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**INFECTION PREVENTION & CONTROL UPDATE 4: Autumn 2017**

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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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, EMBASE 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. **Reducing Central Line-Associated Bloodstream Infection Rates in the Context of a Caring-Healing Environment: A Patient Safety Program Evaluation**

**Author(s):** Hanson, Daphne

**Source:** Journal of Infusion Nursing; 2017; vol. 40 (no. 2); p. 101-110

**Publication Date:** 2017

**Publication Type(s):** Article

**Abstract:** Central line-associated bloodstream infections (CLABSIs) prove to be detrimental to both the patient and the hospital. The present study was a quality improvement training project to affect CLABSI rates in the cardiac intensive care unit in the context of a caring-healing environment, and contributed to a culture of patient safety to empower staff to speak up if they see a breach in protocol at any time. A caring-healing environment encouraged staff to take the extra time and precautions to prevent infections for their patients and created a better quality of care for the patients.

**Database:** BNI

1. **Digestive tract colonization by multidrug-resistant Enterobacteriaceae in travellers: An update**

**Author(s):** Ruppe E.; Andremont A.; Armand-Lefevre L.

**Source:** Travel Medicine and Infectious Disease; 2017

**Publication Date:** 2017

**Publication Type(s):** Article In Press

**Abstract:** Background: Enterobacteriaceae have become increasingly resistant, especially due to the acquisition and spread of extended-spectrum beta-lactamases (ESBLs), which confer resistance to the majority of beta-lactams. Multi-resistant Enterobacteriaceae (MRE) were first isolated in hospitals, but now they are disseminating in the community setting, mostly in low and middle income countries. Consequently, the increasing number of international travels leads to the importation of MRE from high-prevalence to low-prevalence countries. Methods: The Pubmed database was used to conduct research from 1980 to 2016 by combining the following key words: travel, antibiotic resistance, ESBL, Enterobacteriaceae, genomic, metagenomic, urinary tract infection, infection. Results: The research found that the MRE acquisition rates in healthy travellers from low-prevalence countries ranged from 21% to 51% depending on the study design and the visited geographic regions. After a trip to Asia and especially to South Asia, the acquisition rate could reach 85%. A trip to Africa or to the Middle East was associated with lower rates but still worrisome (13-44%). Digestive disorder, diarrhoea and antibiotics used during travel are major risks factors associated with the acquisition of MRE. Travel to endemic areas has also been identified as a risk factor for MRE infection, including urinary tract infections. Conclusion: Travellers are at high risk of MRE acquisition and consequently of MRE infection. This risk should not be ignored by general practitioners. To reduce the risk of acquisition and subsequent transmission to relatives, travellers should be given recommendations prior to their travel. Copyright © 2017.

**Database:** EMBASE

1. **Impetigo: A need for new therapies in a world of increasing antimicrobial resistance**

**Author(s):** D'Cunha N.M.; Thomas J.; Peterson G.M.; Baby K.E.

**Source:** Journal of Clinical Pharmacy and Therapeutics; 2017

**Publication Date:** 2017

**Publication Type(s):** Article In Press

Available at [Journal of clinical pharmacy and therapeutics](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fonlinelibrary.wiley.com%2Fdoi%2F10.1111%2Fjcpt.12639%2Ffull) - from Wiley Online Library Medicine and Nursing Collection 2018 - NHS

Available at [Journal of clinical pharmacy and therapeutics](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fonlinelibrary.wiley.com%2Fdoi%2F10.1111%2Fjcpt.12639%2Ffull) - from Wiley Online Library All Journals

**Abstract:** What is known and objective: Impetigo is a highly contagious bacterial skin infection and is one of the most common skin infections in children. Antibiotics are the first-line treatment when multiple lesions exist, but with an increasing prevalence of antibiotic-resistant bacteria the successful management of impetigo in the future is an area of concern. Comment: Current treatment options that favour the use of oral antibiotic therapy are increasingly problematic. Widespread use of these agents contributes to antimicrobial resistance and has adverse consequences for individuals and communities. There is a need for new topical antimicrobials and antiseptics as an alternative treatment strategy. What is new and conclusion: To successfully treat impetigo into the future and ensure that therapy does not contribute to bacterial resistance, additional research is required to ascertain the usefulness of alternative agents, including new topical antimicrobials and antiseptics .Copyright © 2017 John Wiley & Sons Ltd.

**Database:** EMBASE

1. **Repeat gram-negative hospital-acquired infections and antibiotic susceptibility: A systematic review**

**Author(s):** Agarwal M.; Shiau S.; Larson E.L.

**Source:** Journal of Infection and Public Health; 2017

**Publication Date:** 2017

**Publication Type(s):** Article In Press

**Abstract:**Repeat HAIs among frequently hospitalized patients may be contributing to the high rates of antibiotic resistance seen in gram-negative bacteria (GNB) in hospital settings. This systematic review examines the state of the literature assessing the association between repeat GNB HAIs and changes in antibiotic susceptibility patterns. A systematic search of English language published literature was conducted to identify studies in peer-reviewed journals from 2000 to 2015. Studies must have assessed drug resistance in repeat GNB infections longitudinally at the patient level. Two researchers independently reviewed search results for papers meeting inclusion criteria and extracted data. Risk of bias was assessed using a modified quality assessment tool based on the Checklist for Measuring Study Quality and the Quality Assessment Checklist for Cases Series. From 3385 articles identified in the search, seven met inclusion criteria. Five reported lower antibiotic susceptibility in repeated infections, one found a change but did not specify in which direction, and one reported no change. All studies were of low to average quality. Despite the dearth of studies examining repeat GNB infections, evidence suggests that repeat infections result in lower antibiotic susceptibility among hospitalized patients. Larger scale studies with strong methodology are warranted.Copyright © 2017 The Authors.

**Database:** EMBASE

1. **Efficacy testing of novel chemical disinfectants on clinically relevant microbial pathogens**

**Author(s):** Meade E.; Garvey M.

**Source:** American Journal of Infection Control; 2017

**Publication Date:** 2017

**Publication Type(s):** Article In Press

**Abstract:** Background: There has been a dramatic increase in the number of hospital-acquired infections, which is linked to the pandemic of multidrug resistance. Clinical environments provide an ideal reservoir for the growth, proliferation, and transmission of pathogenic organisms, including bacterial and yeast species. Consequently, the need for improved, effective disinfectants is of paramount importance. Methods: Studies were conducted to assess the efficacy of chemical disinfectants-peracetic acid and triameen-on microbial strains. Testing included the assessment of antimicrobial and antisporicidal activity of disinfection solutions performed on a range of clinical isolates that pose a high risk for patient morbidity in clinical settings. Results: Both chemical disinfectants successfully inactivated all test strains, with peracetic acid showing a greater level of antimicrobial activity. Escherichia coli proved most susceptible when assessed by the Kirby disk diffusion, suspension, and medical suspension assays with the greatest reduction in cell viability achieved. Antibiotic-resistant Enterococcus and Staphylococcus aureus strains showed greatest resistance to both disinfectants. Discussion and conclusions: Test chemicals show potential to act as intermediate-level disinfectants inactivating vegetative microorganisms and bacterial spores on clinically relevant strains where they show potential as a preventative measure in relation to nosocomial infections.Copyright © 2017 Association for Professionals in Infection Control and Epidemiology, Inc.

**Database:** EMBASE

1. **Patient and public understanding and knowledge of antimicrobial resistance and stewardship in a UK hospital: Should public campaigns change focus?**

**Author(s):** Micallef C.; Kildonaviciute K.; Scibor-Stepien A.; Santos R.; Pacey S.; Castro-Sanchez E.; Holmes A.H.; Aliyu S.H.; Cooke F.J.; Enoch D.A.

**Source:** Journal of Antimicrobial Chemotherapy; 2017; vol. 72 (no. 1); p. 311-314

**Publication Date:** 2017

**Publication Type(s):** Article

**PubMedID:** 27655854

**Abstract:** Background: The rising global tide of antimicrobial resistance is a well-described phenomenon. Employing effective and innovative antimicrobial stewardship strategies is an essential approach to combat this public health threat. Education of the public and patients is paramount to enable the success of such strategies. Methods: A panel of hospital multidisciplinary healthcare professionals was set up and a short quiz containing true/false statements around antimicrobial stewardship and resistance was designed and piloted. An educational leaflet with the correct replies and supporting information was also produced and disseminated. Participants were recruited on a single day (18 November 2015) from the hospital outpatient clinics and the hospital outpatient pharmacy waiting room. Results: One hundred and forty-five completed quizzes were returned, providing a total of 1450 answers. Overall, 934 of 1450 (64%) statements were scored correctly whilst 481 (33%) were scored incorrectly; 35 (3%) statements were left unscored. We speculate that these results may demonstrate that respondents understood the statements, as only a small proportion of statements were left unanswered. The question dealing with the definition of antimicrobial resistance and the question dealing with the definition of antimicrobial stewardship obtained the most incorrect replies (85% and 72%, respectively). However, a specific factual recall question regarding only one microorganism (MRSA) received the most correct responses (99%). Conclusions: We describe a simple, innovative method of engagement with patients and the general public to help educate and disseminate important public health messages around antimicrobial resistance and stewardship. We also identified the need for public health campaigns to address the knowledge gaps found around this topic. Copyright © The Author 2016.

**Database:** EMBASE

1. **Restrictive antibiotic stewardship associated with reduced hospital mortality in gram-negative infection**

**Author(s):** Ritchie N.D.; Irvine S.C.; Helps A.; Robb F.; Seaton R.A.; Jones B.L.

**Source:** QJM; 2017; vol. 110 (no. 3); p. 155-161

**Publication Date:** 2017

**Publication Type(s):** Article

**PubMedID:** 27521583

Available at [QJM: An International Journal of Medicine](https://doi.org/10.1093/qjmed/hcw134) - from HighWire - Free Full Text

**Abstract:**Introduction: Antimicrobial stewardship has an important role in the control of Clostridium difficile infection (CDI) and antibiotic resistance. An important component of UK stewardship interventions is the restriction of broad-spectrum beta-lactam antibiotics and promotion of agents associated with a lower risk of CDI such as gentamicin. While the introduction of restrictive antibiotic guidance has been associated with improvements in CDI and antimicrobial resistance, evidence of the effect on outcome following severe infection is lacking. Methods: In 2008, Glasgow hospitals introduced a restrictive antibiotic guideline. A retrospective before/after study assessed outcome following Gram-negative bacteraemia in the 2-year period around implementation. Results: Introduction of restrictive antibiotic guidelines was associated with a reduction in utilization of ceftriaxone and co-amoxiclav and an increase in amoxicillin and gentamicin. Approximately 1593 episodes of bacteremia were included in the study. The mortality over 1-year following Gram-negative bacteraemia was lower in the period following guideline implementation (RR 0.852, P=0.045). There was no evidence of a difference in secondary outcomes including ITU admission, length of stay, readmission, recurrence of bacteraemia and need for renal replacement therapy. There was a fall in CDI (RR 0.571, P=0.014) and a reduction in bacterial resistance to ceftriaxone and co-amoxiclav but no evidence of an increase in gentamicin resistance after guideline implementation. Conclusion: Restrictive antibiotic guidelines were associated with a reduction in CDI and bacterial resistance but no evidence of adverse outcomes following Gram-negative bacteraemia. There was a small reduction in one year mortality. Copyright © The Author 2016.

**Database:** EMBASE

1. **Infection prevention and control measures and tools for the prevention of entry of carbapenem-resistant Enterobacteriaceae into healthcare settings: Guidance from the European Centre for Disease Prevention and Control**

**Author(s):** Magiorakos A.P.; Burns K.; Rodriguez Bano J.; Borg M.; Daikos G.; Dumpis U.; Lucet J.C.; Moro M.L.; Tacconelli E.; Simonsen G.S.; Szilagyi E.; Voss A.; Weber J.T.

**Source:** Antimicrobial Resistance and Infection Control; Nov 2017; vol. 6 (no. 1)

**Publication Date:** Nov 2017

**Publication Type(s):** Article

Available at [Antimicrobial Resistance and Infection Control](https://doi.org/10.1186/s13756-017-0259-z) - from BioMed Central

Available at [Antimicrobial Resistance and Infection Control](http://europepmc.org/search?query=(DOI:%2210.1186/s13756-017-0259-z%22)) - from Europe PubMed Central - Open Access

**Abstract:** Background: Infections with carbapenem-resistant Enterobacteriaceae (CRE) are increasingly being reported from patients in healthcare settings. They are associated with high patient morbidity, attributable mortality and hospital costs. Patients who are "at-risk" may be carriers of these multidrug-resistant Enterobacteriaceae (MDR-E). The purpose of this guidance is to raise awareness and identify the "at-risk" patient when admitted to a healthcare setting and to outline effective infection prevention and control measures to halt the entry and spread of CRE. Methods: The guidance was created by a group of experts who were functioning independently of their organisations, during two meetings hosted by the European Centre for Disease Prevention and Control. A list of epidemiological risk factors placing patients "at-risk" for carriage with CRE was created by the experts. The conclusions of a systematic review on the prevention of spread of CRE, with the addition of expert opinion, were used to construct lists of core and supplemental infection prevention and control measures to be implemented for "at-risk" patients upon admission to healthcare settings. Results: Individuals with the following profile are "at-risk" for carriage of CRE: a) a history of an overnight stay in a healthcare setting in the last 12 months, b) dialysis-dependent or cancer chemotherapy in the last 12 months, c) known previous carriage of CRE in the last 12 months and d) epidemiological linkage to a known carrier of a CRE. Core infection prevention and control measures that should be considered for all patients in healthcare settings were compiled. Preliminary supplemental measures to be implemented for "at-risk" patients on admission are: pre-emptive isolation, active screening for CRE, and contact precautions. Patients who are confirmed positive for CRE will need additional supplemental measures. Conclusions: Strengthening the microbiological capacity, surveillance and reporting of new cases of CRE in healthcare settings and countries is necessary to monitor the epidemiological situation so that, if necessary, the implemented CRE prevention strategies can be refined in a timely manner. Creating a large communication network to exchange this information would be helpful to understand the extent of the CRE reservoir and to prevent infections in healthcare settings, by applying the principles outlined here. This guidance document offers suggestions for best practices, but is in no way prescriptive for all healthcare settings and all countries. Successful implementation will result if there is local commitment and accountability. The options for intervention can be adopted or adapted to local needs, depending on the availability of financial and structural resources. Copyright © 2017 The Author(s).

**Database:** EMBASE

1. **Audit of aspects of practice in relation to patients with suspected community-onset blood stream infection**

**Author(s):** Reza M.A.; Cormican M.

**Source:** Irish Journal of Medical Science; Nov 2017; vol. 186 (no. 4); p. 999-1001

**Publication Date:** Nov 2017

**Publication Type(s):** Article

**Abstract:** Background: Community-onset blood stream infection (C-BSI) is an important cause of sepsis. The urinary tract is an important source for C-BSI. Urinary catheters are a recognized risk factor. Blood culture is the critical diagnostic test. Prompt effective antimicrobial therapy is a key intervention. We reviewed practice in relation to patients presenting with suspected C-BSI. Aim: To review practice in relation to patients presenting with suspected C-BSI. Methods: Patients were those with blood cultures (BC) submitted from the emergency department over 4 weeks. Details were recorded from laboratory and patient records. Data were analysed in SPSS. Results: BC were taken from 201 patients. Suspected source was respiratory (32.8%), urine (14.9%) or other (52.3%). 9 (4.5%) patients had urine catheters. Urine was the suspected source of infection in five of these. Bacteriuria was present in seven of these nine from whom urine samples were submitted though it was polymicrobial in all but 2. Median time from registration to first administration of an antimicrobial was 226 min and was broadly guideline compliant in 121 (80.7%) of 151 patients who received treatment. BC were positive in 17 (8.5%) of which 10 (5.0%) were significant (mainly Escherichia coli). Conclusions: Suspected C-BSI is common. E. coli is the leading pathogen. Urine is a common suspect source. Urinary catheters are present in 4.5%. Median time to first dose of antimicrobial treatment is almost 4 h suggesting scope to expedite patients transition from presentation to intervention.Copyright © 2017, Royal Academy of Medicine in Ireland.

**Database:** EMBASE

1. **Co-infection of Pseudomonas aeruginosa and Stenotrophomonas maltophilia in hospitalised pneumonia patients has a synergic and significant impact on clinical outcomes**

**Author(s):** Yin C.; Yang W.; Meng J.; Lv Y.; Wang J.; Huang B.

**Source:** European Journal of Clinical Microbiology and Infectious Diseases; Nov 2017; vol. 36 (no. 11); p. 2231-2235

**Publication Date:** Nov 2017

**Publication Type(s):** Article

**Abstract:** Ventilator-acquired pneumonia and hospital community-acquired pneumonia are frequently caused by Gram-negative and -positive bacteria. We noted that pneumonia patients with co-infection of Pseudomonas aeruginosa and Stenotrophomonas maltophilia had a poor clinical outcome. To verify this, we retrospectively reviewed pneumonia cases at Hebei General Hospital from 2010 to 2015. These cases were grouped into four categories: (1) co-infection with P. aeruginosa and S. maltophilia, (2) infection with P. aeruginosa, (3) infection with S. maltophilia and (4) infection with none of the known pneumonia-causing pathogens. The numbers of cases in each group were 50, 40, 41 and 33, with mortality rates of 64.0%, 12.5%, 14.6% and 6.1%, respectively. The analysed results indicated that a co-infection of P. aeruginosa and S. maltophilia had a synergic impact on the mortality of pneumonia patients. Therefore, future research is needed to develop treatment strategies for the co-infected patients to reduce the rate of mortality. Copyright © 2017, Springer-Verlag GmbH Germany.

**Database:** EMBASE

1. **A 72-h intervention for improvement of the rate of optimal antibiotic therapy in patients with bloodstream infections**

**Author(s):** Murri R.; Taccari F.; Mastrorosa I.; Giovannenze F.; Scoppettuolo G.; Ventura G.; Palazzolo C.; Camici M.; Lardo S.; Cauda R.; Fantoni M.; Spanu T.; D'Inzeo T.; Fiori B.; Sanguinetti M.

**Source:** European Journal of Clinical Microbiology and Infectious Diseases; Oct 2017 ; p. 1-7

**Publication Date:** Oct 2017

**Publication Type(s):** Article In Press

**Abstract:** Antimicrobial stewardship programs are implemented to optimize the use of antibiotics and control the spread of antibiotic resistance. Many antimicrobial stewardship interventions have demonstrated significant efficacy in reducing unnecessary prescriptions of antibiotics, the duration of antimicrobial therapy, and mortality. We evaluated the benefits of a combination of rapid diagnostic tests and an active re-evaluation of antibiotic therapy 72 h after the onset of bloodstream infection (BSI). All patients with BSI from November 2015 to November 2016 in a 1100-bed university hospital in Rome, where an Infectious Disease Consultancy Unit (Unita di Consulenza Infettivologica, UDCI) is available, were re-evaluated at the bedside 72 h after starting antimicrobial therapy and compared to two pre-intervention periods: the UDCI was called by the ward physician for patients with BSI and the UDCI was called directly by the microbiologist immediately after a pathogen was isolated from blood cultures. Recommendations for antibiotic de-escalation or discontinuation significantly increased (54%) from the two pre-intervention periods (32% and 27.2%, p Copyright © 2017 Springer-Verlag GmbH Germany

**Database:** EMBASE

1. **Comparative characteristic of antimicrobial resistance in geriatric hospital: a retrospective cohort study**

**Author(s):** Goltsman G.; Mizrahi E.H.; Leibovitz A.; Gorelik O.; Lubart E.; Gal G.

**Source:** Aging Clinical and Experimental Research; Oct 2017 ; p. 1-5

**Publication Date:** Oct 2017

**Publication Type(s):** Article In Press

**Abstract:** Background and aims: To examine antimicrobial resistance of commonly isolated pathogens in elderly hospitalized patients. Methods: Data regarding all clinically significant isolates from blood and urine cultures of patients admitted to a multilevel geriatric hospital during March 2015 to April 2016 were collected. Antimicrobial susceptibility testing was performed according to Clinical and Laboratory Standard Institute guidelines. Results: Escherichia coli, Proteus mirabilis, and Klebsiella pneumoniae were the most common isolates, with proportions of extended spectrum beta-lactamase positivity of 60, 40, and 61% respectively. Adjusted logistic regression models indicated that resistance of Escherichia coli to ceftriaxone [odds ratio (OR) 2.8, 95% confidence interval (CI) 1.5-5.1], ceftazidime (OR 2.8, 95% CI 1.5-5.1), ciprofloxacin (OR 2.2, 95% CI 1.2-4.0), amoxicillin/clavulanic acid (OR 2.3, 95% CI 1.2-4.3), and trimethoprim/sulfamethoxazole (OR 2.4, 95% CI 1.4-4.3) was significantly higher in skilled nursing wards than in acute geriatric wards. Resistance of Proteus mirabilis to ceftriaxone (OR 3.1, 95% CI 1.5-6.4) and Klebsiella pneumoniae to ciprofloxacin (OR 3.2, 95% CI 1.3-7.9) was significantly higher in skilled nursing wards than in acute wards. Conclusions and discussion: Antimicrobial resistance was found to be high in a multilevel geriatric hospital, especially in skilled nursing wards. These findings call for rethinking of the empirical antimicrobial therapy and of the efforts for prevention of nosocomial infection. Copyright © 2017 Springer International Publishing AG

**Database:** EMBASE

1. **Estimating the risk of invasive group A Streptococcus infection in care home residents in England, 2009-2010.**

**Author(s):** Saavedra-Campos, M; Simone, B; Balasegaram, S; Wright, A; Usdin, M; Lamagni, T

**Source:** Epidemiology and infection; Oct 2017; vol. 145 (no. 13); p. 2759-2765

**Publication Date:** Oct 2017

**Publication Type(s):** Journal Article

**PubMedID:** 28805176

Available at [Epidemiology and infection](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1469-4409%26volume%3D145%26issue%3D13%26spage%3D1) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Invasive group A streptococcal (iGAS) infections cause severe disease and death, especially in residents of long-term care facilities (LTCFs). In order to inform iGAS prevention, we compared the risk of iGAS in LTCF residents and community residents. We identified LTCF residents among cases of iGAS from national surveillance (2009-2010) using postcode matching, and cases of hospital-acquired infections via hospital admission records. We used Poisson regression to calculate incidence rate ratios (IRR) and logistic regression to explore factors associated with case fatality rate (CFR). A total of 2741 laboratory-confirmed iGAS cases were matched to a hospital admission: 156 (6%) were defined as hospital-acquired. Out of the total cases, 96 (3·5%) were LTCF residents. Compared with community residents, LTCF residents over 75 years of age had a higher risk of iGAS infection (IRR = 1·7; 95% CI 1·3-2·1) and CFR (OR = 2·3; 95% CI 1·3-3·8). Amongst community-acquired cases, the risk of iGAS in LTCF residents between 75 and 84 years of age doubled (IRR = 2·7; 95% CI 1·8-3·9) compared with their community counterparts. The CFR among community-acquired cases was higher in LTCF residents than community residents (21% vs. 11%). Age remained associated with death in our final model. Our study showed that, even controlling for age, LTCF residents have a higher risk of acquiring and dying from iGAS. Whilst existing co-morbidities may explain this, it is reasonable to assume that the institutional setting may facilitate transmission. Therefore, cases in LTCF require prompt investigation together with a better understanding of factors contributing to the acquisition of infection.

**Database:** Medline

1. **Risk factors and clinical outcomes for carbapenem-resistant Gram-negative late-onset sepsis in a neonatal intensive care unit**

**Author(s):** Nour, I.; Eldegla, H.E.; Nasef, N.; Shouman, B.; Abdel-Hady, H.; Shabaan, A.E.

**Source:** Journal of Hospital Infection; Sep 2017; vol. 97 (no. 1); p. 52-58

**Publication Date:** Sep 2017

**Publication Type(s):** Article

**Abstract:** Background Carbapenem-resistant (CR), Gram-negative (GN), late-onset sepsis (LOS) is a serious threat in the neonatal intensive care unit (NICU). Aim To assess the prevalence of CR-GN-LOS in NICU patients and to identify the risk factors and outcomes associated with its acquisition. Methods Neonates with carbapenem-susceptible (CS)-GN-LOS were compared with those with CR-GN-LOS in a two-year observational study. Findings A total of 158 patients had GN-LOS; 100 infants had CS-GN-LOS and 58 infants had CR-GN-LOS. The incidence rate of CR-GN-LOS was 6.5 cases per 1000 patient-days. The most frequent bacterial strain in both groups was Klebsiella pneumoniae. The duration of total parenteral nutrition (TPN) (P = 0.006) and prior carbapenem use (P = 0.01) were independent risk factors for CR-GN-LOS acquisition. CR-GN-LOS was associated with higher mortality than CS-GN-LOS (P = 0.04). Birth weight, small for gestational age, time to start enteral feeding, exclusive formula feeding, previous surgery, previous antifungal use, central venous device before onset, duration of central venous device, and infectious complications were identified as dependent risk factors for overall mortality. However, only male gender (P = 0.04) and infectious complications (P < 0.001) were independent risk factors associated with mortality. Infectious complication rates, duration of mechanical ventilation, and length of hospital stay were significantly higher in infants with CR compared to CS-GN-LOS. Conclusion The duration of TPN and carbapenem use were the independent predictors for CR-GN-LOS acquisition. CR-GN-LOS is associated with higher mortality, infectious complication rates, longer mechanical ventilation, and longer hospital stay. Male gender and infectious complications were the independent risk factors for mortality in neonates with GN-LOS. References
**Database:** BNI

1. **Dramatic effects of a new antimicrobial stewardship program in a rural community hospital**

**Author(s):** Libertin C.R.; Watson S.H.; Tillett W.L.; Peterson J.H.

**Source:** American Journal of Infection Control; Sep 2017; vol. 45 (no. 9); p. 979-982

**Publication Date:** Sep 2017

**Publication Type(s):** Article

**Abstract:** Background New Joint Commission antimicrobial stewardship requirements took effect on January 1, 2017, promoted as a central strategy for coping with the emerging problems of antimicrobial resistance and Clostridium difficile infection. Our objective was to measure the effects of a new antimicrobial stewardship program (ASP) in a rural community hospital with no prior ASP, in the context of having a new infectious disease specialist on staff. Methods An ASP team was formed to implement a prospective audit with health care provider feedback and targeting 12 antimicrobial agents in a rural hospital in Georgia. An educational grand rounds lecture series was provided before implementation of the ASP to all prescribers. After implementation, algorithms to aid the selection of empirical antibiotics for specific infectious disease syndromes based on local antibiograms were provided to prescribers to improve this selection. Rates of C difficile infections, total targeted antimicrobial costs, and drug utilization rates were calculated for 1 year pre-ASP implementation (2013) and 1 year post-ASP implementation (October 2014-December 2015). Results The patient safety metric of C difficile infections decreased from 3.35 cases per 1,000 occupied bed days (OBDs) in 2013 to 1.35 cases per 1,000 OBDs in 2015. Total targeted antimicrobial costs decreased 50% from $16.93 per patient day in 2013 to $8.44 per patient day in 2015. Overall antimicrobial use decreased 10% from before the ASP initiative to 1 year after it. Annualized savings were $280,000 in 1 year, based on drug savings only. Conclusions Judicious use of antimicrobials and resources can improve a patient safety metric and decrease costs dramatically in rural institutions where the average hospital census is Copyright © 2017 Association for Professionals in Infection Control and Epidemiology, Inc.

**Database:** EMBASE

1. **Epidemiology and hospital readmission associated with complications of Staphylococcus aureus bacteremia in pediatrics over a 25-year period**

**Author(s):** Le J.; Kim S.; Dam Q.; Tran T.; Nguyen A.; Schmidt K.; Adler-Shohet F.C.; Lieberman J.M.; Bradley J.S.

**Source:** Epidemiology and Infection; Sep 2017; vol. 145 (no. 12); p. 2631-2639

**Publication Date:** Sep 2017

**Publication Type(s):** Article

**PubMedID:** 28748772

Available at [Epidemiology and infection](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D0950-2688%26volume%3D145%26issue%3D12%26spage%3D2631) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** We sought to comprehensively assess the prevalence and outcomes of complications associated with Staphylococcus aureus bacteremia (SAB) in children. Secondarily, prevalence of methicillin resistance and outcomes of complications from methicillin-resistant S. aureus (MRSA) vs. methicillin-susceptible S. aureus SAB were assessed. This is a single-center cross-sectional study of 376 patients.©18 years old with SAB in 1990-2014. Overall, 197 (52%) patients experienced complications, the most common being osteomyelitis (33%), skin and soft tissue infection (31%), and pneumonia (25%). Patients with complications were older (median 3 vs. 0.7 years, P = 0.05) and more had community-associated SAB (66% vs. 34%, P = 0.001). Fewer patients with complications had a SAB-related emergency department or hospital readmission (10% vs. 19%, P = 0.014). Prevalence of methicillin resistance increased from 1990-1999 to 2000-2009, but decreased in 2010-2014. Complicated MRSA bacteremia resulted in more intensive care unit admissions (66% vs. 47%, P = 0.03) and led to increased likelihood of having.©2 foci (58% vs. 26%, P Copyright © Cambridge University Press.

**Database:** EMBASE

1. **Hygiene: microbial strategies to reduce pathogens and drug resistance in clinical settings**

**Author(s):** Caselli E.

**Source:** Microbial Biotechnology; Sep 2017; vol. 10 (no. 5); p. 1079-1083

**Publication Date:** Sep 2017

**Publication Type(s):** Article

Available at [Microbial Biotechnology](http://onlinelibrary.wiley.com/doi/10.1111/1751-7915.12755/full) - from Wiley Online Library Free Content - NHS

Available at [Microbial Biotechnology](http://europepmc.org/search?query=(DOI:%2210.1111/1751-7915.12755%22)) - from Europe PubMed Central - Open Access

Available at [Microbial Biotechnology](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=28677216) - from EBSCO (MEDLINE Complete)

**Abstract:** Healthcare-associated infections (HAIs) are a global concern, affecting all western hospitals, and profoundly impairing the clinical outcome of up to 15% of all hospitalized patients. Persistent microbial contamination of hospital surfaces has been suggested to contribute to HAIs onset, representing a reservoir for hospital pathogens. On the other hand, conventional chemicals-based sanitation do not prevent recontamination and can select drug-resistant strains, resulting in over 50% of surfaces persistently contaminated. There is therefore an urgent need for alternative sustainable and effective ways to control pathogens contamination and transmission. Toward this goal, we recently reported that a probiotic-based sanitation can stably decrease surface pathogens up to 90% more than conventional disinfectants, without selecting resistant species. This paper summarizes some of our most significant results. Copyright © 2017 The Authors. Microbial Biotechnology published by John Wiley & Sons Ltd and Society for Applied Microbiology.

**Database:** EMBASE

1. **Effect of antibiotic stewardship on the incidence of infection and colonisation with antibiotic-resistant bacteria and Clostridium difficile infection: a systematic review and meta-analysis**

**Author(s):** Baur D.; Gladstone B.P.; Burkert F.; Carrara E.; Foschi F.; Dobele S.; Tacconelli E.

**Source:** The Lancet Infectious Diseases; Sep 2017; vol. 17 (no. 9); p. 990-1001

**Publication Date:** Sep 2017

**Publication Type(s):** Article

**PubMedID:** 28629876

Available at [The Lancet infectious diseases](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1473-3099%26volume%3D17%26issue%3D9%26spage%3D990) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Background Antibiotic stewardship programmes have been shown to reduce antibiotic use and hospital costs. We aimed to evaluate evidence of the effect of antibiotic stewardship on the incidence of infections and colonisation with antibiotic-resistant bacteria. Methods For this systematic review and meta-analysis, we searched PubMed, the Cochrane Database of Systematic Reviews, the Cochrane Central Register of Controlled Trials, and Web of Science for studies published from Jan 1, 1960, to May 31, 2016, that analysed the effect of antibiotic stewardship programmes on the incidence of infection and colonisation with antibiotic-resistant bacteria and Clostridium difficile infections in hospital inpatients. Two authors independently assessed the eligibility of trials and extracted data. Studies involving long-term care facilities were excluded. The main outcomes were incidence ratios (IRs) of target infections and colonisation per 1000 patient-days before and after implementation of antibiotic stewardship. Meta-analyses were done with random-effect models and heterogeneity was calculated with the I2 method. Findings We included 32 studies in the meta-analysis, comprising 9 056 241 patient-days and 159 estimates of IRs. Antibiotic stewardship programmes reduced the incidence of infections and colonisation with multidrug-resistant Gram-negative bacteria (51% reduction; IR 0.49, 95% CI 0.35-0.68; pCopyright © 2017 Elsevier Ltd

**Database:** EMBASE

1. **Recognising the value of infection prevention and its role in addressing the antimicrobial resistance crisis**

**Author(s):** Harris, Anthony; Pineles, Lisa; Perencevich, Eli

**Source:** BMJ Quality and Safety; Aug 2017; vol. 26 (no. 8); p. 683-686

**Publication Date:** Aug 2017

**Publication Type(s):** Article

Available at [BMJ Quality and Safety](http://qualitysafety.bmj.com/content/26/8/683.full) - from BMJ Journals

Available at [BMJ Quality and Safety](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fqualitysafety.bmj.com%2Fcontent%2F26%2F8%2F683.full) - from BMJ Journals - NHS

**Abstract:** Healthcare-associated infections, particularly ones caused by antibiotic-resistant bacteria, are associated with high morbidity, mortality and economic costs. In the USA, on average, 2 out of 10 patients admitted to a hospital contract a healthcare-associated infection and their mortality is estimated to exceed breast and prostate cancers, combined.1 Antibiotic-resistant pathogens are responsible for more than two million infections and 23 000 deaths each year in the USA, at a direct cost of $20 billion and additional productivity losses of $35 billion.2 In the European Union, an estimated 37 000 deaths are attributable to antibiotic-resistant infections, costing ?1.5 billion annually in direct and indirect costs.3 Although these numbers are well known to hospital epidemiologists and infection preventionists, the magnitude of these numbers is often not appreciated by other clinicians and healthcare executives. Importantly, a large proportion of these infections are preventable. For example, a recent systematic review indicated that up to 70% of central line-associated bloodstream infections and catheter-associated urinary tract infections and up to 55% of surgical site infections and ventilator-associated pneumonias are preventable.4 Since the 1970s, infection prevention programmes have been recognised as an essential component for infection prevention in hospitals.5 These programmes generally consist of one or more hospital epidemiologists and infection prevention nurses and are tasked with internal and external tracking and reporting, developing and revising infection prevention policies, training staff, monitoring and surveillance, outbreak investigation, product management and evaluation, device processing, employee health, emergency preparedness and environmental cleaning methods in addition to regular meetings. [MEDIUM] References

**Database:** BNI

1. **Impact on Morbidity, Mortality, and Length of Stay of Hospital-Acquired Infections by Resistant Microorganisms**

**Author(s):** Barrasa-Villar J.I.; Aibar-Remon C.; Prieto-Andres P.; Mareca-Donate R.; Moliner-Lahoz J.

**Source:** Clinical Infectious Diseases; Aug 2017; vol. 65 (no. 4); p. 644-652

**Publication Date:** Aug 2017

**Publication Type(s):** Article

**Abstract:** Background Infections by multidrug-resistant organisms (MDROs) are a global threat and are particularly common in hospitals. This study was performed to assess the impact of hospital-acquired infections caused by MDROs on morbidity, mortality, and length of hospital stay. Methods This was a retrospective cohort study. A sample of adults aged >=18 years with a respiratory, urinary, bloodstream, or surgical site infection caused by a multidrug-resistant (cases) or -sensitive (controls) microorganism was selected. Measurements included hospital mortality from all causes (total and 30 days after infection), length of stay (LOS), and 5 indicators of morbidity: intensive care or surgery admissions, number of diagnostic tests after infection, and hospital readmissions or visits to the emergency department within 30 days of discharge. Results The sample was composed of 324 cases and 676 control patients. Risk of hospital mortality from all causes (hazard ratio [HR], 1.7; 95% confidence interval [CI], 1.25-2.32) and 30 day-mortality after infection (HR, 1.77; 95% CI, 1.29-2.44) were higher in patients with an MDRO infection. Probability of readmission was also higher (odds ratio [OR], 2.17; 95% CI, 1.36-3.46) in the case group. Emergency department visits were only significantly higher in methicillin-resistant Staphylococcus aureus (OR, 2.80; 95% CI, 1.65-4.74) and in Escherichia coli-resistant infections (OR, 2.28; 95% CI, 1.32-3.96). Infections by MDRO were not associated with any other outcome. Conclusions Hospital infections caused by MDROs increase mortality, readmissions, and in some cases, visits to the emergency department compared with those produced by susceptible strains. They do not appear to influence LOS nor the need for hospital admission, intensive care, surgery, or diagnostic tests.Copyright © The Author 2017. Published by Oxford University Press for the Infectious Diseases Society of America. All rights reserved.

**Database:** EMBASE

1. **Implications of Antibiotic Resistance for Patients' Recovery From Common Infections in the Community: A Systematic Review and Meta-analysis**

**Author(s):** Van Hecke O.; Wang K.; Lee J.J.; Butler C.C.; Roberts N.W.

**Source:** Clinical Infectious Diseases; Aug 2017; vol. 65 (no. 3); p. 371-382

**Publication Date:** Aug 2017

**Publication Type(s):** Article

**Abstract:** Background. Antibiotic use is the main driver for carriage of antibiotic-resistant bacteria. The perception exists that failure of antibiotic treatment due to antibiotic resistance has little clinical impact in the community. Methods. We searched MEDLINE, EMBASE, PubMed, Cochrane Central Register of Controlled Trials, and Web of Science from inception to 15 April 2016 without language restriction. We included studies conducted in community settings that reported patient-level data on laboratory-confirmed infections (respiratory tract, urinary tract, skin or soft tissue), antibiotic resistance, and clinical outcomes. Our primary outcome was clinical response failure. Secondary outcomes were reconsultation, further antibiotic prescriptions, symptom duration, and symptom severity. Where possible, we calculated odds ratios with 95% confidence intervals by performing meta-analysis using random effects models. Results. We included 26 studies (5659 participants). Clinical response failure was significantly more likely in participants with antibiotic-resistant Escherichia coli urinary tract infections (odds ratio [OR] = 4.19; 95% confidence interval [CI] = 3.27-5.37; n = 2432 participants), Streptococcus pneumoniae otitis media (OR = 2.51; 95% CI = 1.29-4.88; n = 921 participants), and S. pneumoniae community-acquired pneumonia (OR = 2.15; 95% CI = 1.32-3.51; n = 916 participants). Clinical heterogeneity precluded primary outcome meta-analysis for Staphylococcus aureus skin or soft-tissue infections. Conclusions. Antibiotic resistance significantly impacts on patients' illness burden in the community. Patients with laboratory-confirmed antibiotic-resistant urinary and respiratory-tract infections are more likely to experience delays in clinical recovery after treatment with antibiotics. A better grasp of the risk of antibiotic resistance on outcomes that matter to patients should inform more meaningful discussions between healthcare professionals and patients about antibiotic treatment for common infections.Copyright © The Author 2017.

**Database:** EMBASE

1. **Monitoring antimicrobial resistance (AMR) using CUSUM control charts**

**Author(s):** Righi L.; Picat M.-Q.; Thuillier M.; Chevret S.; Flicoteaux R.; Amarsy R.; Raskine L.; Cambau E.

**Source:** European Journal of Clinical Microbiology and Infectious Diseases; Aug 2017; vol. 36 (no. 8); p. 1519-1525

**Publication Date:** Aug 2017

**Publication Type(s):** Article

**Abstract:** We evaluated the use of the Cumulative Summation (CUSUM) control chart methodology for detection of an excessive increase in antimicrobial-resistant (AMR) bacteria acquisition. We used administrative, clinical and bacteriological data from all 157,570 patients hospitalized for at least 48 h from January 1, 2010 to December 31, 2015 in a 654-bed university teaching hospital in Paris, France. Monthly computed CUSUM were evaluated for the detection of out-of-control situations, defined as incidence rates of acquired AMR bacterial colonization exceeding acceptable thresholds at the hospital and ward levels (based on six selected wards) for AMR bacteria overall and Extended-spectrum beta-lactamases Enterobacteriaceae (ESBL-E) and Methicillin-resistant Staphylococcus aureus (MRSA), specifically. During the study period, 1,403 samples of acquired AMR bacteria were identified including 1,129 ESBL-E and 151 MRSA. The incidence rate of acquired AMR bacteria was stable at the hospital and the wards level. When based on AMR bacteria overall, CUSUM alarms were triggered at the hospital level and at the ward level in four units. For ESBL-E, CUSUM tests generated alarms at the hospital level and for the same four wards, and for MRSA, CUSUM tests detected out-of-control situations in all the wards. The CUSUM approach appears complementary with hospital infection control strategies currently in practice and appears of interest in common practice as a simple tool for AMR surveillance.Copyright © 2017, Springer-Verlag Berlin Heidelberg.

**Database:** EMBASE

1. **Association of hospital contact precaution policies with emergency department admission time**

**Author(s):** Kotkowski, K.; Ellison III, R.T.; Barysauskas, C.; Barton, B.; Allison, J.; Mack, D.; Finberg, R.W.; Reznek, M.

**Source:** Journal of Hospital Infection; Jul 2017; vol. 96 (no. 3); p. 244-249

**Publication Date:** Jul 2017

**Publication Type(s):** Article

**Abstract:** Background Contact precautions are a widely accepted strategy to reduce in-hospital transmission of meticillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant enterococci (VRE). However, these practices may have unintended deleterious effects on patients. Aim To evaluate the effect of a modification in hospital-wide contact precaution practices on emergency department (ED) admission times. Methods During the study period, the hospital changed its contact precaution policy from requiring contact precautions for all patients with a history of MRSA or VRE to only those who presented with clinical conditions likely to contaminate the environment with pathogens. An interrupted time series analysis of ED admission times for adults for one year preceding and one year following this change was performed at a two-campus hospital. The main outcome was admission time, defined as time from decision to admit to arrival in an inpatient bed, for patients with MRSA or VRE compared with all other patients. The in-hospital MRSA and VRE acquisition rates were evaluated over the same period and have been published previously. Findings At one campus, admission time decreased immediately by 161 min for MRSA patients (P=0.008) and 135 min for VRE patients (P=0.003), and both continued to decrease over the duration of the study. There was no significant change in admission time at the second campus. Conclusions Modifying contact precaution requirements for MRSA and VRE may be associated with improved ED admission time without significantly altering in-hospital MRSA and VRE acquisition. References

**Database:** BNI

1. **Updated IDSA/ATS guidelines on management of adults with HAP and VAP**

**Author(s):** Sucher A.; Knutsen S.; Whitehead S.

**Source:** U.S. Pharmacist; Jul 2017; vol. 42 (no. 7)

**Publication Date:** Jul 2017

**Publication Type(s):** Article

**Abstract:** Guidelines for the management of adults with hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) were recently published by the Infectious Diseases Society of America and the American Thoracic Society. For patients with suspected VAP or HAP, an empiric antimicrobial regimen that has activity against Staphylococcus aureus and Pseudomonas aeruginosa should be used. Empiric coverage for methicillin-resistant S aureus and dual antipseudomonal therapy are needed for patients with risk factors for antimicrobial resistance or for patients being treated in patient-care units demonstrating higher rates of resistance. The recommended duration of antimicrobial treatment for patients with VAP or HAP is 7 days. Pharmacists are in a key position to recommend de-escalation of antimicrobial therapy based on culture and sensitivity results and to ensure that patients are receiving the appropriate duration of therapy. Copyright © 2017, Jobson Publishing Corporation. All rights reserved.

**Database:** EMBASE

1. **Susceptibility of nosocomial staphylococcus aureus to chlorhexidine after implementation of a hospital-wide antiseptic bathing regimen**

**Author(s):** Marolf C.T.; Rupp M.E.; Alter R.; Fey P.D.; Lyden E.

**Source:** Infection Control and Hospital Epidemiology; Jul 2017; vol. 38 (no. 7); p. 873-875

**Publication Date:** Jul 2017

**Publication Type(s):** Article

**Abstract:** Hospital use of chlorhexidine (CHX) containing antiseptics to decrease nosocomial infections may promote CHX resistance among pathogenic organisms. Nosocomial bloodstream-infecting Staphylococcus aureus isolates from before and after adoption of hospital-wide CHX bathing were tested for CHX susceptibility, and no decreased susceptibility or resistance-promoting genes were discovered. Copyright © 2017 by The Society for Healthcare Epidemiology of America.

**Database:** EMBASE

1. **Bed utilisation and increased risk of Clostridium difficile infections in acute hospitals in England in 2013/2014**

**Author(s):** Vella, Venanzio; Aylin, Paul P; Moore, Luke; King, Alice; Naylor, Nichola R; Birgand, Gabriel J C; Lishman, Hannah; Holmes, Alison

**Source:** BMJ Quality and Safety; Jun 2017; vol. 26 (no. 6); p. 460-465

**Publication Date:** Jun 2017

**Publication Type(s):** Article

Available at [BMJ Quality and Safety](http://qualitysafety.bmj.com/content/26/6/460.full) - from BMJ Journals

Available at [BMJ Quality and Safety](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fqualitysafety.bmj.com%2Fcontent%2F26%2F6%2F460.full) - from BMJ Journals - NHS

**Abstract:** Background The study aimed to identify thresholds for hospital bed utilisation which are independently associated with significantly higher risks for Clostridium difficile infections (CDI) in acute hospitals in England. Method A retrospective analysis was carried out on reported data from the English National Health Service (NHS) for the financial year 2013/2014. Reported rates of CDI were used as a proxy for hospital infection rates in acute NHS hospital trusts. Multivariate linear regression was used to assess the relationship between bed utilisation values and CDI controlling for confounding factors. Hospitals were finally plotted in a Pabon Lasso graph according to their average bed occupancy rate (BOR) and bed turnover rate (BTR) per year to visualise the relationship between bed utilisation and CDI. Results Among English hospital NHS trusts, increasing BTR and decreasing BOR were associated with a decrease in CDI. However, this effect was not large, and patient mix had a larger impact on CDI rates than bed utilisation. Conclusions While policymakers and managers wishing to target healthcare providers with high CDI rates should look at bed utilisation measures, focusing on these alone is unlikely to have the desired impact. Instead, strategies to combat CDI must take a wider perspective on contributory factors at the institutional level. References

**Database:** BNI

1. **Suspicious outbreak of ventilator-associated pneumonia caused by Burkholderia cepacia in a surgical intensive care unit**

**Author(s):** Guo L.; Zhao X.; Cao B.; Li G.; Wang J.; Wang S.; Zhai L.; Jia H.

**Source:** American Journal of Infection Control; Jun 2017; vol. 45 (no. 6); p. 660-666

**Publication Date:** Jun 2017

**Publication Type(s):** Article

**Abstract:** Background We reviewed Burkholderia cepacia infections in a hospital from 2013-2016 to report a suspicious outbreak that occurred in a surgical intensive care unit in 2015, and to outline the infection control measures adopted thereafter. Methods Review of the health care-associated infection data regarding B cepacia via the surveillance system, hospital information system, electronic medical records, and laboratory information system together with the outbreak investigation was managed by the health care-associated infection control team. Results During June 1-14, 2015, 4 cases of ventilator-associated pneumonia (VAP) were identified; B cepacia was isolated from endotracheal aspirate samples. On June 16, 120 environmental samples were collected and analyzed for microbiologic differentiation. Thirteen strains of B cepacia were prominently found in the expiratory blocks of ventilators, revealing the biocontamination source. After chemical disinfection without damaging ventilator components, repeat microbiologic testing of random ventilator samples yielded negative results until July 30, 2015. Retrospective data showed that isolation rates of B cepacia strains had increased since 2014. Although the resistance phenotype of these strains varied slightly, they exhibited similar patterns of antibiotic susceptibility. Conclusions Routine cleaning and disinfection of ventilators, in addition to an intervention bundle, should form part of an integrated VAP prevention and management approach. Copyright © 2017 Association for Professionals in Infection Control and Epidemiology, Inc.

**Database:** EMBASE

1. **Fighting MRSA Infections in Hospital Care: How Organizational Factors Matter.**

**Author(s):** Salge, Torsten Oliver; Vera, Antonio; Antons, David; Cimiotti, Jeannie P

**Source:** Health services research; Jun 2017; vol. 52 (no. 3); p. 959-983

**Publication Date:** Jun 2017

**Publication Type(s):** Journal Article

**PubMedID:** 27329446

Available at [Health services research](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fonlinelibrary.wiley.com%2Fdoi%2F10.1111%2F1475-6773.12521%2Ffull) - from Wiley Online Library All Journals

Available at [Health services research](https://go.openathens.net/redirector/nhs?url=http%3A%2F%2Fonlinelibrary.wiley.com%2Fdoi%2F10.1111%2F1475-6773.12521%2Ffull) - from Wiley Online Library Medicine and Nursing Collection 2018 - NHS

Available at [Health services research](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=27329446) - from EBSCO (MEDLINE Complete)

**Abstract:** OBJECTIVE To identify factors associated with methicillin-resistant Staphylococcus aureus (MRSA) bloodstream infections at the level of the hospital organization. DATA SOURCES Data from all 173 acute trusts in the English National Health Service (NHS). STUDY DESIGNA longitudinal study based on trust-level panel data for the 5-year period from April 2004 to March 2009. Fixed effects negative binominal and system generalized method of moment models were used to examine the effect of (i) patient mix characteristics, (ii) resource endowments, and (iii) infection control practices on yearly MRSA counts. DATA COLLECTION Archival and staff survey data from multiple sources, including Public Health England, the English Department of Health, and the Healthcare Commission, were merged to form a balanced panel dataset. PRINCIPAL FINDINGSMRSA infections decrease with increases in general cleaning (-3.52 MRSA incidents per 1 standard deviation increase; 95 percent confidence interval: -6.61 to -0.44), infection control training (-3.29; -5.22 to -1.36), hand hygiene (-2.72; -4.76 to -0.68), and error reporting climate (-2.06; -4.09 to -0.04).CONCLUSIONS Intensified general cleaning, improved hand hygiene, additional infection control training, and a climate conducive to error reporting emerged as the factors most closely associated with trust-level reductions in MRSA infections over time.

**Database:** Medline

1. **Infection of exposed patients during norovirus outbreaks: are there predictive parameters?**

**Author(s):** Kampmeier, S.; Pillukat, M.H.; Kossow, A.; Pettke, A.; Mellmann, A.

**Source:** Journal of Hospital Infection; May 2017; vol. 96 (no. 1); p. 75-80

**Publication Date:** May 2017

**Publication Type(s):** Article

**Abstract:** Background Norovirus outbreak management comprises isolation and cohorting of patients. In this context, exposed patients are preferably cohorted separately from symptomatic and unexposed asymptomatic patients, since they potentially develop symptoms of norovirus gastroenteritis. Whether routinely examined clinical or laboratory parameters can help to predict occurrence of gastroenteritis symptoms in those patients has not yet been examined. Aim To evaluate routinely examined clinical and laboratory parameters as predictive values for the development of norovirus symptoms in exposed patients during outbreaks. Methods Exposed patients during norovirus outbreaks were observed throughout a two-year period in the university hospital of Muenster. The development of laboratory-confirmed norovirus gastroenteritis symptoms was examined in exposed patients, and clinical as well as laboratory parameters prior to onset of the outbreak were compared in exposed symptomatic and asymptomatic patients. Findings We detected 42 exposed patients within 10 outbreaks. Of these, 33 remained asymptomatic, whereas nine patients developed norovirus gastroenteritis. Exposed symptomatic patients were significantly older (50 ± 10.51 vs 28 ± 4.68 years), had significantly higher blood sodium concentration (142.5 ± 1.48 vs 138.8 ± 0.47 mmol/L) and higher systolic blood pressure (119.3 ± 3.84 vs 108.5 ± 2.41 mmHg). Development of symptoms among exposed patients was significantly associated with blood type O (75% vs 20%). Conclusion In order to minimize patient-to-patient transmission within norovirus outbreaks in hospital, risk stratification of exposed patients is helpful. To achieve this, routinely detected clinical and laboratory parameters can be useful to predict development of symptoms in these patients. References

**Database:** BNI

1. **Rate of contamination of hospital privacy curtains on a burns and plastic surgery ward: a cross-sectional study**

**Author(s):** Shek, K.; Patidar, R.; Kohja, Z.; Liu, S.; Gawaziuk, J.P.; Gawthrop, M.; Kumar, A.; Logsetty, S.

**Source:** Journal of Hospital Infection; May 2017; vol. 96 (no. 1); p. 54-58

**Publication Date:** May 2017

**Publication Type(s):** Article

**Abstract:** Background Surfaces in the patient environment may play a role in microbial transmission if they become colonized by bacteria. Patient privacy curtains are one such surface that may pose a high risk for transmission because they are high-contact surfaces, are infrequently cleaned, and healthcare workers are less likely to wash their hands after contacting inanimate objects such as curtains. Aim To determine the amount and type of bacterial colonization of patient privacy curtains at a regional burns/plastic surgery unit. Methods Privacy curtain contamination on the burns/plastic surgery ward was determined for two separate occasions six months apart: 23 curtains on August 2015 and 26 curtains on January 2016. Dey-Engley neutralizing agar (DENA) replicate organism detection and counting (RODAC) contact plates were used daily to sample curtains near the edge hem where they are most frequently touched. Microbial contamination was reported as cfu/cm2 and the presence of meticillin-resistant Staphylococcus aureus (MRSA) was determined. Swabs were also taken of any open wounds and from tracheostomy sites on the ward. Findings Curtain contamination in August 2015 was 0.7-4.7 cfu/cm2 with 22% testing positive for MRSA, whereas contamination on January 2016 was 0.6-13.3 cfu/cm2 with 31% of curtains testing positive for MRSA. Conclusion Curtains on the burns/plastic surgery ward become colonized with significant quantities of bacteria. Future studies will need to address the rate of colonization and the clinical impact of this colonization to better inform cleaning protocols. References

**Database:** BNI

1. **Attributable mortality of hospital-acquired bloodstream infections in Ireland**

**Author(s):** Brady M.; Oza A.; Cunney R.; Burns K.

**Source:** Journal of Hospital Infection; May 2017; vol. 96 (no. 1); p. 35-41

**Publication Date:** May 2017

**Publication Type(s):** Article

**Abstract:** Aim To estimate the attributable mortality of hospital-acquired bloodstream infections (HA-BSI) in Ireland. Methods A retrospective case-cohort study was conducted, based on notifications from Irish microbiology laboratories and administrative patient records from six Irish hospitals from January 2007 to December 2013. Probabilistic linkage was used to link 1252 cases of bloodstream infection from a cohort of 343,189 hospitalized patients. Independent predictors of mortality were determined using a multi-variable logistic regression model, and included: patient age, emergency or re-admission to hospital, length of stay in an intensive care unit, number of procedures, number of diagnoses, major diagnostic category and presence of HA-BSI. Results Attributable mortality was calculated from the crude mortality of case subjects after adjusting for other predictors of mortality, and was found to be 15.3% (95% confidence interval 14.8-15.8%). The study was further stratified according to the causative organism, including: Escherichia coli, Enterococcus faecium, Enterococcus faecalis, Pseudomonas aeruginosa, Klebsiella pneumoniae, Staphylococcus aureus and Streptococcus pneumoniae, and, where available, their antimicrobial resistance patterns. The highest attributable mortality among these organisms was reported for E. faecium at 18.1% and the lowest attributable mortality was reported for E. coli at 13.6%. A significantly higher attributable mortality was found for antimicrobial resistance patterns of some organisms, most notably for meticillin-resistant S. aureus at 19.5%, vs meticillin-susceptible S. aureus at 13.3%. Conclusions HA-BSI is an important cause of mortality, and attributable mortality differs significantly among causative organisms and antimicrobial resistance patterns.Copyright © 2017 The Healthcare Infection Society

**Database:** EMBASE

1. **Revival of old antibiotics: needs, the state of evidence and expectations**

**Author(s):** Zayyad H.; Paul M.; Eliakim-Raz N.; Leibovici L.

**Source:** International Journal of Antimicrobial Agents; May 2017; vol. 49 (no. 5); p. 536-541

**Publication Date:** May 2017

**Publication Type(s):** Article

**Abstract:** The gap between the emergence of antibiotic resistance and new antibiotic development has drawn attention to old antibiotics whose spectrum of coverage frequently comprises highly resistant bacteria. However, these antibiotics have frequently not undergone the structured process of antibiotic development of modern antibiotics, from pharmacokinetic/pharmacodynamic (PK/PD) studies establishing safe and effective dosing, establishment of susceptibility breakpoints, to clinical trials establishing clinical safety and effectiveness. In this review, we highlight the gaps for which we need old antibiotics in community- and hospital-acquired infections. Reviewing recently published and ongoing randomised controlled trials (RCTs) shows advances in our understanding of the efficacy and effectiveness of oral fosfomycin, mecillinam and nitrofurantoin for cystitis, and of trimethoprim/sulfamethoxazole for complicated skin infections caused by methicillin-resistant Staphylococcus aureus (MRSA) in the community. Summarising older evidence shows the inferiority of chloramphenicol versus modern antibiotics for severe infections. We lack studies on severe infections caused by carbapenem-resistant Gram-negative bacteria and other multidrug-resistant (MDR) bacteria in hospitalised and critically ill patients; ongoing studies assessing colistin and intravenous fosfomycin might fill in some gaps. In the re-development process of old antibiotics, we mandate modern PK/PD studies comprising special populations as well as RCTs addressing the target population of patients in need of these antibiotics powered to examine patient-relevant outcomes. Structured antibiotic re-development from the laboratory to evidence-based treatment recommendations requires public funding, multidisciplinary collaboration, international co-ordination, and methods to streamline the recruitment of critically ill patients infected by MDR bacteria. Copyright © 2017 Elsevier B.V. and International Society of Chemotherapy

**Database:** EMBASE

1. **The Benefits of a Preoperative MRSA Swabbing Protocol**

**Author(s):** Herd, Hope

**Source:** Journal of PeriAnesthesia Nursing; Apr 2017; vol. 32 (no. 2); p. 134-139

**Publication Date:** Apr 2017

**Publication Type(s):** Article

**Abstract:** Infection control practices pose a challenge to nursing care in general, but can have a huge negative impact on the perioperative process. Prior to July of 2012, our institution did not perform routine methacillin resistant staphylococcus aureus (MRSA) screening on preoperative patients with a prior history of MRSA. This resulted in patients remaining in isolation throughout their entire perioperative course. Screening for MRSA was delayed until the patient arrived in the medical surgical unit. Many of these patients were later found to have negative nasal swabs. The delay in screening often resulted in the unnecessary use of supplies (increased cost), delayed post anesthesia care unit (PACU) bay turnover and decreased staff satisfaction. Meetings with Hospital Infection Control, lab personnel and PACU staff resulted in the development of a preoperative MRSA swabbing protocol. In July of 2012 a preoperative MRSA swabbing protocol was implemented. Since implementation, the PACU has experienced a cost savings between $7,200- $11,800, a minimum of 40 minutes on PACU bay turnover and an increase in staff satisfaction. References

**Database:** BNI

1. **Does the presence of a urinary catheter predict severe sepsis in a bacteraemic cohort?**

**Author(s):** Melzer, M.; Welch, C.

**Source:** Journal of Hospital Infection; Apr 2017; vol. 95 (no. 4); p. 376-382

**Publication Date:** Apr 2017

**Publication Type(s):** Article

**Abstract:** Background Sepsis is a major cause of mortality with an estimated 37,000 deaths in the UK each year. This study aimed to determine host factors that can predict severe sepsis in a bacteraemic cohort. Methods From December 2012 to November 2013, demographic, clinical and microbiological data were collected on consecutive patients with bacteraemia at a London teaching hospital. These data were used to categorize patients as having severe or non-severe sepsis. Multi-variate logistic regression was used to determine the association between host factors and severe sepsis. Findings Five hundred and ninety-four bacteraemic episodes occurred in 500 patients. The majority of cases were in patients aged >50 years (382/594, 64.3%) and in males (346/594, 58.2%). The most common isolates were Escherichia coli (207/594, 34.8%) and meticillin-susceptible Staphylococcus aureus (57/594, 9.6%). In logistic regression multi-variable analysis, site of infection was significantly associated with severe sepsis. For catheter-associated urinary tract infections, the association was significant after adjustment for age, sex, Charlson comorbidity index and where infection was acquired (odds ratio 3.94, 95% confidence interval 1.70-9.11). Conclusions Urinary catheters increase the risk of severe sepsis. They should only be used if clinically indicated. If inserted, a care bundle approach should be used and the anticipated removal date should be recorded unless a long-term catheter is required. In the context of sepsis, the presence of a urinary catheter should prompt immediate implementation of 'Sepsis Six' and consideration of transfer to a critical care unit. References

**Database:** BNI

1. **Epidemiology of Escherichia coli bacteraemia in England: results of an enhanced sentinel surveillance programme**

**Author(s):** Abernethy, J.; Guy, R.; Sheridan, E.A.; Hopkins, S.; Kiernan, M.; Wilcox, M.H.; Johnson, A.P.; Hope, R.

**Source:** Journal of Hospital Infection; Apr 2017; vol. 95 (no. 4); p. 365-375

**Publication Date:** Apr 2017

**Publication Type(s):** Article

**Abstract:** Background Escherichia coli causes more than one-third of the bacteraemia cases in England each year, and the incidence of these infections is increasing. Aim To determine the underlying risk factors associated with E. coli bacteraemia. Methods A three-month enhanced sentinel surveillance study involving 35 National Health Service hospitals was undertaken in the winter of 2012/13 to collect risk factor information and further details on the underlying source of infection to augment data already collected by the English national surveillance programme. Antimicrobial susceptibility results for E. coli isolated from blood and urine were also collected. Findings A total of 1731 cases of E. coli bacteraemia were included. The urogenital tract was the most frequently reported source of infection (51.2% of cases) with previous treatment for a urinary tract infection being the largest independent effect associated with this infection source. Half of all patients had previous healthcare exposure in the month prior to the bacteraemia with antimicrobial therapy and urinary catheterization being reported in one-third and one-fifth of these patients, respectively. Previous healthcare exposure was associated with a higher proportion of antibiotic non-susceptibility in the blood culture isolates (P = 0.001). Conclusion Analysis of risk factors suggests the potential benefit of community- and hospital-related interventions, especially the better use of urinary catheters and improved antibiotic management of urinary tract infections. As part of the latter strategy, antibiotic resistance profiles need to be closely monitored to ensure that treatment guidelines are up to date to limit inappropriate empiric therapy. References

**Database:** BNI

1. **Sepsis: A Call for Action**

**Author(s):** Pierotti, Danielle; Cardillo, Al

**Source:** Home Healthcare Now; Apr 2017; vol. 35 (no. 4); p. 233-234

**Publication Date:** Apr 2017

**Publication Type(s):** Article

**Abstract:** Sepsis kills more people each year than breast cancer, prostate cancer, and AIDS combined. Sepsis is the number one cause of death in hospitals and the primary driver of readmissions within 30 days. The Centers for Disease Control and Prevention states that 80% of sepsis begins outside the hospital and 70% of patients with sepsis had recently used healthcare services or had chronic diseases requiring frequent medical care. Here, Pierotti talks about ways to manage sepsis in home care. References

**Database:** BNI

1. **Outcome of a screening programme for the prevention of neonatal invasive early-onset group B Streptococcus infection in a UK maternity unit: An observational study**

**Author(s):** Rao G.G.; Lee T.; Wallace S.; Batura R.; Khanna P.; Abbas H.; Tilsed C.; Nartey G.; McAree T.; O'Reilly A.; Hiles S.; Nicholl R.; Lamagni T.; Bassett P.

**Source:** BMJ Open; Apr 2017; vol. 7 (no. 4)

**Publication Date:** Apr 2017

**Publication Type(s):** Article

Available at [BMJ Open](http://bmjopen.bmj.com/content/7/4/e014634.full) - from BMJ Journals

Available at [BMJ Open](https://doi.org/10.1136/bmjopen-2016-014634) - from HighWire - Free Full Text

Available at [BMJ Open](http://europepmc.org/search?query=(DOI:%2210.1136/bmjopen-2016-014634%22)) - from Europe PubMed Central - Open Access

Available at [BMJ Open](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D2044-6055%26volume%3D7%26issue%3D4%26spage%3De014634) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Background: Against a background of failure to prevent neonatal invasive early-onset group B Streptococcus infections (GBS) in our maternity unit using risk-based approach for intrapartum antibiotic prophylaxis, we introduced an antenatal GBS carriage screening programme to identify additional women to target for prophylaxis. Objectives: To describe the implementation and outcome of an antepartum screening programme for prevention of invasive early-onset GBS infection in a UK maternity unit. Design: Observational study of outcome of screening programme (intervention) with comparison to historical controls (preintervention). Setting: Hospital and community-based maternity services provided by Northwick Park and Central Middlesex Hospitals in North West London. Participants: Women who gave birth between March 2014 and December 2015 at Northwick Park Hospital. Methods: Women were screened for GBS at 35-37 weeks and carriers offered intrapartum antibiotic prophylaxis. Screening programme was first introduced in hospital (March 2014) and then in community (August 2014). Compliance was audited by review of randomly selected case records. Invasive early-onset GBS infections were defined through GBS being cultured from neonatal blood, cerebrospinal fluid or sterile fluids within 0-6 days of birth. Main outcome: Incidence of early-onset GBS infections. Results: 6309 (69%) of the 9098 eligible women were tested. Screening rate improved progressively from 42% in 2014 to 75% in 2015. Audit showed that 98% of women accepted the offer of screening. Recto-vaginal GBS carriage rate was 29.4% (1822/6193). All strains were susceptible to penicillin but 11.3% (206/1822) were resistant to clindamycin. Early onset GBS rate fell from 0.99/1000 live births (25/25276) in the prescreening period to 0.33/1000 in the screening period (Rate Ratio=0.33; p=0.08). In the subset of mothers actually screened, the rate was 0.16/1000 live births (1/6309), (Rate Ratio=0.16; p<0.05). Conclusions: Our findings confirm that an antenatal screening programme for prevention of early-onset GBS infection can be implemented in a UK maternity setting and is associated with a fall in infection rates.

**Database:** EMBASE

1. **Effects of control interventions on Clostridium difficile infection in England: an observational study**

**Author(s):** Dingle K.E.; Quan T.P.; Eyre D.W.; Stoesser N.; Golubchik T.; Wilson D.J.; Griffiths D.; Vaughan A.; Finney J.M.; Wyllie D.H.; Peto T.E.A.; Walker A.S.; Crook D.W.; Harding R.M.; Hopkins S.; Johnson A.P.; Didelot X.; Oakley S.J.; Fawley W.N.; Freeman J.; Morris K.; Martin J.; Wilcox M.H.; Howard P.; Gorbach S.; Goldstein E.J.C.; Citron D.M.; Hope R.; Del Ojo Elias C.; Crichton C.; Kostiou V.; Giess A.; Davies J.

**Source:** The Lancet Infectious Diseases; Apr 2017; vol. 17 (no. 4); p. 411-421

**Publication Date:** Apr 2017

**Publication Type(s):** Article

Available at [The Lancet infectious diseases](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1473-3099%26volume%3D17%26issue%3D4%26spage%3D411) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Background The control of Clostridium difficile infections is an international clinical challenge. The incidence of C difficile in England declined by roughly 80% after 2006, following the implementation of national control policies; we tested two hypotheses to investigate their role in this decline. First, if C difficile infection declines in England were driven by reductions in use of particular antibiotics, then incidence of C difficile infections caused by resistant isolates should decline faster than that caused by susceptible isolates across multiple genotypes. Second, if C difficile infection declines were driven by improvements in hospital infection control, then transmitted (secondary) cases should decline regardless of susceptibility. Methods Regional (Oxfordshire and Leeds, UK) and national data for the incidence of C difficile infections and antimicrobial prescribing data (1998-2014) were combined with whole genome sequences from 4045 national and international C difficile isolates. Genotype (multilocus sequence type) and fluoroquinolone susceptibility were determined from whole genome sequences. The incidence of C difficile infections caused by fluoroquinolone-resistant and fluoroquinolone-susceptible isolates was estimated with negative-binomial regression, overall and per genotype. Selection and transmission were investigated with phylogenetic analyses. Findings National fluoroquinolone and cephalosporin prescribing correlated highly with incidence of C difficile infections (cross-correlations >0.88), by contrast with total antibiotic prescribing (cross-correlations 0.2). Interpretation Restricting fluoroquinolone prescribing appears to explain the decline in incidence of C difficile infections, above other measures, in Oxfordshire and Leeds, England. Antimicrobial stewardship should be a central component of C difficile infection control programmes. Funding UK Clinical Research Collaboration (Medical Research Council, Wellcome Trust, National Institute for Health Research); NIHR Oxford Biomedical Research Centre; NIHR Health Protection Research Unit on Healthcare Associated Infection and Antimicrobial Resistance (Oxford University in partnership with Public Health England [PHE]), and on Modelling Methodology (Imperial College, London in partnership with PHE); and the Health Innovation Challenge Fund. Copyright © 2017 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY license

**Database:** EMBASE

1. **Impact of national policies on the microbial aetiology of surgical site infections in acute NHS hospitals in England: analysis of trends between 2000 and 2013 using multi-centre prospective cohort data.**

**Author(s):** Elgohari, S; Wilson, J; Saei, A; Sheridan, E A; Lamagni, T

**Source:** Epidemiology and infection; Apr 2017; vol. 145 (no. 5); p. 957-969

**Publication Date:** Apr 2017

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

**PubMedID:** 28027714

Available at [Epidemiology and infection](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1469-4409%26volume%3D145%26issue%3D5%26spage%3D957) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Our study aimed to evaluate changes in the epidemiology of pathogens causing surgical site infections (SSIs) in England between 2000 and 2013 in the context of intensified national interventions to reduce healthcare-associated infections introduced since 2006. National prospective surveillance data on target surgical procedures were used for this study. Data on causative organism were available for 72% of inpatient-detected SSIs meeting the standard case definitions for superficial, deep and organ-space infections (9767/13 531) which were analysed for trends. A multivariable logistic linear mixed model with hospital random effects was fitted to evaluate trends by pathogen. Staphylococcus aureus was the predominant cause of SSI between 2000 (41%) and 2009 (24%), decreasing from 2006 onwards reaching 16% in 2013. Data for 2005-2013 showed that the odds of SSI caused by S. aureus decreased significantly by 14% per year [adjusted odds ratio (aOR) 0·86, 95% confidence interval (CI) 0·83-0·89] driven by significant decreases in methicillin-resistant S. aureus (MRSA) (aOR 0·71, 95% CI 0·68-0·75). However a small significant increase in methicillin-sensitive S. aureus was identified (aOR 1·06, 95% CI 1·02-1·10). Enterobacteriaceae were stable during 2000-2007 (12% of cases overall), increasing from 2008 (18%) onwards, being present in 25% of cases in 2013; the model supported these increasing trends during 2007-2013 (aOR 1·12, 95% CI 1·07-1·18). The decreasing trends in S. aureus SSIs from 2006 and the increases in Enterobacteriaceae SSIs from 2008 may be related to intensified national efforts targeted at reducing MRSA bacteraemia combined with changes in antibiotic use aimed at controlling C. difficile infections.

**Database:** Medline

1. **Point-of-care universal screening for meticillin-resistant Staphylococcus aureus: a cluster-randomized cross-over trial**

**Author(s):** Wu, P.J.; Jeyaratnam, D.; Tosas, O.; Cooper, B.S.; French, G.L.

**Source:** Journal of Hospital Infection; Mar 2017; vol. 95 (no. 3); p. 245-252

**Publication Date:** Mar 2017

**Publication Type(s):** Article Evidence Based Healthcare

**Abstract:** Background Meticillin-resistant Staphylococcus aureus (MRSA) is frequently endemic in healthcare settings and may be transmitted by person-to-person spread. Asymptomatic MRSA carriers are potential, unsuspected sources for transmission and some of them may be identified by admission screening. Aim To assess whether rapid point-of-care screening (POCS) for MRSA at hospital admission may be associated with a reduction in MRSA acquisition rates when compared with slower laboratory-based methods. Methods A cluster-randomized cross-over trial was conducted in four admission wards of an acute London tertiary care hospital. Polymerase chain reaction-based POCS screening was compared with conventional culture screening. Patients were screened on ward admission and discharge, and the MRSA acquisition rate on the admission wards was calculated as the primary outcome measure. Results In all, 10,017 patients were included; 4978 in the control arm, 5039 in the POCS arm. The MRSA carriage rate on admission was 1.7%. POCS reduced the median reporting time from 40.4 to 3.7 h (P < 0.001). MRSA was acquired on the admission wards by 23 (0.46%) patients in the control arm and by 24 (0.48%) in the intervention arm, acquisition rates of 5.39 and 4.60 per 1000 days respectively. After taking account of predefined confounding factors, the adjusted incidence rate ratio (IRR) for change in trend for MRSA acquisition was 0.961 (95% confidence interval: 0.766-1.206). The adjusted IRR for step change for MRSA acquisition was 0.98 (0.304-3.162). Conclusion POCS produces a significantly faster result but has no effect on MRSA acquisition on admission wards compared with culture screening. Where compliance with infection prevention and control is high and MRSA carriage is low, POCS has no additional impact on MRSA acquisition rates over the first one to four days of admission compared with conventional culture screening. References

**Database:** BNI

1. **Beating bugs together**

**Author(s):** Eley, Charlotte; Young, Vicki; McNulty, Cliodna

**Source:** Community Practitioner; Mar 2017; vol. 90 (no. 3); p. 42-43

**Publication Date:** Mar 2017

**Publication Type(s):** Article

Available at [Community practitioner : the journal of the Community Practitioners' & Health Visitors' Association](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1462-2815%26volume%3D90%26issue%3D3%26spage%3D42) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** One of Public Health England's (PHE) seven priorities in protecting and improving the UK's health is to tackle antimicrobial resistance (PHE, 2014). The UK five-year antimicrobial resistance strategy from the Department of Health (2013) outlines seven key areas for future action, one of which includes improving the knowledge and understanding of antimicrobial resistance by educating the public. A new scheme sets out to support these priorities by offering education on these topics. Led by PHE, e-Bug is an international health education resource for children on hygiene, infection and antibiotics. The overall aim of the tool is to reduce the incidence of antibiotic resistance across Europe by increasing understanding about microbes, hygiene, infection prevention and antibiotic use in young people, who represent their future prescribers and antibiotic users. It has been found that 70% of all antibiotics are prescribed in the community (PHE, 2016), while 50% of these are thought to be unnecessary or inappropriate.

**Database:** BNI

1. **Antimicrobial-Resistant Bacteremia in the Elderly: Risk of Previous Hospitalization**

**Author(s):** Su Y.-C.; Kung L.-C.; Chang W.-H.; Huang M.-Y.; Lee C.-H.; Hung C.-L.; Tsao C.-C.

**Source:** International Journal of Gerontology; Mar 2017; vol. 11 (no. 1); p. 27-30

**Publication Date:** Mar 2017

**Publication Type(s):** Article

**Abstract:** Background Studies have shown a positive correlation between hospital admission and antimicrobial-resistant bacteria (ARB)-related community-acquired bacteremia (CAB), however, the definition regarding the duration from prior hospitalization as having risks for such infections varies between literatures. Therefore, we conducted a retrospective analysis to determine the time-effect of recent hospitalization on the risk of CAB due to extended-spectrum beta-lactamases (ESBLs)-producing Enterobacteriaceae in elderly patients. Methods From 2006 to 2008, all consecutive episodes of documented bacteremia developed within first 48 h of hospital admission due to E. coli and K. pneumoniae in patient age of 65 or greater were retrospectively enrolled. Results Out of 494 non-duplicated CAB episodes, 9.5% were due to ESBLs-producing E. coli/K. pneumoniae. Age, history of previous hospital admission, and nursing home residents were independently associated with the risk for CAB due to ESBLs-producing E. coli/K. pneumoniae. History of previous hospitalization was the most significant one among these risks and the effect was time-dependent: within 2~30 days (OR 8.8; 95% CI 1.9 to 41.2), 31~90 days (OR 9.0; 95% CI 1.9 to 41.2), 91~180 days (OR 5.6; 95% CI 1.1 to 29.1), 181~360 days (OR 5.5; 95% CI 1.0 to 29.1) and over 360 days (OR 3.5; 95% CI 0.5 to 22.7). Conclusion Our study showed that the risk of CAB in elderly due to ESBLs-producing E. coli/K. pneumoniae was highly associated with history of recent hospital admissions, and the effect can be prolonged up to 360 days after discharge. Copyright © 2017

**Database:** EMBASE

1. **Restrictive antibiotic stewardship associated with reduced hospital mortality in gram-negative infection.**

**Author(s):** Ritchie, N D; Irvine, S C; Helps, A; Robb, F; Jones, B L; Seaton, R A

**Source:** QJM : monthly journal of the Association of Physicians; Mar 2017; vol. 110 (no. 3); p. 155-161

**Publication Date:** Mar 2017

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

**PubMedID:** 27521583

Available at [QJM: An International Journal of Medicine](https://doi.org/10.1093/qjmed/hcw134) - from HighWire - Free Full Text

**Abstract:** Introduction: Antimicrobial stewardship has an important role in the control of Clostridium difficile infection (CDI) and antibiotic resistance. An important component of UK stewardship interventions is the restriction of broad-spectrum beta-lactam antibiotics and promotion of agents associated with a lower risk of CDI such as gentamicin. While the introduction of restrictive antibiotic guidance has been associated with improvements in CDI and antimicrobial resistance, evidence of the effect on outcome following severe infection is lacking. Methods: In 2008, Glasgow hospitals introduced a restrictive antibiotic guideline. A retrospective before/after study assessed outcome following Gram-negative bacteraemia in the 2-year period around implementation. Results: Introduction of restrictive antibiotic guidelines was associated with a reduction in utilization of ceftriaxone and co-amoxiclav and an increase in amoxicillin and gentamicin. Approximately 1593 episodes of bacteremia were included in the study. The mortality over 1-year following Gram-negative bacteraemia was lower in the period following guideline implementation (RR 0.852, P  = 0.045). There was no evidence of a difference in secondary outcomes including ITU admission, length of stay, readmission, recurrence of bacteraemia and need for renal replacement therapy. There was a fall in CDI (RR 0.571, P  = 0.014) and a reduction in bacterial resistance to ceftriaxone and co-amoxiclav but no evidence of an increase in gentamicin resistance after guideline implementation. Conclusion: Restrictive antibiotic guidelines were associated with a reduction in CDI and bacterial resistance but no evidence of adverse outcomes following Gram-negative bacteraemia. There was a small reduction in one year mortality.

**Database:** Medline

1. **Transmission of Staphylococcus aureus between health-care workers, the environment, and patients in an intensive care unit: a longitudinal cohort study based on whole-genome sequencing.**

**Author(s):** Price, James R; Cole, Kevin; Bexley, Andrew; Kostiou, Vasiliki; Eyre, David W; Golubchik, Tanya; Wilson, Daniel J; Crook, Derrick W; Walker, A Sarah; Peto, Timothy E A; Llewelyn, Martin J; Paul, John; Modernising Medical Microbiology informatics group

**Source:** The Lancet. Infectious diseases; Feb 2017; vol. 17 (no. 2); p. 207-214

**Publication Date:** Feb 2017

**Publication Type(s):** Journal Article

**PubMedID:** 27863959

Available at [The Lancet infectious diseases](https://go.openathens.net/redirector/eng.nhs.uk?urlhttp%3A%2F%2Fgateway.proquest.com%2Fopenurl%3Fctx_ver%3DZ39.88-2004%26res_id%3Dxri%3Apqm%26req_dat%3Dxri%3Apqil%3Apq_clntid%3D48229%26rft_val_fmt%3Dori%2Ffmt%3Akev%3Amtx%3Ajournal%26genre%3Darticle%26issn%3D1474-4457%26volume%3D17%26issue%3D2%26spage%3D207) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** BACKGROUND Health-care workers have been implicated in nosocomial outbreaks of Staphylococcus aureus, but the dearth of evidence from non-outbreak situations means that routine health-care worker screening and S aureus eradication are controversial. We aimed to determine how often S aureus is transmitted from health-care workers or the environment to patients in an intensive care unit (ICU) and a high-dependency unit (HDU) where standard infection control measures were in place. METHODS In this longitudinal cohort study, we systematically sampled health-care workers, the environment, and patients over 14 months at the ICU and HDU of the Royal Sussex County Hospital, Brighton, England. Nasal swabs were taken from health-care workers every 4 weeks, bed spaces were sampled monthly, and screening swabs were obtained from patients at admission to the ICU or HDU, weekly thereafter, and at discharge. Isolates were cultured and their whole genome sequenced, and we used the threshold of 40 single-nucleotide variants (SNVs) or fewer to define subtypes and infer recent transmission. FINDINGS Between Oct 31, 2011, and Dec 23, 2012, we sampled 198 health-care workers, 40 environmental locations, and 1854 patients; 1819 isolates were sequenced. Median nasal carriage rate of S aureus in health-care workers at 4-weekly timepoints was 36·9% (IQR 35·7-37·3), and 115 (58%) health-care workers had S aureus detected at least once during the study. S aureus was identified in 8-50% of environmental samples. 605 genetically distinct subtypes were identified (median SNV difference 273, IQR 162-399) at a rate of 38 (IQR 34-42) per 4-weekly cycle. Only 25 instances of transmission to patients (seven from health-care workers, two from the environment, and 16 from other patients) were detected. INTERPRETATION In the presence of standard infection control measures, health-care workers were infrequently sources of transmission to patients. S aureus epidemiology in the ICU and HDU is characterised by continuous ingress of distinct subtypes rather than transmission of genetically related strains. FUNDINGUK Medical Research Council, Wellcome Trust, Biotechnology and Biological Sciences Research Council, UK National Institute for Health Research, and Public Health England.

**Database:** Medline

1. **Rasch analysis of the Antimicrobial Self-Assessment Toolkit for National Health Service (NHS) Trusts (ASAT v17).**

**Author(s):** Bailey, Chantelle; Tully, Mary P; Pampaka, Maria; Cooke, Jonathan

**Source:** The Journal of antimicrobial chemotherapy; Feb 2017; vol. 72 (no. 2); p. 604-613

**Publication Date:** Feb 2017

**Publication Type(s):** Journal Article

**PubMedID:** 27798214

**Abstract:** OBJECTIVES The Antimicrobial Self-Assessment Toolkit for National Health Service (NHS) Trusts (ASAT) was developed to evaluate hospital-based antimicrobial stewardship programmes. Iterative validity investigations of the ASAT were used to produce a 91-item ASAT v17 utilizing qualitative methodology. Rasch analysis was used to generate question (item) behaviour estimates and to investigate the validity of ASAT v17.METHODSIn 2012, the partial credit model (PCM) was used to analyse ASAT responses from 33 NHS Trusts within England. WINSTEPS® outputs such as fit statistics and respondent/item maps were examined to determine unidimensionality, item discrimination and item hierarchy. Ordinary least squares regression modelling was used to determine the predictive validity using NHS Trust ability estimates generated from the PCM and corresponding Clostridium difficile rates.RESULTS Each domain contained items that were misfitting the PCM (with INFIT MNSQ 1.3), except Domain 3. Subsequent iterative item removal had a negligible effect on the fit indices within most ASAT domains. Scale analysis demonstrated that most items were productive for measurement (n = 81). Respondent/item maps showed ceiling effects (n = 3) and floor effects (n = 1) within ASAT domains. Ordinary least squares regression modelling identified that there was limited predictive validity due to the small positive correlation between the predictor and outcome variables for participating hospitals (ρ = 0.146; P = 0.418). CONCLUSIONS Rasch analysis was an effective measurement technique for evaluating the validity of ASAT v17 by providing evidence that each sub-scale and the overall scale demonstrated unidimensionality (construct validity). Improved item targeting may be required to improve item discrimination within the toolkit.

**Database:** Medline

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