE - from EBSCO (MEDLINE Complete)

Available at PLoS ONE - from PubMed Central

Abstract: The global antimicrobial resistance surveillance system (GLASS) was launched by the World Health Organization (WHO) in 2015. GLASS is a surveillance system for clinical specimens that are sent to microbiology laboratory for clinical purposes. The unique feature of GLASS is that clinical data is combined with microbiological data, and deduplication of the microbiological results is performed. The objective of the study was to determine feasibility and benefit of GLASS for surveillance of blood culture specimens. GLASS was implemented at Siriraj Hospital in Bangkok, Thailand using a locally developed web application program (app) to transfer blood culture specimen data, and to enter clinical data of patients with positive blood culture by infection control nurses and physicians via the app installed in their smart phones. The rate of positive blood culture specimens with true infection was 15.2%. Escherichia coli was the most common cause of bacteremia. Secondary bacteremia, primary bacteremia, and central line-associated blood stream infection was observed in 61.8%, 30.6%, and 12.6% of cases, respectively. Sepsis was observed in 56.9% of patients. E.coli was significantly more common in community-acquired bacteremia, whereas Klebsiella pneumoniae, Pseudomonas aeruginosa, methicillin-resistant Staphylococcus aureus, and Acinetobacter baumannii were significantly more common in hospital-acquired bacteremia. Hospital-acquired isolates of E.coli, K.pneumoniae, A.baumannii, P.aeruginosa, S.aureus and Enterococcus faecium were more resistant to antibiotics than community-acquired isolates. In-hospital mortality was significantly higher in patients with antibiotic-resistant bacteremia than in patients with antibiotic non-resistant bacteremia (40.5% vs. 28.5%, p<0.001). The patients with antibiotic-resistant bacteremia consumed more resources than those with antibiotic non-resistant bacteremia. Blood culture results combined with patient clinical data were shown to have more benefit for surveillance of antimicrobial resistance, and to be more applicable for developing local antibiotic treatment guidelines for patients suspected of having bacteremia. However, GLASS consumed more time and more resources than the conventional laboratory-based surveillance system.

Database: Medline

34. Staphylococcus aureus viewed from the perspective of 40,000+ genomes.

Author(s): Petit, Robert A; Read, Timothy D

Source: PeerJ; 2018; vol. 6 ; p. e5261

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 30013858

Available at PeerJ - from Europe PubMed Central - Open Access

Available at PeerJ - from peerj.com

Abstract: Low-cost Illumina sequencing of clinically-important bacterial pathogens has generated thousands of publicly available genomic datasets. Analyzing these genomes and extracting relevant information for each pathogen and the associated clinical phenotypes requires not only resources and bioinformatic skills but organism-specific knowledge. In light of these issues, we created Staphopia, an analysis pipeline, database and application programming interface, focused on Staphylococcus aureus, a common colonizer of humans and a major antibiotic-resistant pathogen responsible for a wide spectrum of hospital and community-associated infections. Written in Python, Staphopia's analysis pipeline consists of submodules running open-source tools. It accepts raw FASTQ reads as an input, which undergo quality control filtration, error correction and reduction to a maximum of approximately 100× chromosome coverage. This reduction significantly reduces total runtime without detrimentally affecting the results. The pipeline performs de novo assembly-based and mapping-based analysis. Automated gene calling and annotation is performed on the assembled contigs. Read-mapping is used to call variants (single nucleotide polymorphisms and insertion/deletions) against a reference S. aureus chromosome (N315, ST5). We ran the analysis pipeline on more than 43,000 S. aureus shotgun Illumina genome projects in the public European Nucleotide Archive database in November 2017. We found that only a quarter of known multi-locus sequence types (STs) were represented but the top 10 STs made up 70% of all genomes. methicillin-resistant S. aureus (MRSA) were 64% of all genomes. Using the Staphopia database we selected 380 high quality genomes deposited with good metadata, each from a different multi-locus ST, as a non-redundant diversity set for studying S. aureus evolution. In addition to answering basic science questions, Staphopia could serve as a potential platform for rapid clinical diagnostics of S. aureus isolates in the future. The system could also be adapted as a template for other organism-specific databases.

Database: Medline

35. In vitro and in vivo activity of fosfomycin alone and in combination with rifampin and tigecycline against Gram-positive cocci isolated from surgical wound infections.

Author(s): Simonetti, Oriana; Morroni, Gianluca; Ghiselli, Roberto; Orlando, Fiorenza; Brenciani, Andrea; Xhuvelaj, Ledia; Provinciali, Mauro; Offidani, Annamaria; Guerrieri, Mario; Giacometti, Andrea; Cirioni, Oscar

Source: Journal of medical microbiology; Jan 2018; vol. 67 (no. 1); p. 139-143

Publication Date: Jan 2018

Publication Type(s): Journal Article

PubMedID: 29154746

Abstract: Complicated skin and soft tissue infections constitute a heterogeneous group of severe disorders, with surgical site infections being the most common hospital-acquired ones. The aim of

our study was to investigate the synergistic and bactericidal activities of antimicrobial combinations of fosfomycin with rifampicin and tigecycline against Enterococcus faecalis, Enterococcus faecium and methicillin-resistant Staphylococcus aureus (MRSA) clinical isolates, and also to evaluate their in vivo effects in a mouse wound infection model. In in vitro studies, the combinations of fosfomycin with rifampicin and tigecycline were both synergistic. These synergies were confirmed in in vivo studies: the drug combinations showed the highest antimicrobial effects compared to monotherapy. In conclusion, the efficacy of fosfomycin combinations, also confirmed in our in vivo model, may suggest new directions in the treatment of infected skin and a possible alternative way to control bacterial skin infection.

Database: Medline

36. MRSA prevalence among patient transport staff in Hamburg.

Author(s): Schablon, Anja; Kleinmüller, Olaf; Nienhaus, Albert; Peters, Claudia

Source: GMS hygiene and infection control; 2018; vol. 13 ; p. Doc03

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 29619291

Available at GMS hygiene and infection control - from Europe PubMed Central - Open Access

Available at GMS hygiene and infection control - from PubMed Central

Abstract: Introduction: Patient transport employees frequently come into contact with multidrug-resistant organisms (MDROs) and therefore are at a greater risk of infection than the general population. These pathogens pose a significant challenge for employees of patient transport services since they can spread over long distances through patient transfers. To date, little is known about the occupational risk of MRSA infection in patient transport settings. Methods: A cross-sectional study was conducted to investigate the prevalence of MRSA in patient transport personnel, including taxi drivers, as well as the potential risk factors for MRSA colonization. For screening, nasal swabs were taken. When an individual was tested positive, a control swab was taken; if this confirmed a positive result, decolonization measures were offered. A molecular biological examination of the MRSA samples was performed. Results: A total of 222 patient transport employees were screened and 7 employees tested positive, putting the MRSA prevalence at 3.2% (95% CI 1.4-6.5). Significant risk factors among patient transport staff (PTS) for testing positive were the use of antibiotics (OR 11.9; 95% CI 1.8-78.4) and hospital admission (OR 6.9; 95% CI 1.1-45.9). MRSA swabs were also performed on a total of 102 taxi drivers who provide patient transport services. The MRSA prevalence was 0.98 (95% CI <0.01-5.9). Significant group differences between PTS and taxi drivers, with respect to potential risk factors for MRSA colonization, were identified as inpatient treatment (p=0.09), chronic respiratory illnesses (p=0.01), and knowingly transporting patients/passengers with MRSA (p=0.03). Conclusion: This study is the first to make data on the MRSA risk of patient transport employees in Hamburg available. The prevalence data are low in all areas and indicate a somewhat low risk of infection. A good infection control at the facilities is highly recommendable and the employees should acquire in-depth knowledge of infection prevention to improve compliance with personal protective measures.

Database: Medline

37. Clinical predictors of methicillin-resistant Staphylococcus aureus in nosocomial and healthcare-associated pneumonia: a multicenter, matched case-control study.

Author(s): Torre-Cisneros, J; Natera, C; Mesa, F; Trikic, M; Rodríguez-Baño, J

Source: European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology; Jan 2018; vol. 37 (no. 1); p. 51-56

Publication Date: Jan 2018

Publication Type(s): Multicenter Study Journal Article Observational Study

PubMedID: 28887643

Abstract: The situations in which coverage for methicillin-resistant Staphylococcus aureus (MRSA) in the empirical treatment of nosocomial pneumonia (NP) or severe healthcare-associated pneumonia (HCAP) is needed are poorly defined, particularly outside intensive care units (ICUs). Our aim was to characterize if the risk of MRSA NP/HCAP can be defined by clinical variables. We designed an observational, retrospective, multicenter, case-control study to analyze the association between defined clinical variables and risk of MRSA NP/HCAP in non-ICU patients using conditional multivariable logistic regression. Cases and controls (1:2) with microbiological diagnosis were included. Controls were matched for hospital, type of pneumonia (NP or HCAP), and date of isolation. A total of 140 cases (77 NP and 63 HCAP) and 280 controls were studied. The variables associated with the risk of MRSA pneumonia were: (i) respiratory infection/colonization caused by MRSA in the previous year [odds ratio (OR) 14.81, 95% confidence interval (CI) 4.13-53.13, $p < 0.001$]; (ii) hospitalization in the previous 90 days (OR 2.41, 95% CI 1.21-4.81, $p = 0.012$); and (iii) age (OR 1.02, 95% CI 1.001-1.05, $p = 0.040$). The area under the receiver operating characteristic (ROC) curve for the multivariable model was 0.72 (95% CI 0.66-0.78). The multivariate model had a sensitivity of 74.5% (95% CI 65.3-83.6), a specificity of 63.3% (95% CI 56.0-70.6), a positive predictive value of 52.5% (95% CI 43.9-61.2), and a negative predictive value of 82.0% (95% CI 75.3-88.8) for the observed data. Clinical predictors of MRSA NP/HCAP can be used to define a low-risk population in whom coverage against MRSA may not be needed.

Database: Medline

38. MRSA prevalence rates detected in a tertiary care hospital in Austria and successful treatment of MRSA positive patients applying a decontamination regime with octenidine.

Author(s): Pichler, G; Pux, C; Babeluk, R; Hermann, B; Stoiser, E; De Campo, A; Grisold, A; Zollner-Schwetz, I; Krause, R; Schippinger, W

Source: European journal of clinical microbiology & infectious diseases : official publication of the European Society of Clinical Microbiology; Jan 2018; vol. 37 (no. 1); p. 21-27

Publication Date: Jan 2018

Publication Type(s): Journal Article

PubMedID: 28849282

Abstract: Methicillin-resistant Staphylococcus aureus (MRSA) decontamination regimens predominantly use chlorhexidine bathing in combination with mupirocin nasal ointment. However, resistances in Staphylococcus aureus strains are increasingly common and there is a need of alternative, safe and feasible protocols. This interventional cohort study performed at the Albert Schweitzer Hospital in Graz, Austria, aimed to (1) determine MRSA prevalence at different body sites and (2) assess the efficacy of the decontamination using octenidine-based leave-on products added to existing robust infection control measures. All inpatients of this tertiary care hospital being treated in geriatric medical wards (GWs) and apallic care units (ACUs) were screened for MRSA and decontamination rates were determined after one, two or three decontamination cycles, respectively. At baseline, MRSA was detected in 25 of the 126 patients screened (19.8%). We found MRSA in 13/126 (10.3%) swabs from nasal vestibules, in 12/126 (9.5%) skin swabs, in 11/51 (21.6%) swabs from PEG-stomata or suprapubic catheters and in 8/13 (61.5%) tracheostomata swabs. A maximum of three 5-day decontamination cycles reduced the number of MRSA positive patients by

68.0%. Excluding non-compliant and deceased patients, decontamination reduced MRSA carriage by 93.3% (n = 15). No adverse events related to the applied decontamination regimen occurred. Exclusive screening of the nose might underreport MRSA prevalence rates. In this study, decontamination with octenidine-based leave-on products was safe and effective in a critical patient population.

Database: Medline

39. Nebulized Versus IV Amikacin as Adjunctive Antibiotic for Hospital and Ventilator-Acquired Pneumonia Postcardiac Surgeries: A Randomized Controlled Trial.

Author(s): Hassan, Nehal A; Awdallah, Faten Farid; Abbassi, Maggie M; Sabry, Nirmeen A

Source: Critical care medicine; Jan 2018; vol. 46 (no. 1); p. 45-52

Publication Date: Jan 2018

Publication Type(s): Comparative Study Randomized Controlled Trial Journal Article

PubMedID: 28857848

Available at Critical Care Medicine - from Ovid (Journals @ Ovid) - Remote Access

Abstract:OBJECTIVENebulized antibiotics offer high efficacy due to significant local concentrations and safety with minimal blood levels. This study evaluates the efficacy and nephrotoxicity of nebulized versus IV amikacin in postcardiothoracic surgical patients with nosocomial pneumonia caused by multidrug-resistant Gram- negative bacilli.DESIGNProspective, randomized, controlled study on surgical patients divided into two groups.SETTINGPostcardiac surgery ICU.INTERVENTIONSThe first gtroup was administered IV amikacin 20 mg/kg once daily. The second group was prescribed amikacin nebulizer 400 mg twice daily. Both groups were co-administered IV piperacillin/tazobactam empirically.PATIENTSRecruited patients were diagnosed by either hospital-acquired pneumonia or ventilator-associated pneumonia where 56 (42.1%) patients were diagnosed with hospital-acquired pneumonia, 51 (38.34%) patients were diagnosed with early ventilator-associated pneumonia, and 26 (19.54%) patients with late ventilator-associated pneumonia.MEASUREMENTS AND MAIN RESULTSClinical cure in both groups assessed on day 7 of treatment was the primary outcome. Efficacy was additionally evaluated through assessing the length of hospital stay, ICU stay, days on amikacin, days on mechanical ventilator, mechanical ventilator-free days, days to reach clinical cure, and mortality rate. Lower nephrotoxicity in the nebulized group was observed through significant preservation of kidney function ($p < 0.001$). Although both groups were comparable regarding length of hospital stay, nebulizer group showed shorter ICU stay ($p = 0.010$), lower number of days to reach complete clinical cure ($p = 0.001$), fewer days on mechanical ventilator ($p = 0.035$), and fewer days on amikacin treatment ($p = 0.022$).CONCLUSIONNebulized amikacin showed better clinical cure rates, less ICU stay, and fewer days to reach complete recovery compared to IV amikacin for surgical patients with nosocomial pneumonia. It is also a less nephrotoxic option associated with less deterioration in kidney function.

Database: Medline

40. Exit Site Infection due to Mycobacterium chelonae in an Elderly Patient on Peritoneal Dialysis.

Author(s): Hibi, Arata; Kasugai, Takahisa; Kamiya, Keisuke; Ito, Chiharu; Kominato, Satoru; Miura, Toshiyuki; Koyama, Katsushi

Source: Case reports in nephrology and dialysis; 2018; vol. 8 (no. 1); p. 1-9

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 29594145

Available at Case Reports in Nephrology and Dialysis - from Europe PubMed Central - Open Access

Available at Case Reports in Nephrology and Dialysis - from karger.com

Abstract: Nontuberculous mycobacteria (NTM) are rarely isolated from peritoneal dialysis (PD)-associated catheter infections. However, NTM infection is usually difficult to treat and leads to catheter loss. Prompt diagnosis is essential for appropriate treatment. A 70-year-old Japanese man who had been on PD for 2 years and with a medical history of 2 episodes of exit site infections (ESIs) due to methicillin-resistant Staphylococcus aureus was admitted to the hospital due to suspected ESI recurrence. However, Gram staining of the pus revealed no gram-positive cocci. Instead, weakly stained gram-positive rods were observed after 7 days of incubation, which were also positive for acid-fast staining. Rapidly growing NTM Mycobacterium chelonae was isolated on day 14. Despite administering a combination antibiotic therapy, ESI could not be controlled, and catheter removal surgery was performed on day 21. Although PD was discontinued temporarily, the patient did not require hemodialysis, without any uremic symptoms. The catheter was reinserted on day 48, and PD was reinitiated on day 61. The patient was discharged on day 65. Antibiotic therapy was continued for 3 months after discharge, with no indications of recurrent infections observed. It is important to consider the risk of NTM infections in patients on PD. Acid-fast staining could be a key test for prompt diagnosis and provision of an appropriate treatment.

Database: Medline

41. Probiotics for the prevention of Clostridium difficile-associated diarrhea in adults and children.

Author(s): Goldenberg, Joshua Z; Yap, Christina; Lytvyn, Lyubov; Lo, Calvin Ka-Fung; Beardsley, Jennifer; Mertz, Dominik; Johnston, Bradley C

Source: The Cochrane database of systematic reviews; Dec 2017; vol. 12 ; p. CD006095

Publication Date: Dec 2017

Publication Type(s): Research Support, Non-u.s. Gov't Meta-analysis Journal Article Review

PubMedID: 29257353

Available at Cochrane Database of Systematic Reviews - from Cochrane Collaboration (Wiley)

Abstract:BACKGROUNDAntibiotics can disturb gastrointestinal microbiota which may lead to reduced resistance to pathogens such as Clostridium difficile (C. difficile). Probiotics are live microbial preparations that, when administered in adequate amounts, may confer a health benefit to the host, and are a potential C. difficile prevention strategy. Recent clinical practice guidelines do not recommend probiotic prophylaxis, even though probiotics have the highest quality evidence among cited prophylactic therapies.OBJECTIVESTo assess the efficacy and safety of probiotics for preventing C.difficile-associated diarrhea (CDAD) in adults and children.SEARCH METHODSWe searched PubMed, EMBASE, CENTRAL, and the Cochrane IBD Group Specialized Register from inception to 21 March 2017. Additionally, we conducted an extensive grey literature search.SELECTION CRITERIARandomized controlled (placebo, alternative prophylaxis, or no treatment control) trials investigating probiotics (any strain, any dose) for prevention of CDAD, or C. difficile infection were considered for inclusion.DATA COLLECTION AND ANALYSISTwo authors (independently and in duplicate) extracted data and assessed risk of bias. The primary outcome was the incidence of CDAD. Secondary outcomes included detection of C. difficile infection in stool, adverse events, antibiotic-associated diarrhea (AAD) and length of hospital stay. Dichotomous outcomes (e.g. incidence of CDAD) were pooled using a random-effects model to calculate the risk ratio (RR) and corresponding 95% confidence interval (95% CI). We calculated the number needed to treat for an additional beneficial outcome (NNTB) where appropriate. Continuous outcomes (e.g. length of hospital stay) were pooled using a random-effects model to calculate the mean difference

and corresponding 95% CI. Sensitivity analyses were conducted to explore the impact of missing data on efficacy and safety outcomes. For the sensitivity analyses, we assumed that the event rate for those participants in the control group who had missing data was the same as the event rate for those participants in the control group who were successfully followed. For the probiotic group, we calculated effects using the following assumed ratios of event rates in those with missing data in comparison to those successfully followed: 1.5:1, 2:1, 3:1, and 5:1. To explore possible explanations for heterogeneity, a priori subgroup analyses were conducted on probiotic species, dose, adult versus pediatric population, and risk of bias as well as a post hoc subgroup analysis on baseline risk of CDAD (low 0% to 2%; moderate 3% to 5%; high > 5%). The overall quality of the evidence supporting each outcome was independently assessed using the GRADE criteria.MAIN RESULTSThirty-nine studies (9955 participants) met the eligibility requirements for our review. Overall, 27 studies were rated as either high or unclear risk of bias. A complete case analysis (i.e. participants who completed the study) among trials investigating CDAD (31 trials, 8672 participants) suggests that probiotics reduce the risk of CDAD by 60%. The incidence of CDAD was 1.5% (70/4525) in the probiotic group compared to 4.0% (164/4147) in the placebo or no treatment control group (RR 0.40, 95% CI 0.30 to 0.52; GRADE = moderate). Twenty-two of 31 trials had missing CDAD data ranging from 2% to 45%. Our complete case CDAD results proved robust to sensitivity analyses of plausible and worst-plausible assumptions regarding missing outcome data and results were similar whether considering subgroups of trials in adults versus children, inpatients versus outpatients, different probiotic species, lower versus higher doses of probiotics, or studies at high versus low risk of bias. However, in a post hoc analysis, we did observe a subgroup effect with respect to baseline risk of developing CDAD. Trials with a baseline CDAD risk of 0% to 2% and 3% to 5% did not show any difference in risk but trials enrolling participants with a baseline risk of > 5% for developing CDAD demonstrated a large 70% risk reduction (interaction P value = 0.01). Among studies with a baseline risk > 5%, the incidence of CDAD in the probiotic group was 3.1% (43/1370) compared to 11.6% (126/1084) in the control group (13 trials, 2454 participants; RR 0.30, 95% CI 0.21 to 0.42; GRADE = moderate). With respect to detection of C. difficile in the stool pooled complete case results from 15 trials (1214 participants) did not show a reduction in infection rates. C. difficile infection was 15.5% (98/633) in the probiotics group compared to 17.0% (99/581) in the placebo or no treatment control group (RR 0.86, 95% CI 0.67 to 1.10; GRADE = moderate). Adverse events were assessed in 32 studies (8305 participants) and our pooled complete case analysis indicates probiotics reduce the risk of adverse events by 17% (RR 0.83, 95% CI 0.71 to 0.97; GRADE = very low). In both treatment and control groups the most common adverse events included abdominal cramping, nausea, fever, soft stools, flatulence, and taste disturbance.AUTHORS' CONCLUSIONSBased on this systematic review and meta-analysis of 31 randomized controlled trials including 8672 patients, moderate certainty evidence suggests that probiotics are effective for preventing CDAD (NNTB = 42 patients, 95% CI 32 to 58). Our post hoc subgroup analyses to explore heterogeneity indicated that probiotics are effective among trials with a CDAD baseline risk >5% (NNTB = 12; moderate certainty evidence), but not among trials with a baseline risk ≤5% (low to moderate certainty evidence). Although adverse effects were reported among 32 included trials, there were more adverse events among patients in the control groups. The short-term use of probiotics appears to be safe and effective when used along with antibiotics in patients who are not immunocompromised or severely debilitated. Despite the need for further research, hospitalized patients, particularly those at high risk of CDAD, should be informed of the potential benefits and harms of probiotics.

Database: Medline

42. Disparities in the regional, hospital and individual levels of antibiotic use in gallstone surgery in Sweden.

Author(s): Jaafar, Gona; Darkahi, Bahman; Lindhagen, Lars; Persson, Gunnar; Sandblom, Gabriel

Source: BMC surgery; Dec 2017; vol. 17 (no. 1); p. 128

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 29207972

Available at BMC surgery - from BioMed Central

Available at BMC surgery - from Europe PubMed Central - Open Access

Available at BMC surgery - from ProQuest (Hospital Premium Collection) - NHS Version

Available at BMC surgery - from EBSCO (MEDLINE Complete)

Abstract:BACKGROUNDAntimicrobial resistance may be promoted by divergent routines and lack of conformity in antibiotic treatment, especially regarding the practice of antibiotic prophylaxis. The aim of the present study was to assess differences in gallstone surgery regarding antibiotic use in Sweden.METHODSThe study was based on data from the Swedish Register for Gallstone Surgery and ERCP (GallRiks) 2005-2015. Funnel plots were used to test impact of grouping factors, including, hospital and surgeon and to identify units that deviated from the rest of the population.RESULTSAfter adjusting for cofounders including age, gender, ASA classification, indication for surgery, operation time, gallbladder perforation and emergency status, there were 0/21 (0%) at the regional level, 18/76 (24%) at the hospital level and 128/1038 (12%) at the surgeon level outside the 99.9% confidence interval (CI). The estimated median odds ratios were 1.13 (95% CI 1.00-1.31) at the regional level, 1.93 (95% CI 1.70-2.19) at the hospital level and 2.38 (95% CI 2.26-2.50) at the surgeon level.CONCLUSIONThere are significant differences between hospitals and surgeons, but little or no differences between regions. These deviations confirm the lack of standardization in regards to prescription of antibiotic prophylaxis and the need more uniform routines regarding antibiotic usage. Randomized controlled trials and large population-based studies are necessary to assess assessing the effectiveness and safety of antibiotic prophylaxis in gallstone surgery.

Database: Medline

43. Prevalence, Influencing Factors, Antibiotic Resistance, Toxin and Molecular Characteristics of Staphylococcus aureus and MRSA Nasal Carriage among Diabetic Population in the United States, 2001-2004.

Author(s): Lin, Jialing; Peng, Yang; Bai, Chan; Zhang, Ting; Zheng, Haoqu; Wang, Xiaojie; Ye, Jiaping; Ye, Xiaohua; Li, Ying; Yao, Zhenjiang

Source: Polish journal of microbiology; Dec 2017; vol. 66 (no. 4); p. 439-448

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 29319509

Available at Polish Journal of Microbiology - from exeley.com

Abstract: Diabetic population were reported more likely to suffer carriage and infection with Staphylococcus aureus (S. aureus) and methicillin-resistant Staphylococcus aureus (MRSA) than non-diabetic population. We aim to elucidate the prevalence and characteristics of S. aureus and MRSA nasal carriage among diabetic population in the United States National Health and Nutrition Examination Survey, 2001-2004. Univariate analyses were conducted using Chi-square test, Fisher's exact probability test or student t test, as appropriate. Multivariate analy¬sis using logistic regression was conducted to assess the association between influencing factors and S. aureus and MRSA nasal carriage. 1010 diabetic participants were included in the study. The prevalence of S. aureus and MRSA nasal carriage were 28.32% and 1.09%, respec¬tively. After the logistic regression,

ever had a painful sensation or tingling in hands or feet past three months (Odds Ratio [OR] = 0.359, 95% Confidence Interval [CI], 0.146-0.882) was significant among S. aureus nasal carriage and gender (OR = 3.410, 95% CI, 1.091-10.653) was significant among MRSA nasal carriage. The proportions of staphylococcal enterotoxin (SE) A, SEB, SEC, SED, Toxic-shock syn¬drome toxin-1, and Panton Valentine Leukocidin toxin among S. aureus strains were 18.75%, 3.13%, 12.50%, 15.63%, 28.13%, and 9.38%, respectively. 63.63% of MRSA strains were community-acquired, 27.27% were hospital-acquired, and 9.09% were non-typeable. Diabetic patients might be more likely to carry S. aureus and MRSA in the United States. Improving hand hygiene compliance, reducing antibiotic overuse, screening for carriers, and decolonization are recommended to reduce the spread of S. aureus and MRSA, especially in community.

Database: Medline

44. An Update on Aerosolized Antibiotics for Treating Hospital-Acquired and Ventilator-Associated Pneumonia in Adults.

Author(s): Wood, G Christopher; Swanson, Joseph M

Source: The Annals of pharmacotherapy; Dec 2017; vol. 51 (no. 12); p. 1112-1121

Publication Date: Dec 2017

Publication Type(s): Journal Article Review

PubMedID: 28778127

Abstract:OBJECTIVEA significant percentage of patients with hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) have poor outcomes with intravenous antibiotics. It is not clear if adding aerosolized antibiotics improves treatment. This review is an update on using aerosolized antibiotics for treating HAP/VAP in adults.DATA SOURCESPubMed search using the terms "aerosolized antibiotics pneumonia," "nebulized antibiotics pneumonia," and "inhaled antibiotics pneumonia." Reference lists from identified articles were also searched.STUDY SELECTION AND DATA EXTRACTIONClinical studies of aerosolized antibiotics for treating HAP/VAP in adults from July 2010 to March 2017. This article updates a previous review on this topic written in mid-2010.DATA SYNTHESISThe size and quality of studies have improved dramatically in the recent time period compared to previous studies. However, there still are not large randomized controlled trials available. Colistin and aminoglycosides were the most commonly studied agents, and the most common pathogens were Pseudomonas and Acinetobacter. The clinical efficacy of adding aerosolized antibiotics was mixed. Approximately half of the studies showed better outcomes, and none showed worse outcomes. Aerosolized antibiotics appear to be relatively safe, though pulmonary adverse events can occur. Attention to proper administration technique in mechanically ventilated patients is required, including the use of vibrating plate nebulizers.CONCLUSIONSAdding aerosolized antibiotics to intravenous antibiotics may improve the outcomes of adult patients with HAP/VAP in some settings. It seems reasonable to add aerosolized antibiotics in patients with multidrug-resistant organisms or who appear to be failing therapy. Clinicians should pay attention to potential adverse events and proper administration technique.

Database: Medline

45. Healthcare-acquired infections: prevention strategies.

Author(s): Fernando, Shelanah A; Gray, Timothy J; Gottlieb, Thomas

Source: Internal medicine journal; Dec 2017; vol. 47 (no. 12); p. 1341-1351

Publication Date: Dec 2017

Publication Type(s): Journal Article Review

PubMedID: 29224205

Available at Internal Medicine Journal - from Wiley Online Library Medicine and Nursing Collection 2018 - NHS

Abstract: Healthcare-acquired infections (HAI) impact on patient care and have cost implications for the Australian healthcare system. The management of HAI is exacerbated by rising rates of antimicrobial resistance (AMR). Health-care workers and a contaminated hospital environment are increasingly implicated in the transmission and persistence of multi-resistant organisms (MRO), as well as other pathogens, such as Clostridium difficile. This has resulted in a timely focus on a range of HAI prevention actions. Core components include antimicrobial stewardship, to reduce overuse and ensure evidence-based antimicrobial use; infection prevention strategies, to control MRO - particularly methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus spp. (VRE) and, more recently, multi-resistant Gram-negative bacteria; enhanced institutional investment in hand hygiene; hospital cleaning and disinfection; and the development of prescribing guidelines and standards of care. AMR surveillance and comparisons of prescribing are useful feedback activities once effectively communicated to end users. Successful implementation of these strategies requires cultural shifts at local hospital level and, to tackle the serious threat posed by AMR, greater co-ordination at a national level. HAI prevention needs to be multi-modal, requires broad healthcare collaboration, and the strong support and accountability of all medical staff.

Database: Medline

46. Identification of Clostridium difficile Reservoirs in The Patient Environment and Efficacy of Aerial Hydrogen Peroxide Decontamination.

Author(s): Yui, Samuel; Ali, Shanom; Muzslay, Monika; Jeanes, Annette; Wilson, A Peter R

Source: Infection control and hospital epidemiology; Dec 2017; vol. 38 (no. 12); p. 1487-1492

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 29143704

Abstract:OBJECTIVE To identify, using a novel enhanced method of recovery, environmental sites where spores of Clostridium difficile persist despite cleaning and hydrogen peroxide aerial decontamination. DESIGN Cohort study. SETTING Tertiary referral center teaching hospital. METHODS In total, 16 sites representing high-frequency contact or difficult-to-clean surfaces in a single-isolation room or bed area in patient bed bays were sampled before and after terminal or hydrogen peroxide disinfection using a sponge swab. In some rooms, individual sites were not present (eg, there were no en-suite rooms in the ICU). Swab contents were homogenized, concentrated by membrane-filtration, and plated onto selective media. Results of C. difficile sampling were used to focus cleaning. RESULTS Over 1 year, 2,529 sites from 146 rooms and 44 bays were sampled. Clostridium difficile was found on 131 of 572 surfaces (22.9%) before terminal cleaning, on 105 of 959 surfaces (10.6%) after terminal cleaning, and on 43 of 967 surfaces (4.4%) after hydrogen peroxide disinfection. Clostridium difficile persisted most frequently on floor corners (97 of 334; 29.0%) after disinfection. Between the first and third quarters, we observed a significant decrease in the number of positive sites (25 of 390 vs 6 of 256). However, no similar change in the number of isolates before terminal cleaning was observed. CONCLUSION Persistence of C. difficile in the clinical environment was widespread. Although feedback of results did not improve the efficacy of manual disinfection, numbers of C. difficile following hydrogen peroxide gradually declined. Infect Control Hosp Epidemiol 2017;38:1487-1492.

Database: Medline

47. Evaluating the Relationship Between Hospital Antibiotic Use and Antibiotic Resistance in Common Nosocomial Pathogens.

Author(s): Wang, Annie; Daneman, Nick; Tan, Charlie; Brownstein, John S; MacFadden, Derek R

Source: Infection control and hospital epidemiology; Dec 2017; vol. 38 (no. 12); p. 1457-1463

Publication Date: Dec 2017

Publication Type(s): Multicenter Study Journal Article Observational Study

PubMedID: 29072150

Abstract:OBJECTIVE The relationship between hospital antibiotic use and antibiotic resistance is poorly understood. We evaluated the association between antibiotic utilization and resistance in academic and community hospitals in Ontario, Canada. METHODS We conducted a multicenter observational ecological study of 37 hospitals in 2014. Hospital antibiotic purchasing data were used as an indicator of antibiotic use, whereas antibiotic resistance data were extracted from hospital indexes of resistance. Multivariate regression was performed, with antibiotic susceptibility as the primary outcome, antibiotic consumption as the main predictor, and additional covariates of interest (ie, hospital type, laboratory standards, and patient days). RESULTS With resistance data representing more than 90,000 isolates, we found the increased antibiotic consumption in defined daily doses per 1,000 patient days (DDDs/1,000 PD) was associated with decreased antibiotic susceptibility for Pseudomonas aeruginosa (-0.162% per DDD/1,000 PD; P=.119). However, increased antibiotic consumption predicted increased antibiotic susceptibility significantly for Escherichia coli (0.173% per DDD/1,000 PD; P=.005), Klebsiella spp (0.124% per DDD/1,000 PD; P=.004), Enterobacter spp (0.194% per DDD/1,000 PD; P=.003), and Enterococcus spp (0.309% per DDD/1,000 PD; P=.001), and nonsignificantly for Staphylococcus aureus (0.012% per DDD/1,000 PD; P=.878). Hospital type (P=.797) and laboratory standard (P=.394) did not significantly predict antibiotic susceptibility, while increased hospital patient days generally predicted increased organism susceptibility (0.728% per 10,000 PD; P<.001). CONCLUSIONS We found that hospital-specific antibiotic usage was generally associated with increased, rather than decreased hospital antibiotic susceptibility. These findings may be explained by community origins for many hospital-diagnosed infections and practitioners choosing agents based on local antibiotic resistance patterns. Infect Control Hosp Epidemiol 2017;38:1457-1463.

Database: Medline

48. Impact of a mixed educational and semi-restrictive antimicrobial stewardship project in a large teaching hospital in Northern Italy.

Author(s): Giacobbe, Daniele Roberto; Del Bono, Valerio; Mikulska, Malgorzata; Gustinetti, Giulia; Marchese, Anna; Mina, Federica; Signori, Alessio; Orsi, Andrea; Rudello, Fulvio; Alicino, Cristiano; Bonalumi, Beatrice; Morando, Alessandra; Icardi, Giancarlo; Beltramini, Sabrina; Viscoli, Claudio; San Martino Antimicrobial Stewardship Group

Source: Infection; Dec 2017; vol. 45 (no. 6); p. 849-856

Publication Date: Dec 2017

Publication Type(s): Journal Article

PubMedID: 28856589

Abstract:BACKGROUNDThe overuse of antimicrobials favors the dissemination of antimicrobial resistance, as well as invasive fungal diseases and Clostridium difficile infections (CDI). In this study, we assessed the impact of a mixed educational and semi-restrictive antimicrobial stewardship (AMS) project in a large teaching hospital in Italy.METHODSThe AMS project was conducted from May 2014 to April 2016. It consisted of two initiatives in two consecutive periods: (1) educational activities; (2)

semi-restrictive control of antimicrobial prescribing through a computerized software. The primary endpoint was consumption of antibacterials and antifungals. Secondary endpoints were incidence of CDI, methicillin-resistant Staphylococcus aureus (MRSA) bloodstream infections (BSI), carbapenem-resistant Klebsiella pneumoniae (CRKP) BSI, and Candida BSI.RESULTSDuring the study period, a statistically significant reduction in consumption was observed for antibacterials (-1.45 defined daily doses (DDD)/1000 patient-days monthly, 95% confidence intervals [CI] -2.38 to -0.52, p 0.004), mainly driven by reductions in the use of fluoroquinolones, third/fourth generation cephalosporins, and carbapenems. No decrease in consumption of antifungals was observed (-0.04 DDD/1000 patient-days monthly, 95% CI -0.34 to +0.25, p 0.750). A statistically significant trend towards reduction was observed for incidence of CRKP BSI (incidence rate ratio 0.96, 95% CI 0.92-0.99, p 0.013). No statistically significant variations in trends were observed for CDI, MRSA BSI, and Candida BSI.CONCLUSIONSThe mixed AMS project was effective in reducing the use of major antibacterials and the incidence of CRKP BSI. Further research is needed to assess the extent of long-term benefits of semi-restrictive approaches.

Database: Medline

49. Reducing catheter-associated urinary tract infections in hospitals: study protocol for a multi-site randomised controlled study.

Author(s): Mitchell, Brett G; Fasugba, Oyebola; Gardner, Anne; Koerner, Jane; Collignon, Peter; Cheng, Allen C; Graves, Nicholas; Morey, Peter; Gregory, Victoria

Source: BMJ open; Nov 2017; vol. 7 (no. 11); p. e018871

Publication Date: Nov 2017

Publication Type(s): Randomized Controlled Trial Multicenter Study Journal Article

PubMedID: 29183930

Available at BMJ Open - from BMJ Journals

Available at BMJ Open - from Europe PubMed Central - Open Access

Available at BMJ Open - from bmj.com

Abstract:INTRODUCTIONDespite advances in infection prevention and control, catheter-associated urinary tract infections (CAUTIs) are common and remain problematic. A number of measures can be taken to reduce the risk of CAUTI in hospitals. Appropriate urinary catheter insertion procedures are one such method. Reducing bacterial colonisation around the meatal or urethral area has the potential to reduce CAUTI risk. However, evidence about the best antiseptic solutions for meatal cleaning is mixed, resulting in conflicting recommendations in guidelines internationally. This paper presents the protocol for a study to evaluate the effectiveness (objective 1) and cost-effectiveness (objective 2) of using chlorhexidine in meatal cleaning prior to catheter insertion, in reducing catheter-associated asymptomatic bacteriuria and CAUTI.METHODS AND ANALYSISA stepped wedge randomised controlled trial will be undertaken in three large Australian hospitals over a 32-week period. The intervention in this study is the use of chlorhexidine (0.1%) solution for meatal cleaning prior to catheter insertion. During the first 8 weeks of the study, no hospital will receive the intervention. After 8 weeks, one hospital will cross over to the intervention with the other two participating hospitals crossing over to the intervention at 8-week intervals respectively based on randomisation. All sites complete the trial at the same time in 2018. The primary outcomes for objective 1 (effectiveness) are the number of cases of CAUTI and catheter-associated asymptomatic bacteriuria per 100 catheter days will be analysed separately using Poisson regression. The primary outcome for objective 2 (cost-effectiveness) is the changes in costs relative to health benefits (incremental cost-effectiveness ratio) from adoption of the intervention.DISSEMINATIONResults will be disseminated via peer-reviewed journals and presentations at relevant conferences.A

dissemination plan it being developed. Results will be published in the peer review literature, presented at relevant conferences and communicated via professional networks.ETHICSEthics approval has been obtained.TRIAL REGISTRATION NUMBER12617000373370, approved 13/03/2017. Protocol version 1.1.

Database: Medline

50. Monitoring of clinical strains and environmental fungal aerocontamination to prevent invasive aspergillosis infections in hospital during large deconstruction work: a protocol study.

Author(s): Loeffert, Sophie Tiphaine; Melloul, Elise; Dananché, Cédric; Hénaff, Laetitia; Bénet, Thomas; Cassier, Pierre; Dupont, Damien; Guillot, Jacques; Botterel, Françoise; Wallon, Martine; Gustin, Marie-Paule; Vanhems, Philippe

Source: BMJ open; Nov 2017; vol. 7 (no. 11); p. e018109

Publication Date: Nov 2017

Publication Type(s): Video-audio Media Journal Article

PubMedID: 29175886

Available at BMJ Open - from BMJ Journals

Available at BMJ Open - from Europe PubMed Central - Open Access

Available at BMJ Open - from bmj.com

Abstract:INTRODUCTIONMonitoring fungal aerocontamination is an essential measure to prevent severe invasive aspergillosis (IA) infections in hospitals. One central block among 32 blocks of Edouard Herriot Hospital (EHH) was entirely demolished in 2015, while care activities continued in surrounding blocks. The main objective was to undertake broad environmental monitoring and clinical surveillance of IA cases to document fungal dispersion during major deconstruction work and to assess clinical risk.METHODS AND ANALYSISA daily environmental survey of fungal loads was conducted in eight wards located near the demolition site. Air was collected inside and outside selected wards by agar impact samplers. Daily spore concentrations were monitored continuously by volumetric samplers at a flow rate of 10 L.min-1. Daily temperature, wind direction and speed as well as relative humidity were recorded by the French meteorological station Meteociel. Aspergillus fumigatus strains stored will be genotyped by multiple-locus, variable-number, tandem-repeat analysis. Antifungal susceptibility will be assessed by E-test strips on Roswell Park Memorial Institute medium supplemented with agar. Ascertaining the adequacy of current environmental monitoring techniques in hospital is of growing importance, considering the rising impact of fungal infections and of curative antifungal costs. The present study could improve the daily management of IA risk during major deconstruction work and generate new data to ameliorate and redefine current guidelines.ETHICS AND DISSEMINATIONThis study was approved by the clinical research and ethics committees of EHH.

Database: Medline

51. SAFE TRANSITION TO ORAL ANTIBIOTIC THERAPY FOR PYELONEPHRITIS IN CHILDREN UNDER 2 MONTHS OF AGE: A RETROSPECTIVE STUDY

Author(s): David-Alexandre Lessard; Tremblay, Arnaud; Huard-Girard, Thelma; Turcotte, Jean-Francois

Source: Paediatrics & Child Health; May 2018; vol. 23 ; p. e40

Publication Date: May 2018

Publication Type(s): General Information

Available at Paediatrics & Child Health - from Europe PubMed Central - Open Access

Abstract: Abstract Febrile urinary tract infection (UTI) is a common cause of acute illness in paediatric medicine. Whereas oral antibiotic therapy (OAT) has become common practice in older children, the evidence supporting OAT in infants less than 2 months of age is still limited. The need for future research in the management strategies of UTIs in infants < 2 months of age has been acknowledged by the Canadian Paediatric Society. Describe the use of antibiotics in children < 2 months of age with a diagnosis of pyelonephritis at a Canadian tertiary care paediatric hospital and assess the safety of an early OAT switch in this population. A retrospective observational cohort study of infants < 2 months of age with a diagnosis of pyelonephritis based on 1) fever or systemic symptoms (lethargy, vomiting) and 2) a positive urine culture obtained from urinary catheterization. All children were seen between January 1st 2015 and July 30th 2017 at a single tertiary care centre. Infants were either hospitalized or followed in an outpatient day clinic. Chart review was performed and multiple variables were included in the analysis. 105 patients were included. Among those, 81 (77%) were boys. Most patients (87%) had Escherichia coli infection. Patients presented at a mean age of 33 ± 15 days and were admitted for 3.7 ± 2.7 days. Intravenous antibiotic therapy (IAT) - ampicillin and tobramycin or ampicillin and cefotaxime - were initially used in most patients (96%) with transition to OAT after a mean IAT duration of 3.9 days ± 2.4 days. A renal ultrasound was performed in all patients. In a subgroup of patients aged less than 30 days without bacteremia (44 patients), mean age at presentation was 19 ± 6 days. They were treated with IAT for 3.7 days ± 1.9 days before transition to OAT based on urine culture and resolution of fever. No patient was readmitted for a renal complication following discharge. Early use of OAT following an initial IAT in infants < 2 months of age with a diagnosis of pyelonephritis appears to be a safe option. In infants < 30 days of age without bacteremia, our data suggests that early transition to OAT is not associated with worse outcomes.

Database: BNI

52. Bacterial pneumonia in kidney transplant recipients

Author(s): Wilmes, D; Coche, E; Rodriguez-Villalobos, H; Kanaan, N

Source: Respiratory Medicine; Apr 2018; vol. 137 ; p. 89

Publication Date: Apr 2018

Publication Type(s): Journal Article

Abstract: Bacterial pathogens are the most frequent cause of pneumonia after transplantation. Early after transplantation, recipients are at higher risk for nosocomial infections. The most commonly encountered pathogens during this period are gram-negative bacilli (Klebsiella pneumoniae, Escherichia coli, Pseudomonas aeruginosa …), but gram-positive coccus such as Staphylococcus aureus or Streptococcus pneumoniae and anaerobic bacteria can also be found. Empirical antibiotic therapy should be guided by previous colonisation of the recipient and bacterial resistance pattern in the hospital. Six months after transplantation, pneumonias are mostly due to community-acquired bacteria (S. pneumonia, H. influenza, Mycoplasma, Chlamydia and others). Opportunistic pathogens take advantage of the state of immunosuppression which is usually highest from one to six months after transplantation. During this period, but also occurring many years later in the setting of a chronically depressed immune system, bacterial pathogens with low intrinsic virulence can cause pneumonia. The diagnosis of pneumonia caused by opportunistic pathogens can be challenging. The delay in diagnosis preventing the early instauration of adequate treatment in kidney transplant recipients with a depressed immune system, frequently coupled with co-morbid conditions and a state of frailty, will affect prognosis and outcome, increasing morbidity and mortality.This review will focus on the most common opportunistic bacterial pathogens causing pneumonia in kidney transplant recipients: Legionella, Nocardia, Mycobacterium tuberculosis/nontuberculous, and

Rhodococcus. Recognition of their specificities in the setting of immunosuppression will allow early diagnosis, crucial for initiation of effective therapy and successful outcome. Interactions with immunosuppressive therapy should be considered as well as reducing immunosuppression if necessary.

Database: BNI

53. Antibiotics after incision and drainage for uncomplicated skin abscesses: a clinical practice guideline

Author(s): Vermandere, Mieke; Aertgeerts, Bert; Agoritsas, Thomas; Liu, Catherine; Burgers, Jako; Merglen, Arnaud; Okwen, Patrick Mbah; Lytvyn, Lyubov; Chua, Shunjie; Vandvik, Per O; Guyatt, Gordon H; Beltran-Arroyave, Claudia; Lavergne, Valéry; Speeckaert, Reinhart; Steen, Finn E; Arteaga, Victoria; Sender, Rachelle; McLeod, Shelley; Sun, Xin; Wang, Wen; Siemieniuk, Reed A C

Source: BMJ : British Medical Journal (Online); Feb 2018; vol. 360 ; p. n

Publication Date: Feb 2018

Publication Type(s): Journal Article

Available at BMJ - from BMJ Journals

Available at BMJ - from PubMed Central

Abstract: What you need to know For uncomplicated skin abscesses, we suggest using trimethoprim-sulfamethoxazole (TMP-SMX) or clindamycin in addition to incision and drainage rather than incision and drainage alone, and emphasise the need for shared decision making TMP-SMX or clindamycin modestly reduces pain and treatment failure and probably reduces abscess recurrence, but increases the risk of adverse effects including nausea and diarrhoea We suggest TMP-SMX rather than clindamycin because TMP-SMX has a lower risk of diarrhoea Cephalosporins in addition to incision and drainage are probably not more effective than incision and drainage alone in most settings From a societal perspective, the modest benefits from adjuvant antibiotics may not outweigh the harms from increased antimicrobial resistance in the community, although this is speculative Box 1 Linked articles in this BMJ Rapid Recommendation cluster Vermandere M, Aertgeerts B, Agoritsas T, et al. More than 4% of people seek treatment for skin infections annually in the United States. 5 In European countries, it may be less common: in Belgium and the Netherlands about 0.5-0.6% visit their general practitioner with bacterial skin infections each year. 6 7 8 Identifying the infecting pathogen may not be necessary for treating uncomplicated skin abscesses, but cultures can provide helpful information in patients with recurrent abscesses or systemic illness. 1 3 The most common pathogens are Staphylococcus aureus, most often methicillin-resistant (MRSA), and several other bacteria, most originating from the skin flora. 1 9 MRSA accounts for a substantial number of visits by patients with skin and soft tissue infections. 10 11 12 Table 1 summarises current management guidelines, which do not recommend antibiotics for uncomplicated skin abscesses. The evidence To inform the recommendations, the guideline panel requested a systematic review of randomised controlled trials (RCTs) on the effects of adjuvant antibiotic therapy compared with no antibiotic therapy in addition to incision and drainage in patients with uncomplicated skin abscesses. 15 A large RCT published in March 2016 suggested that TMP-SMX treatment resulted in a higher cure rate than placebo among patients with a drained cutaneous abscess. 16 Another RCT published in June 2017 found that, compared with incision and drainage alone, clindamycin or TMP-SMX in addition to incision and drainage improved short term outcomes in patients who had an uncomplicated skin abscess. 5 The Rapid Recommendations team believed these two trials, in addition to the existing body of evidence, might change practice. 17 Figure 1 gives an overview of the characteristics of patients and trials included in the systematic review of the effects of antibiotics on uncomplicated skin abscesses. [...]the impact of an individual

course of antibiotics on community resistance rates is unknown. [...]whether antibiotics in this situation provide a net benefit or harm to society is highly speculative.

Database: BNI

54. Domestic laundering of nurses' uniforms: what are the risks?

Author(s): Laird, Katie; Riley, Kate; Williams, John

Source: Nursing Times; Feb 2018; vol. 114 (no. 2); p. 18

Publication Date: Feb 2018

Publication Type(s): Journal Article

Abstract: With rises in healthcare-acquired infections (HCAIs) and antibiotic resistance, understanding transmission routes of bacteria is paramount. One possible route is nurses' uniforms, which they wash at home. A study found that trusts' policies on home laundering were inconsistent and that staff did not always follow guidance. Another study showed that, when contaminated and sterile fabric samples were washed at 40°C, a small number of Escherichia coli and Staphylococcus aureus bacteria survived and cross-contamination occurred. This article details the two studies, describes the regulatory environment and discusses how to ensure adequate decontamination of uniforms.

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55. NEW ANTIBIOTIC FOR COMPLICATED URINARY TRACT INFECTIONS

Author(s): Aschenbrenner, Diane S, MS, RN

Source: The American Journal of Nursing; Dec 2017; vol. 117 (no. 12); p. 22

Publication Date: Dec 2017

Publication Type(s): News

Abstract: Vabomere, a combination of meropenem and vaborbactam, is a new antibiotic for the treatment of complicated urinary tract infections, including pyelonephritis. The drug is effective against Escherichia coli, Kiebsiella pneumoniae and Enterobacter cioacae species complex when these organisms are resistant to other antibiotics and is administered every eight hours as an iv infusion and three hours is required to infuse each dose of the drug.

Database: BNI

56. Kick the Bucket: One Hospital System’s Journey to Reduce Clostridium Difficile

Author(s): Delaney, Molly Bridget

Source: Journal of Emergency Nursing; Nov 2017; vol. 43 (no. 6); p. 519

Publication Date: Nov 2017

Publication Type(s): Journal Article

Available at Journal of Emergency Nursing - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Problem Albert Einstein defines insanity as doing the same thing over again but expecting different results. Although the United States claims to reduce antibiotic abuse, practice strict isolation, and clean meticulously, the burden ofClostridium difficileoutpaces goals. Unless innovative approaches are tried, we risk culling elderly, immunosuppressed, and otherwise debilitated

populations. Emergency departments are a primary access point for patients who are unable to wait for primary care. As a result, many patients with diarrhea are seen in emergency departments. Methods This article describes one hospital system's quality improvement trial of disposable commode pails (DCPs) for high-acuity patients in 3 of 5 institutions. The rationale was to prevent staff from touching surfaces heavily contaminated withC difficile. Staff members were not to wash or reuse commode buckets between patients. Instead, DCPs were substituted, and only the commodechairswere wiped. For quantitative date,C difficileinfections (CDIs) were compared across hospitals. Staff members were surveyed for qualitative data. Results According to Survey Monkey, the rate of employee satisfaction with the new process was 95%. Fewer sewage backups resulted because nonbiodegradable wipes were disposed inside DCPs rather than in toilets or hoppers. Implementation and product costs were justified through labor savings and a reduced incidence of CDIs. CDI improvements were noted in system hospital emergency departments that used DCPs. Moreover, in one hospital that used DCPs in all nursing units for 1 year, CDI rates were reduced by 32%. Implications for Practice Third-party hospital laboratories generated all CDI data, which reduced bias. However, laboratories were unable to stratify CDIs as inpatient and outpatient in origin. More research is recommended with larger ED patient sample sizes.

Database: BNI

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