Infection Control Update

January 2023

Welcome to the latest copy of the Infection Control Update. The aim of this publication is to bring together a range of recently published research and guidance that will help you make evidence-based decisions.

Accessing Articles

The following abstracts are taken from a selection of recently published articles.
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Faecal microbiota transplant for recurrent Clostridioides difficile infection
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https://www.nice.org.uk/guidance/mtg71

Angiotensin II for treating vasosuppressor-resistant hypotension caused by septic or distributive shock (terminated appraisal)
Technology appraisal [TA859]
Published: 16 January 2023
https://www.nice.org.uk/guidance/ta859

Selection of papers from Medline and CINHAL, Jul 2022-Jan2023 (most recent first)

1. Evaluating the environmental microbiota across four National Health Service hospitals within England

Item Type: Journal Article

Authors: Watson, F.;Wilks, S. A.;Keevil, C. W. and Chewins, J.

Publication Date: 2023

Journal: The Journal of Hospital Infection 131, pp. 203-212

Abstract: Hospital surfaces contaminated with microbial soiling, such as dry surface biofilms (DSBs), can act as a

reservoir for pathogenic micro-organisms, and inhibit their detection and removal during routine cleaning. Studies have recognized that such increases in bioburden can hinder the impact of disinfectants and mask the detection of potential pathogens. Cleanliness within healthcare settings is often determined through routine culture-based analysis, whereby surfaces that exhibit >2.5 colony-forming units (CFU) per cm 2 pose a risk to patient health; therefore, any underestimation could have detrimental effects. This study quantified microbial growth on high-touch surfaces in four hospitals in England over 19 months. This was achieved using environmental swabs to sample a variety of surfaces within close proximity of the patient, and plating these on to non-specific low nutrient detection agar. The presence of DSBs on surfaces physically removed from the environment was confirmed using real-time imaging through episcopic differential interference contrast microscopy combined with epifluorescence. Approximately two-thirds of surfaces tested exceeded the limit for cleanliness (median 2230 CFU/cm 2), whilst 83% of surfaces imaged with BacLight LIVE/DEAD staining confirmed traces of biofilm. Differences in infection control methods, such as choice of surface disinfectants and cleaning personnel, were not reflected in the microbial variation observed and resulting risk to patients. This highlights a potential limitation in the effectiveness of the current standards for all hospital cleaning, and further development using representative clinical data is required to overcome this limitation.

Access or request full text: https://libkey.io/10.1016/j.jhin.2022.11.001

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36343745&custid=ns023446

2. Comparative activities of ampicillin and teicoplanin against Enterococcus faecalis isolates

Item Type: Journal Article

Authors: Zacharopoulos, Georgios V.;Manios, Georgios A.;Papadakis, Marios;Koumaki, Dimitra;Maraki, Sofia;Kassotakis, Dimitrios;De Bree, Eelco and Manios, Andreas

Publication Date: 2023

Journal: BMC Microbiology 23(1), pp. 5

Abstract: Background: Enterococcus faecalis remains one of the most common pathogens causing infection in surgical patients. Our goal was to evaluate the antibiotic resistance of E. faecalis, causing infections in a surgical clinic, against two antibacterial drugs, ampicillin and teicoplanin. One commonly administered in the past for such infections, ampicillin, and another newer, teicoplanin, which demonstrated exceptionally good efficacy.; Methods: Data from 1882 isolates were retrieved from the microbiology department database during two 5-year periods. Standard biochemical methods were employed for the identification of the isolates. The prevalence of E. faecalis among patients with clinical evidence of infection in a surgical oncology ward was assessed. Confidence interval (CI) as well as standard error (SE) were calculated. Moreover, the annual incidence of E. faecalis infections in this surgical ward was recorded. The susceptibility of E. faecalis to ampicillin and teicoplanin was studied and compared using Fisher's exact test.; Results and Conclusion: Results showed that the incidence of E. faecalis infections in the surgical clinic was increasing. Ampicillin, in the later year period, was not statistically different from teicoplanin in treating E. faecalis infections. Consequently, ampicillin seems currently to be an effective antibiotic against such infections that could be used as empiric therapy.

Access or request full text: https://libkey.io/10.1186/s12866-022-02753-1

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36609223&custid=ns

023446

3. The burden of bacterial antimicrobial resistance in the WHO European region in 2019: a cross-country systematic analysis

Item Type: Journal Article
The burden of bacterial antimicrobial resistance in the WHO European region in 2019: a cross-country systematic analysis

Publication Date: 2022

Journal: The Lancet.Public Health 7(11), pp. e897-e913

Abstract: Background: Antimicrobial resistance (AMR) represents one of the most crucial threats to public health and modern health care. Previous studies have identified challenges with estimating the magnitude of the problem and its downstream effect on human health and mortality. To our knowledge, this study presents the most comprehensive set of regional and country-level estimates of AMR burden in the WHO European region to date.; Methods: We estimated deaths and disability-adjusted life-years attributable to and associated with AMR for 23 bacterial pathogens and 88 pathogen-drug combinations for the WHO European region and its countries in 2019. Our methodological approach consisted of five broad components: the number of deaths in which infection had a role, the proportion of infectious deaths attributable to a given infectious syndrome, the proportion of infectious syndrome deaths attributable to a given pathogen, the percentage of a given pathogen resistant to an antimicrobial drug of interest, and the excess risk of mortality (or duration of an infection) associated with this resistance. These components were then used to estimate the disease burden by using two counterfactual scenarios: deaths attributable to AMR (considering an alternative scenario where infections with resistant pathogens are replaced with susceptible ones) and deaths associated with AMR (considering an alternative scenario where drug-resistant infections would not occur at all). Data were solicited from a wide array of international stakeholders; these included research hospitals, surveillance networks, and infection databases maintained by private laboratories and medical technology companies. We generated 95% uncertainty intervals (UIs) for final estimates as the 25th and 975th ordered values across 1000 posterior draws, and models were cross-validated for out-of-sample predictive validity.; Findings: We estimated 541 000 deaths (95% UI 370 000-763 000) associated with bacterial AMR and 133 000 deaths (90 100-188 000) attributable to bacterial AMR in the whole WHO European region in 2019. The largest fatal burden of AMR in the region came from bloodstream infections, with 195 000 deaths (104 000-333 000) associated with resistance, followed by intra-abdominal infections (127 000 deaths 81 900-185 000]) and respiratory infections (120 000 deaths 94 500-154 000]). Seven leading pathogens were responsible for about 457 000 deaths associated with resistance in 53 countries of this region; these pathogens were, in descending order of mortality, Escherichia coli, Staphylococcus aureus, Klebsiella pneumoniae, Pseudomonas aeruginosa, Enterococcus faecium, Streptococcus pneumoniae, and Acinetobacter baumannii. Methicillin-resistant S aureus was shown to be the leading pathogen-drug combination in 27 countries for deaths attributable to AMR, while aminopenicillin-resistant E coli predominated in 47 countries for deaths associated with AMR.; Interpretation: The high levels of resistance for several important bacterial pathogens and pathogen-drug combinations, together with the high mortality rates associated with these pathogens, show that AMR is a serious threat to public health in the WHO European region. Our regional and cross-country analyses open the door for strategies that can be tailored to leading pathogen-drug combinations and the available resources in a specific location. These results underscore that the most effective way to tackle AMR in this region will require targeted efforts and investments in conjunction with continuous outcome-based research endeavours.; Funding: Bill & Melinda Gates Foundation, Wellcome Trust, and Department of Health and Social Care using UK aid funding managed by the Fleming Fund.; Competing Interests: Declaration of interests RA reports consulting fees from AbbVie; and payment or honoraria for lectures, presentations, speaker's bureaus, manuscript writing, or educational events from AbbVie, B Braun, Sandoz, and Laropharm, all outside the submitted work. CH and AP report grants from the

Romanian National Authority for Scientific Research and Innovation, CNDS-UEFISCDI, for project number PN-III-P4-ID-PCCF-2016-0084 and project number PN-III-P2-2.1-SOL-2020-2-0351, outside the submitted work. CH also reports grants from the Romanian Ministry of Research Innovation and Digitalization MCID for project number ID-585-CTR-42-PFE-2021, outside the submitted work. A-FAM reports grants or contracts from MilkSafe, research co-financed by the EU European Regional Development Fund and Greek national funds through the operational programme Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH–CREATE–INNOVATE (T2EDK-02222), as well as from ELIDEK (Hellenic Foundation for Research and Innovation, MIMS-860); stocks in a family winery; and other financial or non-financial interests in the BGI Group as a scientific officer, all outside of the submitted work. BS reports grants or contracts from the Fleming Fund; and leadership or fiduciary role in other board, society, committee or advocacy group, paid or unpaid, with the GBD Scientific Council and WHO RGHS, all outside the submitted work. AS reports support for the present manuscript from the Bill & Melinda Gates Foundation as payment to their institution, and paid participation on a Scientific Advisory Board for Vivli, outside the submitted work. All other authors declare no competing interests.

Access or request full text: https://libkey.io/10.1016/S2468-2667(22)00225-0

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36244350&custid=ns023446

4. Establishing a Hand Hygiene Culture of Accountability: Reducing and maintaining the gain

Item Type: Journal Article
Establishing a Hand Hygiene Culture of Accountability: Reducing and maintaining the gain

Publication Date: 2022

Journal: Hospital Infection Control & Prevention 49(9), pp. 104-105

Abstract: The article focuses on establishing a hand hygiene culture of accountability. Highlights a survey of hospital staff, wherein, 25% said they had observed colleagues not washing their hands at appropriate times; and 34% said they feel comfortable speaking up about a missed hand hygiene moment if it is on a peer level, for example, nurse to nurse. Mentions top three hand hygiene barriers that were identified including: distracted or forgot; hands full of supplies; and frequent entry/exit.

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=158981952&custid=ns023446

5. A Threshold Logistic Modelling Approach for Identifying Thresholds between Antibiotic Use and Methicillin-Resistant Staphylococcus aureus Incidence Rates in Hospitals

Item Type: Journal Article

Authors: Aldeyab, Mamoon A.;Bond, Stuart E.;Conway, Barbara R.;Lee-Milner, Jade;Sarma, Jayanta B. and Lattyak, William J.

Publication Date: 2022

Journal: Antibiotics (Basel, Switzerland) 11(9)

Abstract: The aim of this study was to demonstrate the utility of threshold logistic modelling, an innovative approach in identifying thresholds and risk scores in the context of population antibiotic use associated with methicillin-resistant Staphylococcus aureus (MRSA) incidence rates in hospitals. The study also aimed to assess the impact of exceeding those thresholds that resulted in increased MRSA rates. The study was undertaken in a 700-bed hospital in England between January 2015 and December 2021 (84 monthly observations). By employing the threshold logistic modelling approach, we: (i) determined the cut-off percentile value of MRSA incidence that defines a critical level of MRSA; (ii) identified thresholds for fluoroquinolone and co-amoxiclav use that would accelerate MRSA incidence rates and increase the probability of reaching critical incidence levels; (iii) enabled a better understanding of the effect of antibiotic use on the probability of reaching a critical level of resistant pathogen incidence; (iv) developed a near real-time performance monitoring feedback system; (v) provided risk scores and alert signals for antibiotic use, with the ability to inform hospital policies, and control MRSA incidence; and (vi) provided recommendations and an example for the management of pathogen incidence in hospitals. Threshold logistic models can help hospitals determine quantitative targets for antibiotic usage and can also inform effective antimicrobial stewardship to control resistance in hospitals. Studies should work toward implementing and evaluating the proposed approach prospectively, with the aim of determining the best counter-measures to mitigate the risk of increased resistant pathogen incidence in hospitals.; Competing Interests: The authors declare no conflict of interest.

Access or request full text: https://libkey.io/10.3390/antibiotics11091250

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36140029&custid=ns023446

6. Comparative analysis and trends in liver transplant hospitalizations with Clostridium difficile infections: A 10-year national cross-sectional study

Item Type: Journal Article

Authors: Ali, Hassam;Patel, Pratik;Pamarthy, Rahul;Fatakhova, Karina;Bolick, Nicole Leigh and Satapathy, Sanjaya Kumar

Publication Date: 2022

Journal: Transplant Infectious Disease : An Official Journal of the Transplantation Society 24(6), pp. e13985

Abstract: Goals and Background: Clostridium difficile infection (CDI) is the leading cause of antibiotic-associated diarrhea in the United States. We aimed to determine comparative trends in inpatient outcomes of liver transplant (LT) patients based on CDI during hospitalizations.; Methods: The national inpatient sample database was used to conduct the present retrospective study regarding CDI among the LT hospitalizations from 2009 to 2019. Primary outcomes included 10-year comparative trends of the length of stay (LOS) and mean inpatient charges (MIC). Secondary outcomes included comparative mortality and LT rejection trends.; Results: There was a 14.05% decrease in CDI in LT hospitalizations over the study period (p = .05). The trend in LOS did not significantly vary (p = .9). MIC increased significantly over the last decade in LT hospitalizations with CDI (p < .001). LT hospitalizations of autoimmune etiology compared against non-autoimmune did not increase association with CDI, adjusted odds ratio (aOR) 0.97 (95% confidence interval CI] 0.75-1.26, p = .87). CDI was associated with increased mortality in LT hospitalizations, aOR 1.84 (95% CI 1.52-2.24, p < .001). In-hospital mortality for LT hospitalizations with CDI decreased by 7.75% over the study period (p = .3). CDI increased transplant rejections, aOR 1.3 (95% CI 1.08-1.65, p < .001). There was a declining trend in transplant rejection for LT hospitalization with CDI from 5% to 3% over the study period (p = .0048).; Conclusion: CDI prevalence does not increase based on autoimmune LT etiology. It increases mortality in LT hospitalizations; however, trend for mortality and transplant rejections has been declining over the last decade. (© 2022 The Authors.

Transplant Infectious Disease published by Wiley Periodicals LLC.)

Access or request full text: https://libkey.io/10.1111/tid.13985

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36305599&custid=ns023446

7. The Potential Threat of Vertical Transmission in Methicillin-Resistant Staphylococcus Aureus Infection: A Systematic Review 2022

Item Type: Journal Article

Authors: Allakky, Akhil;Ferguson, Asila A.;Khan, Aujala Irfan;Abuzainah, Baraa;Gutlapalli, Sai Dheeraj;Chaudhuri, Dipabali;Khan, Kokab Irfan;Al Shouli, Roba and Khan, Safeera

Publication Date: 2022

Journal: Cureus 14(12), pp. e32366

Abstract: This systematic review paper aimed to assess and analyze the prevalence of maternal colonization of Staphylococcus aureus (S. aureus) also known as m ethicillin-sensitive Staphylococcus aureus (MSSA) and m ethicillin-resistant Staphylococcus aureus (MRSA) in the peripartum period and its significance on vertical transmission to the neonate and if it is a potential threat to the health of newborns. For this, multiple databases, such as PubMed, MEDLINE, ScienceDirect, and the database of Elsevier, were used to scout for relevant articles, and results were reported adhering to the principles set by Preferred Items for Systematic reviews and Meta-Analysis (PRISMA) guidelines 2020. A specific medical subject headings (MeSH) criterion was designed to search for relevant publications on PubMed. A total of 26 articles were finally selected after a meticulous screening process, including detailed inclusion and exclusion criteria, manual reading of titles and abstracts, and availability of accessible full-text articles. A few articles were also selected after going through the citations section of the initially selected papers. Quality appraisal was done on the selected publications. Maternal colonization of S. aureus is determined to be highly prevalent with the hypothesis that nasal colonization had higher rates than recto-vaginal sites. Increasing maternal age, history of vaginitis, and multiparity were the most common risk factors for MRSA and MSSA colonization. Premature babies were at the highest risk of MRSA colonization. Breast milk is also a risk factor for neonatal MRSA transmission. Through this systematic review, we concluded that although the rate of vertical transmission of MRSA is lower than that of MSSA, we felt that it held significance as neonates with the bug have poor outcomes due to skin and soft tissue infections and there is spread of MRSA to other neonates in the wards and spread to siblings in cases of triplets and quadruplets and even death due to potential MRSA sepsis. Women in Africa and China had high prevalence rates of MRSA and S. aureus which can probably be attributed to a lack of access to adequate healthcare facilities. We recommend screening with regular recto-vaginal swabs and nasal swabs especially in regions with a high burden of MRSA to be performed at regular intervals after confirmation of pregnancy, as prevention and screening are effective to avoid serious complications.; Competing Interests: The authors have declared that no competing interests exist. (Copyright © 2022, Allakky et al.)

Access or request full text: https://libkey.io/10.7759/cureus.32366

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36632271&custid=ns023446

8. Screening for Immunodeficiencies in Children With Invasive Pneumococcal Disease: Six-year Experience From a UK Children's Hospital

Item Type: Journal Article

Authors: Bijker, Else M.;Bateman, Elizabeth A. L.;Trück, Johannes;Patel, Smita and Kelly, Dominic F.

Publication Date: 2022

Journal: The Pediatric Infectious Disease Journal 41(7), pp. 575-578

Abstract: Background: A previous study showed that investigation of children with invasive pneumococcal disease (IPD) revealed an immunodeficiency in up to 10% of cases. Following this report, we implemented a protocol to investigate children with IPD, to assess the proportion with an immunodeficiency in our setting.; Methods: We retrospectively identified patients who presented with IPD from January 2015 to November 2020 and collected data from medical records. Immunological investigations included complement C3 and C4 levels, classical and alternative pathway complement function, IgG, IgA and IgM levels, specific IgG levels (H. influenza B, tetanus and pneumococcal serotypes), peripheral blood film, lymphocyte subsets, and CD62L-shedding upon activation with Toll-like receptor-agonists in selected cases.; Results: We identified a total of 68 children with IPD, with a mortality of 6%. Immunological investigations were performed in 51 children. Four children (8%) had abnormal findings that were deemed of clinical significance. Two children had complement deficiencies (Factor I and C2 deficiency), one child had specific antibody deficiency, and another child had low IgM, low NK-cells and poor persistence of serotype-specific anti-pneumococcal IgG concentrations. Of the 17 children with IPD who were not tested for immunodeficiencies, 4 died and four had possible explanations for the infection.; Conclusions: We identified clinically relevant abnormal immunological findings in 4/51 (8%) of children with IPD. Our results support the recommendation to perform immunological investigations in children with IPD, since this might reveal underlying immunodeficiencies, allowing for necessary preventive measures and close follow-up.; Competing Interests: The authors have no funding or conflicts of interest to disclose.

Access or request full text: https://libkey.io/10.1097/INF.0000000000003554

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35421038&custid=ns023446

9. Epidemiology and infection control of Methicillin-resistant Staphylococcus aureus in a German tertiary neonatal intensive and intermediate care unit: A retrospective study (2013-2020)

Item Type: Journal Article

Authors: Böhne, Carolin;Knegendorf, Leonard;Schwab, Frank;Ebadi, Ella;Bange, Franz-Christoph;Vital, Marius;Schlüter, Dirk;Hansen, Gesine;Pirr, Sabine;Peter, Corinna;Bohnhorst, Bettina and Baier, Claas

Publication Date: 2022

Journal: PloS One 17(9), pp. e0275087

Abstract: In preterm and term infants who require intermediate or intensive care Methicillin-resistant Staphylococcus aureus (MRSA) infection can lead to significant morbidity. In this study MRSA colonization and infection were assessed in a mixed tertiary neonatal intensive and intermediate care unit in Germany over an 8-year period (2013-2020). We investigated patient-related factors, associated with nosocomial MRSA

acquisition, and we discuss our infection control concept for MRSA. Of 3488 patients treated during the study period, 24 were MRSA positive patients, corresponding to 26 patient hospital stays. The incidence was 0.7 MRSA patients per 100 patients. The incidence density was 0.4 MRSA patient hospital stays per 1000 patient days. Twelve patients (50%) acquired MRSA in the hospital. One patient developed a hospital acquired MRSA bloodstream infection 9 days after birth (i.e., 0.03% of all patients on the ward during the study period). A total of 122 patients had to be screened to detect one MRSA positive patient. In a logistic regression model, the use of 3rd generation intravenous cephalosporin (cefotaxim) was associated with nosocomial MRSA acquisition compared with matched control patients who did not acquire MRSA. In sum, the burden of MRSA colonization and infection in the ward was low during the study period. A comprehensive infection control concept that included microbiologic colonization screening, prospective infection surveillance together with isolation and emphasis on basic hygiene measures is essential to handle MRSA in this specialized setting.; Competing Interests: The authors have declared that no competing interests exist.

Access or request full text: https://libkey.io/10.1371/journal.pone.0275087

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36129948&custid=ns023446

10. Cluster detection with random neighbourhood covering: Application to invasive Group A Streptococcal disease

Item Type: Journal Article

Authors: Cavallaro, Massimo;Coelho, Juliana;Ready, Derren;Decraene, Valerie;Lamagni, Theresa;McCarthy, Noel D.;Todkill, Dan and Keeling, Matt J.

Publication Date: 2022

Journal: PLoS Computational Biology 18(11), pp. e1010726

Abstract: The rapid detection of outbreaks is a key step in the effective control and containment of infectious diseases. In particular, the identification of cases which might be epidemiologically linked is crucial in directing outbreak-containment efforts and shaping the intervention of public health authorities. Often this requires the detection of clusters of cases whose numbers exceed those expected by a background of sporadic cases. Quantifying exceedances rapidly is particularly challenging when only few cases are typically reported in a precise location and time. To address such important public health concerns, we present a general method which can detect spatio-temporal deviations from a Poisson point process and estimate the odds of an isolate being part of a cluster. This method can be applied to diseases where detailed geographical information is available. In addition, we propose an approach to explicitly take account of delays in microbial typing. As a case study, we considered invasive group A Streptococcus infection events as recorded and typed by Public Health England from 2015 to 2020.; Competing Interests: The authors have declared that no competing interests exist.

Access or request full text: https://libkey.io/10.1371/journal.pcbi.1010726

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36449515&custid=ns023446

11. ASEPTIC: primary antibiotic prophylaxis using co-trimoxazole to prevent SpontanEous bacterial PeritoniTIs in Cirrhosis-study protocol for an interventional randomised controlled trial

Item Type: Journal Article

Authors: Crocombe, Dominic;Ahmed, Norin;Balakrishnan, Indran;Bordea, Ekaterina;Chau, Marisa;China, Louise;Corless, Lynsey;Danquah, Victoria;Dehbi, Hakim-Moulay;Dillon, John F.;Forrest, Ewan H.;Freemantle, Nick;Gear, David Peter;Hollywood, Coral;Hunter, Rachael;Jeyapalan, Tasheeka;Kallis, Yiannis;McPherson, Stuart;Munteanu, Iulia;Portal, Jim, et al

Publication Date: 2022

Journal: Trials 23(1), pp. 812

Abstract: Background: Bacterial infection is a major cause of mortality in patients with cirrhosis. Spontaneous bacterial peritonitis (SBP) is a serious and common infection in patients with cirrhosis and ascites. Secondary prophylactic antibiotic therapy has been shown to improve outcomes after an episode of SBP but primary prophylaxis to prevent the first episode of SBP remains contentious. The aim of this trial is to assess whether primary antibiotic prophylaxis with co-trimoxazole improves overall survival compared to placebo in adults with cirrhosis and ascites.; Methods: The ASEPTIC trial is a multicentre, placebo-controlled, double-blinded, randomised controlled trial (RCT) in England, Scotland, and Wales. Patients aged 18 years and older with cirrhosis and ascites requiring diuretic treatment or paracentesis, and no current or previous episodes of SBP, are eligible, subject to exclusion criteria. The trial aims to recruit 432 patients from at least 30 sites. Patients will be randomised in a 1:1 ratio to receive either oral co-trimoxazole 960 mg or an identical placebo once daily for 18 months, with 6 monthly follow-up visits thereafter (with a maximum possible follow-up period of 48 months, and a minimum of 18 months). The primary outcome is overall survival. Secondary outcomes include the time to the first incidence of SBP, hospital admission rates, incidence of other infections (including Clostridium difficile) and antimicrobial resistance, patients' health-related quality of life, health and social care resource use, incidence of cirrhosis-related decompensation events, liver transplantation, and treatment-related serious adverse events.; Discussion: This trial will investigate the efficacy, safety, and cost-effectiveness of co-trimoxazole for patients with liver cirrhosis and ascites to determine whether this strategy improves clinical outcomes. Given there are no treatments that improve survival in decompensated cirrhosis outside of liver transplant, if the trial has a positive outcome, we anticipate widespread adoption of primary antibiotic prophylaxis.; Trial Registration: ClinicalTrials.gov NCT043955365 . Registered on 18 April 2020. Research ethical approval was granted by the Research Ethics Committee (South Central - Oxford B; REC 19/SC/0311) and the Medicines and Healthcare products Regulatory Agency (MHRA). (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13063-022-06727-6

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36167573&custid=ns023446

12. Prevalence of linezolid-resistant organisms among patients admitted to a tertiary hospital for critical care or dialysis

Item Type: Journal Article

Authors: Dembicka, Kornelia Maria;Powell, James;O'Connell, Nuala,H.;Hennessy, Noreen;Brennan, Grainne and Dunne, Colum P.

Publication Date: 2022

Journal: Irish Journal of Medical Science 191(4), pp. 1745-1750

Abstract: Background: Linezolid is an oxazolidinone antimicrobial regarded as a "last resort" antimicrobial, used typically for treatment of Gram-positive bacterial infections. It is acknowledged that prevalence of resistance to linezolid is increasing in Europe. In Ireland, a number of outbreaks of linezolid-resistant isolates have been reported, including an outbreak at the location for this study, the Intensive Care Unit (ICU) of University Hospital Limerick (UHL).; Methods: The Chromagar™ Lin-R selective medium was validated using a panel of linezolid-sensitive and linezolid-resistant strains. Subsequently, the prevalence exercise focused on a convenience sample of patients (n = 159) in critical care wards, ICU (n = 23) and High-Dependency Unit (HDU, n = 51), in addition to patients undergoing dialysis therapy (n = 77). Eight additional patients had specimens collected when attending more than one location. Growth on Chromagar™ Lin-R agar was followed by drug sensitivity testing by disc diffusion and minimum inhibitory concentration (MIC) testing.; Results: A validation exercise was performed on 23 isolates: seven target and sixteen non-target organisms. Isolates performed as intended (100% sensitivity, 100% specificity). For the prevalence study, of 398 tests, 40 resulted in growth of non-target organisms (specificity approx. 90%). A sole patient (1/159) was identified as colonized by a linezolid-resistant Staphylococcus epidermidis, a prevalence of 0.63%. Molecular investigation confirmed presence of the G2576T mutation in the 23S rRNA.; Conclusion: While this point prevalence study identified extremely low carriage of linezolid-resistant bacteria, it remains prudent to maintain vigilance as reports of outbreaks associated with linezolid-resistant S. epidermidis (LRSE) in European critical care units are increasing. (© 2021. The Author(s).)

Access or request full text: https://libkey.io/10.1007/s11845-021-02773-2

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=34505273&custid=ns023446

13. An infection control journey

Item Type: Journal Article

Authors: Dobbin, Julie

Publication Date: 2022

Journal: British Journal of Nursing 31(17), pp. 874

Abstract: The author shares her journey as Infection Prevention and Control (IPC) lead at St. Luke's Hospice in London, England. She recalls focusing on safe practice to lead the hospice through challenges with the start of the COVID-19 pandemic in 2020. She discusses the importance of IPC to the provision of safe and compassionate end-of-life care for all patients and families, as well as the importance of sharing knowledge and skills and working together to improve quality of IPC provision.

Access or request full text: https://libkey.io/10.12968/bjon.2022.31.17.874

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=159296674&custid=ns023446

14. Cross-site collaboration on infection prevention and control research-room for improvement? A 7-year comparative study in five European countries

Item Type: Journal Article

Authors: Eichel, Vanessa M.;Brühwasser, Christina;Castro-Sánchez, Enrique;Birgand, Gabriel;Bathoorn, Erik;Salm, Florian and Mutters, Nico T.

Publication Date: 2022

Journal: Antimicrobial Resistance and Infection Control 11(1), pp. 131

Abstract: Background: The spread of SARS-CoV-2, multidrug-resistant organisms and other healthcare-associated pathogens represents supra-regional challenges for infection prevention and control (IPC) specialists in every European country. To tackle these problems, cross-site research collaboration of IPC specialists is very important. This study assesses the extent and quality of national research collaborations of IPC departments of university hospitals located in Austria, England, France, Germany, and the Netherlands, identifies network gaps, and provides potential solutions.; Methods: Joint publications of IPC heads of all university hospitals of the included countries between 1st of June 2013 until 31st of May 2020 were collected by Pubmed/Medline search. Further, two factors, the journal impact factor and the type/position of authorship, were used to calculate the Scientific Collaboration Impact (SCI) for all included sites; nationwide network analysis was performed.; Results: In five European countries, 95 sites and 125 responsible leaders for IPC who had been in charge during the study period were identified. Some countries such as Austria have only limited national research cooperations, while the Netherlands has established a gapless network. Most effective collaborating university site of each country were Lille with an SCI of 1146, Rotterdam (408), Berlin (268), Sussex (204), and Vienna/Innsbruck (18).; Discussion: The present study indicates major differences and room for improvement in IPC research collaborations within each country and underlines the potential and importance of collaborating in IPC. (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13756-022-01176-x

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36329486&custid=ns023446

15. Clinical management of community-acquired meningitis in adults in the UK and Ireland in 2017: a retrospective cohort study on behalf of the National Infection Trainees Collaborative for Audit and Research (NITCAR)

Item Type: Journal Article

Authors: Ellis, Jayne;Harvey, David;Defres, Sylviane;Chandna, Arjun;MacLachlan, Eloisa;Solomon, Tom;Heyderman, Robert S. and McGill, Fiona

Publication Date: 2022

Journal: BMJ Open 12(7), pp. e062698

Abstract: Objectives: To assess practice in the care of adults with suspected community-acquired bacterial meningitis in the UK and Ireland.; Design: Retrospective cohort study.; Setting: 64 UK and Irish hospitals.; Participants: 1471 adults with community-acquired meningitis of any aetiology in 2017.; Results: None of the audit standards, from the 2016 UK Joint Specialists Societies guideline on diagnosis and management of meningitis, were met in all cases. With respect to 20 of 30 assessed standards, clinical management provided for patients was in line with recommendations in less than 50% of cases. 45% of patients had blood cultures

taken within an hour of admission, 0.5% had a lumbar puncture within 1 hour, 26% within 8 hours. 28% had bacterial molecular diagnostic tests on cerebrospinal fluid. Median time to first dose of antibiotics was 3.2 hours (IQR 1.3-9.2). 80% received empirical parenteral cephalosporins. 55% ≥60 years and 31% of immunocompromised patients received anti- Listeria antibiotics. 21% received steroids. Of the 1471 patients, 20% had confirmed bacterial meningitis. Among those with bacterial meningitis, pneumococcal aetiology, admission to intensive care and initial Glasgow Coma Scale Score less than 14 were associated with in-hospital mortality (adjusted OR (aOR) 2.08, 95% CI 0.96 to 4.48; aOR 4.28, 95% CI 1.81 to 10.1; aOR 2.90, 95% CI 1.26 to 6.71, respectively). Dexamethasone therapy was weakly associated with a reduction in mortality in both those with proven bacterial meningitis (aOR 0.57, 95% CI 0.28 to 1.17) and with pneumococcal meningitis (aOR 0.47, 95% CI 0.20 to 1.10).; Conclusion: This study demonstrates that clinical care for patients with meningitis in the UK is not in line with current evidence-based national guidelines. Diagnostics and therapeutics should be targeted for quality improvement strategies. Work should be done to improve the impact of guidelines, understand why they are not followed and, once published, ensure they translate into changed practice.; Competing Interests: Competing interests: RSH is an NIHR Senior Investigator. The findings and the views expressed are those of the authors and not necessarily those of the NIHR. TS is supported by the National Institute for Health Research (NIHR) Health Protection Research Unit in Emerging and Zoonotic Infections (grant no. NIHR200907), NIHR Global Health Research Group on Brain Infections (no. 17/63/110) and the UK Medical Research Council's Global Effort on COVID-19 Programme (MR/V033441/1). (© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY. Published by BMJ.)

Access or request full text: https://libkey.io/10.1136/bmjopen-2022-062698

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35831140&custid=ns023446

16. Multicentre evaluation of two multiplex PCR platforms for the rapid microbiological investigation of nosocomial pneumonia in UK ICUs: the INHALE WP1 study

Item Type: Journal Article

Authors: Enne, Virve I.;Aydin, Alp;Baldan, Rossella;Owen, Dewi R.;Richardson, Hollian;Ricciardi, Federico;Russell, Charlotte;Nomamiukor-Ikeji, Brenda;Swart, Ann-Marie;High, Juliet;Colles, Antony;Barber, Julie;Gant, Vanya;Livermore, David M. and O'Grady, Justin

Publication Date: 2022

Journal: Thorax 77(12), pp. 1220-1228

Abstract: Background: Culture-based microbiological investigation of hospital-acquired or ventilator-associated pneumonia (HAP or VAP) is insensitive, with aetiological agents often unidentified. This can lead to excess antimicrobial treatment of patients with susceptible pathogens, while those with resistant bacteria are treated inadequately for prolonged periods. Using PCR to seek pathogens and their resistance genes directly from clinical samples may improve therapy and stewardship.; Methods: Surplus routine lower respiratory tract samples were collected from intensive care unit patients about to receive new or changed antibiotics for hospital-onset lower respiratory tract infections at 15 UK hospitals. Testing was performed using the BioFire FilmArray Pneumonia Panel (bioMérieux) and Unyvero Pneumonia Panel (Curetis). Concordance analysis compared machine and routine microbiology results, while Bayesian latent class (BLC) analysis estimated the sensitivity and specificity of each test, incorporating information from both PCR panels and routine microbiology.; Findings: In 652 eligible samples; PCR identified pathogens in considerably more samples compared with routine microbiology: 60.4% and 74.2% for Unyvero and FilmArray respectively vs 44.2% by routine microbiology. PCR tests also detected more pathogens per sample than routine microbiology. For

common HAP/VAP pathogens, FilmArray had sensitivity of 91.7%-100.0% and specificity of 87.5%-99.5%; Unyvero had sensitivity of 50.0%-100.0%%, and specificity of 89.4%-99.0%. BLC analysis indicated that, compared with PCR, routine microbiology had low sensitivity, ranging from 27.0% to 69.4%.; Interpretation: Conventional and BLC analysis demonstrated that both platforms performed similarly and were considerably more sensitive than routine microbiology, detecting potential pathogens in patient samples reported as culture negative. The increased sensitivity of detection realised by PCR offers potential for improved antimicrobial prescribing.; Competing Interests: Competing interests: DML: Advisory Boards or ad-hoc consultancy Accelerate, Allecra, Antabio, Centauri, Entasis, GSK, Meiji, Menarini, Mutabilis, Nordic, ParaPharm, Pfizer, QPEX, Roche, Shionogi, Summit, T.A.Z., VenatoRx, Wockhardt, Zambon, Paid lectures– Astellas, bioMérieux, Beckman Coulter, Cardiome, Cepheid, Hikma, Merck/MSD, Menarini, Nordic, Pfizer and Shionogi. Relevant shareholdings or options-Dechra, GSK, Merck, Perkin Elmer, Pfizer, T.A.Z, amounting to <10% of portfolio value. He also has nominated holdings in Avacta, Byotrol, Destiny, Diaceutics, Evgen, Faron, Fusion Antibodies, Genedrive, Hardide, Renalytics, Scancell and Synairgen (all with research/products pertinent to medical and diagnostic innovation) through Enterprise Investment Schemes but has no authority to trade these shares directly. VG: Advisory boards or ad-hoc consultancy Gilead, Shionogi, bioMérieux, MSD, Vidya Diagnostics. VIE: Speaking honoraria, consultancy fees and in-kind contributions from several diagnostic companies including Curetis GmbH, bioMérieux and Oxford Nanopore. JO'G: has received speaking honoraria, consultancy fees, in-kind contributions or research funding from Oxford Nanopore, Simcere, Becton-Dickinson and Heraeus Medical. (© Author(s) (or their employer(s)) 2022. No commercial re-use. See rights and permissions. Published by BMJ.)

Access or request full text: https://libkey.io/10.1136/thoraxjnl-2021-216990

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35027473&custid=ns023446

17. Development and performance characteristics of novel code-based algorithms to identify invasive Escherichia coli disease

Item Type: Journal Article

Authors: Fortin, Stephen P.;Hernandez Pastor, Luis;Doua, Joachim;Sarnecki, Michal;Swerdel, Joel;Colasurdo, Jamie and Geurtsen, Jeroen

Publication Date: 2022

Journal: Pharmacoepidemiology and Drug Safety 31(9), pp. 983-991

Abstract: Purpose: Evaluation of novel code-based algorithms to identify invasive Escherichia coli disease (IED) among patients in healthcare databases.; Methods: Inpatient visits with microbiological evidence of invasive bacterial disease were extracted from the Optum© electronic health record database between January 1, 2016 and June 30, 2020. Six algorithms, derived from diagnosis and drug exposure codes associated to infectious diseases and Escherichia coli, were developed to identify IED. The performance characteristics of algorithms were assessed using a reference standard derived from microbiology data.; Results: Among 97 194 eligible records, 25 310 (26.0%) were classified as IED. Algorithm 1 (diagnosis code for infectious invasive disease due to E. coli) had the highest positive predictive value (PPV; 96.0%) and lowest sensitivity (60.4%). Algorithm 2, which additionally included patients with diagnosis codes for infectious invasive disease due to an unspecified organism, had the highest sensitivity (95.5%) and lowest PPV (27.8%). Algorithm 4, which required patients with a diagnosis code for infectious invasive disease due to unspecified organism to have no diagnosis code for non-E. coli infections, achieved the most balanced performance characteristics (PPV, 93.6%; sensitivity, 78.1%; F 1 score, 85.1%). Finally, adding exposure to antibiotics in the treatment of E. coli had limited impact on performance algorithms 5 and 6.; Conclusion: Algorithm 4, which achieved the most balanced performance

characteristics, offers a useful tool to identify patients with IED and assess the burden of IED in healthcare databases. (© 2022 John Wiley & Sons Ltd.)

Access or request full text: https://libkey.io/10.1002/pds.5505

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35753071&custid=ns023446

18. Influence of pharmacists and infection control teams or antimicrobial stewardship teams on the safety and efficacy of vancomycin: A Japanese administrative claims database study

Item Type: Journal Article

Authors: Goto, Ryota;Muraki, Yuichi;Inose, Ryo;Kusama, Yoshiki;Ono, Akane;Koizumi, Ryuji;Ishikane, Masahiro and Ohmagari, Norio

Publication Date: 2022

Journal: PloS One 17(9), pp. e0274324

Abstract: Introduction: Methicillin-resistant Staphylococcus aureus (MRSA) has a high mortality and requires effective treatment with anti-MRSA agents such as vancomycin (VCM). Management of the efficacy and safety of VCM has been implemented with the assignment of pharmacists in hospital wards and the establishment of teams related to infectious diseases. However, there are no reports evaluating the association between these factors and the efficacy and safety of VCM in large populations.; Methods: This study used the Japanese administrative claims database accumulated from 2010 to 2019. The population was divided into two groups, therapeutic drug monitoring (TDM) group and non-TDM group, and adjusted by propensity score matching. We performed multivariate logistic regression analysis to determine the influence of pharmacists and infection control teams or antimicrobial stewardship teams on acute kidney injury (AKI) and 30-day mortality.; Results: The total number of patients was 73 478 (TDM group, n = 55 269; non-TDM group, n = 18 209). After propensity score matching, 18 196 patients were matched in each group. Multivariate logistic regression analysis showed that pharmacological management for each patient contributed to the reduction of AKI (odds ratio OR]: 0.812, 95% confidence interval CI]: 0.723–0.912) and 30-day mortality (OR: 0.538, 95% CI: 0.503–0.575). However, the establishment of infectious disease associated team in facilities and the assignment of pharmacists in the hospital wards had no effect on AKI and 30-day mortality. In addition, TDM did not affect the reduction in AKI (OR: 1.061, 95% CI: 0.948–1.187), but reduced 30-day mortality (OR: 0.873, 95% CI: 0.821–0.929).; Conclusion: Pharmacologic management for individual patients, rather than assignment systems at facilities, is effective to reduce AKI and 30-day mortality with VCM administration.; Competing Interests: Yuichi Muraki received an honorarium for lecturing from Pfizer Japan Inc. The other authors have no conflicts of interest to declare.

Access or request full text: https://libkey.io/10.1371/journal.pone.0274324

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36083990&custid=ns023446

19. A domain-knowledge modeling of hospital-acquired infection risk in Healthcare personnel from retrospective observational data: A case study for COVID-19

Item Type: Journal Article

Authors: Huynh, Phat K.;Setty, Arveity R.;Tran, Quan M.;Yadav, Om P.;Yodo, Nita and Le, Trung Q.

Publication Date: 2022

Journal: PloS One 17(11), pp. e0272919

Abstract: Introduction: Hospital-acquired infections of communicable viral diseases (CVDs) have been posing a tremendous challenge to healthcare workers globally. Healthcare personnel (HCP) is facing a consistent risk of viral infections, and subsequently higher rates of morbidity and mortality.; Materials and Methods: We proposed a domain-knowledge-driven infection risk model to quantify the individual HCP and the population-level risks. For individual-level risk estimation, a time-variant infection risk model is proposed to capture the transmission dynamics of CVDs. At the population-level, the infection risk is estimated using a Bayesian network model constructed from three feature sets, including individual-level factors, engineering control factors, and administrative control factors. For model validation, we investigated the case study of the Coronavirus disease, in which the individual-level and population-level infection risk models were applied. The data were collected from various sources such as COVID-19 transmission databases, health surveys/questionaries from medical centers, U.S. Department of Labor databases, and cross-sectional studies.; Results: Regarding the individual-level risk model, the variance-based sensitivity analysis indicated that the uncertainty in the estimated risk was attributed to two variables: the number of close contacts and the viral transmission probability. Next, the disease transmission probability was computed using a multivariate logistic regression applied for a cross-sectional HCP data in the UK, with the 10-fold cross-validation accuracy of 78.23%. Combined with the previous result, we further validated the individual infection risk model by considering six occupations in the U.S. Department of Labor O*Net database. The occupation-specific risk evaluation suggested that the registered nurses, medical assistants, and respiratory therapists were the highest-risk occupations. For the population-level risk model validation, the infection risk in Texas and California was estimated, in which the infection risk in Texas was lower than that in California. This can be explained by California's higher patient load for each HCP per day and lower personal protective equipment (PPE) sufficiency level.; Conclusion: The accurate estimation of infection risk at both individual level and population levels using our domain-knowledge-driven infection risk model will significantly enhance the PPE allocation, safety plans for HCP, and hospital staffing strategies.; Competing Interests: The authors have declared that no competing interests exist. (Copyright: © 2022 Huynh et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.)

Access or request full text: https://libkey.io/10.1371/journal.pone.0272919

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36409727&custid=ns023446

20. Cost-effectiveness of strategies to control the spread of carbapenemase-producing Enterobacterales in hospitals: a modelling study

Item Type: Journal Article

Authors: Kardaś-Słoma, Lidia;Fournier, Sandra;Dupont, Jean-Claude;Rochaix, Lise;Birgand, Gabriel;Zahar, Jean-Ralph;Lescure, François-Xavier;Kernéis, Solen;Durand-Zaleski, Isabelle and Lucet, Jean-Christophe

Publication Date: 2022

Journal: Antimicrobial Resistance and Infection Control 11(1), pp. 117

Abstract: Background: Spread of resistant bacteria causes severe morbidity and mortality. Stringent control measures can be expensive and disrupt hospital organization. In the present study, we assessed the effectiveness and cost-effectiveness of control strategies to prevent the spread of Carbapenemase-producing Enterobacterales (CPE) in a general hospital ward (GW).; Methods: A dynamic, stochastic model simulated the transmission of CPE by the hands of healthcare workers (HCWs) and the environment in a hypothetical 25-bed GW. Input parameters were based on published data; we assumed the prevalence at admission of 0.1%. 12 strategies were compared to the baseline (no control) and combined different prevention and control interventions: targeted or universal screening at admission (TS or US), contact precautions (CP), isolation in a single room, dedicated nursing staff (DNS) for carriers and weekly screening of contact patients (WSC). Time horizon was one year. Outcomes were the number of CPE acquisitions, costs, and incremental cost-effectiveness ratios (ICER). A hospital perspective was adopted to estimate costs, which included laboratory costs, single room, contact precautions, staff time, i.e. infection control nurse and/or dedicated nursing staff, and lost bed-days due to prolonged hospital stay of identified carriers. The model was calibrated on actual datasets. Sensitivity analyses were performed.; Results: The baseline scenario resulted in 0.93 CPE acquisitions/1000 admissions and costs 32,050 €/1000 admissions. All control strategies increased costs and improved the outcome. The efficiency frontier was represented by: (1) TS with DNS at a 17,407 €/avoided CPE case, (2) TS + DNS + WSC at a 30,700 €/avoided CPE case and (3) US + DNS + WSC at 181,472 €/avoided CPE case. Other strategies were dominated. Sensitivity analyses showed that TS + CP might be cost-effective if CPE carriers are identified upon admission or if the cases have a short hospital stay. However, CP were effective only when high level of compliance with hand hygiene was obtained.; Conclusions: Targeted screening at admission combined with DNS for identified CPE carriers with or without weekly screening were the most cost-effective options to limit the spread of CPE. These results support current recommendations from several high-income countries. (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13756-022-01149-0

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36117231&custid=ns023446

21. Oral minocycline plus rifampicin versus oral linezolid for complicated skin and skin structure infections caused by methicillin-resistant Staphylococcus aureus : The AIDA open label, randomized, controlled Phase 4 trial

Item Type: Journal Article

Authors: Kotsaki, Antigone;Tziolos, Nikolaos;Kontopoulou, Theano;Koutelidakis, Ioannis M.;Symbardi, Styliani;Reed, Vaughan;O'Hare, Miriam;Alexiou, Zoi;Sambatakou, Helen;Toutouzas, Konstantinos;Akinosoglou, Karolina;Lada, Malvina;Giamarellos-Bourboulis, Evangelos and MacGowan, Alasdair

Publication Date: 2022

Journal: EClinicalMedicine 56, pp. 101790

Abstract: Background: The need for oral, cost-effective treatment for complicated skin and skin structure infections (cSSSIs) due to methicillin-resistant Staphylococcus aureus (MRSA) was addressed by the non-inferiority comparisons of oral minocycline plus rifampicin with linezolid.; Methods: In the AIDA multicenter, open label, randomized, controlled clinical trial, hospitalized adults with cSSSI and documented MRSA were randomly assigned at a 2:1 ratio to either oral 600 mg rifampicin qd plus 100 mg minocycline bid or oral 600 mg linezolid bid for 10 days. The primary endpoint was the clinical cure rate in the clinically evaluable (CE) population at the test-of-cure visit (14 days). Non-inferiority was confirmed if the lower confidence limit (CI) did not fall below the accepted error margin of 15%. The study is registered with EudraCT number 2014-001276-

56.; Findings: 123 patients recruited between November 2014 and January 2017 were randomly assigned to treatment (81 patients to minocycline plus rifampicin and 42 patients to linezolid). Cure rates were 78.% (46/59, 90% CI 67.3-86.5) and 68.6% (24/35, 90% CI 53.4-81.3), respectively (P = 0.337). The percent difference in cure rates was 9.4% (90% CI -7.2 to 26.8%). Minocycline plus rifampicin combination was deemed non-inferior to linezolid as the lower CI was -7.2% i.e. smaller than the accepted error margin of -15%. Although statistically not significant, the overall rate of adverse events was higher in the linezolid group (47.6%, 20/42 versus 38.3%, 31/81).; Interpretation: Oral minocycline plus rifampicin was non-inferior to oral linezolid treatment providing alternative oral treatment for cSSSI.; Funding: The EU Seventh Research Framework Programme.; Competing Interests: Helen Sambatakou has received honoraria from MSD Greece, Elpen Hellas, Mylan Hellas and Pfizer Greece. E.J. Giamarellos-Bourboulis has received honoraria from Abbott CH, bioMérieux, Brahms GmbH, GSK, InflaRx GmbH, Sobi and XBiotech Inc; independent educational grants from Abbott CH, AxisShield, bioMérieux Inc, InflaRx GmbH, Johnson & Johnson, MSD, Sobi and XBiotech Inc.; and funding from the Horizon2020 Marie Skłodowska-Curie International Training Network “the European Sepsis Academy” (granted to the National and Kapodistrian University of Athens), and the Horizon 2020 European Grants ImmunoSep and RISCinCOVID (granted to the Hellenic Institute for the Study of Sepsis). Alasdair MacGowan has research grants/activities with the following: Merck, Shionogi, Venatorx, InfectoPharm, GSK, Bioversys, MRC (UK), NIHR (UK). All other authors declare no competing interests. (© 2022 The Authors.)

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URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36618892&custid=ns023446

22. Group B Streptococcus real-time PCR may potentially reduce intrapartum maternal antibiotic treatment

Item Type: Journal Article

Authors: Kugelman, Nir;Kleifeld, Shiran;Shaked-Mishan, Pninit;Assaf, Wisam;Marom, Inbal;Cohen, Nadav;Gruber, Maya;Lavie, Ofer;Waisman, Dan;Kedar, Reuven;Bardicef, Mordehai and Damti, Amit

Publication Date: 2022

Journal: Paediatric and Perinatal Epidemiology 36(4), pp. 548-552

Abstract: Background: Protocols for preventing early-onset group B streptococcal (GBS) neonatal infection may result in unnecessary antibiotics administration. Real-time polymerase chain reaction (PCR) can provide a result within 30-60 min and has been found to be specific and sensitive for defining intrapartum GBS status.; Objective: To evaluate whether implementation of GBS fast real-time PCR to all women who require GBS prophylaxis may reduce the use of maternal prophylactic antibiotics.; Methods: This prospective cohort study included women admitted to a single delivery ward who required prophylactic antibiotics either due to a positive antepartum GBS culture screening performed at 35-37 weeks or due to an unknown GBS status with an intrapartum risk factor. All the women were tested by a double vaginal swab (real-time PCR and culture) as soon as it became apparent, they required antibiotic prophylaxis and prior to its administration.; Results: Between May 2019 and August 2020, 303 women met eligibility criteria and were enrolled, but four were excluded from the analysis due to failed culture or PCR tests. Of 299 women included in the study, 208 (69.5%) and 180 (60.2%) women, showed no evidence of GBS on intrapartum culture or PCR, respectively. Of 89 GBS antepartum carriers, 43 (48.3%) and 32 (35.9%) had negative intrapartum culture and PCR results, respectively. Of the 210 women with risk factors, 165 (78.5%) were culture negative and 148 (70.4%) had a negative PCR. Using intrapartum culture as the gold standard, intrapartum GBS real-time PCR was found to have a sensitivity of 97.8% (95% confidence interval CI] 92.3, 99.7) and a specificity of 85.6% (95% CI 80.1, 90.1).; Conclusions:

Compared with antepartum universal culture screening or intrapartum risk-factor assessment, the need for maternal antibiotic treatment may be substantially reduced by implementation of intrapartum GBS real-time PCR, without compromising the sensitivity of GBS detection. (© 2021 John Wiley & Sons Ltd.)

Access or request full text: https://libkey.io/10.1111/ppe.12841

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=34888893&custid=ns023446

23. Severe acute respiratory coronavirus virus 2 (SARS-CoV-2) nosocomial transmission dynamics, a retrospective cohort study of two healthcare-associated coronavirus disease 2019 (COVID-19) clusters in a district hospital in England during March and April 2020

Item Type: Journal Article

Authors: Leeman, David S.;Ma, Thomas S. -G;Pathiraja, Melanie M.;Taylor, Jennifer A.;Adnan, Tahira Z.;Baltas, Ioannis;Ioannou, Adam;Iyengar, Srikanth R. S.;Mearkle, Rachel A.;Stockdale, Thomas J.;Van Den Abbeele, Koenraad and Balasegaram, Sooria

Publication Date: 2022

Journal: Infection Control and Hospital Epidemiology 43(11), pp. 1618-1624

Abstract: Objective: To understand the transmission dynamics of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) in a hospital outbreak to inform infection control actions.; Design: Retrospective cohort study.; Setting: General medical and elderly inpatient wards in a hospital in England.; Methods: Coronavirus disease 2019 (COVID-19) patients were classified as community or healthcare associated by time from admission to onset or positivity using European Centre for Disease Prevention and Control definitions. COVID-19 symptoms were classified as asymptomatic, nonrespiratory, or respiratory. Infectiousness was calculated from 2 days prior to 14 days after symptom onset or positive test. Cases were defined as healthcare-associated COVID-19 when infection was acquired from the wards under investigation. COVID-19 exposures were calculated based on symptoms and bed proximity to an infectious patient. Risk ratios and adjusted odds ratios (aORs) were calculated from univariable and multivariable logistic regression.; Results: Of 153 patients, 65 were COVID-19 patients and 45 of these were healthcare-associated cases. Exposure to a COVID-19 patient with respiratory symptoms was associated with healthcare-associated infection irrespective of proximity (aOR, 3.81; 95% CI, 1.6.3-8.87). Nonrespiratory exposure was only significant within 2.5 m (aOR, 5.21; 95% CI, 1.15-23.48). A small increase in risk ratio was observed for exposure to a respiratory patient for >1 day compared to 1 day from 2.04 (95% CI, 0.99-4.22) to 2.36 (95% CI, 1.44-3.88).; Conclusions: Respiratory exposure anywhere within a 4-bed bay was a risk, whereas nonrespiratory exposure required bed distance ≤2.5 m. Standard infection control measures required beds to be >2 m apart. Our findings suggest that this may be insufficient to stop SARS-CoV-2 transmission. We recommend improving cohorting and further studies into bed distance and transmission factors.

Access or request full text: https://libkey.io/10.1017/ice.2021.483

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=34802481&custid=ns023446

24. Path of least recurrence: A systematic review and meta-analysis of fidaxomicin versus vancomycin for Clostridioides difficile infection

Item Type: Journal Article

Authors: Liao, J. X.;Appaneal, Haley J.;Vicent, Martie L.;Vyas, Ami and LaPlante, Kerry L.

Publication Date: 2022

Journal: Pharmacotherapy 42(11), pp. 810-827

Abstract: Study Objective: Current Clostridioides difficile infection (CDI) treatment guidelines recommend either fidaxomicin or vancomycin as first-line therapy for initial and recurrent CDI. The objective of this study was to compare recurrence rates of fidaxomicin and vancomycin for the treatment of CDI in clinically relevant and real-world subgroups via systematic review and meta-analysis.; Design & Data Sources: A systematic literature review was performed by searching PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and ClinicalTrials.gov from inception to September 1, 2021, for randomized and observational studies comparing vancomycin and fidaxomicin for CDI treatment in adults. The meta-analysis was performed with Review Manager 5.4 software (Cochrane Library, Oxford, United Kingdom) using a random-effects model. The primary end point was CDI recurrence after treatment with fidaxomicin or vancomycin. Subgroup analyses were conducted.; Patients, Intervention, Measurements & Main Results: The literature search identified six randomized controlled trials and eight observational trials, with a total of 3944 patients (fidaxomicin 32%; vancomycin 68%) included in the meta-analysis. The mean age of study patients ranged from 46 to 75 years. The CDI recurrence rate was 22.4% (fidaxomicin 16.1%, vancomycin 25.4%). Compared to vancomycin, treatment with fidaxomicin was associated with a 31% reduction in the risk of recurrence (risk ratio 0.69; 95% confidence interval: 0.52-0.91, I 2 = 62%). This reduction in recurrence risk was also seen in subgroup analyses for patients with initial CDI, first recurrent CDI, non-severe and severe CDI, and in both inpatient and outpatient settings.; Conclusion: Our systematic review and meta-analysis found fidaxomicin was consistently associated with a lower risk of CDI recurrence than vancomycin. These results confirm CDI guideline recommendations and indicate that fidaxomicin may be preferred over vancomycin to minimize CDI recurrence across multiple clinical scenarios, although further studies are warranted. (© 2022 Pharmacotherapy Publications, Inc. This article has been contributed to by U.S. Government employees and their work is in the public domain in the USA.)

Access or request full text: https://libkey.io/10.1002/phar.2734

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36223209&custid=ns023446

25. Budget impact analysis of a multifaceted nurse-led intervention to reduce indwelling urinary catheter use in New South Wales Hospitals

Item Type: Journal Article

Authors: Ling, Rod;Giles, Michelle and Searles, Andrew

Publication Date: 2022

Journal: BMC Health Services Research 22(1), pp. 1000

Abstract: Background: In hospitals, catheter acquired urinary tract infection causes significant resource waste and discomfort among admitted patients. An intervention for reducing indwelling catheterisations - No-CAUTI - was trialled across four hospitals in New South Wales, Australia. No-CAUTI includes: train-the-trainer workshops, site champions, compliance audits, and point prevalence surveys. The trial showed reductions on

usual care catheterisation rates at 4- and 9-month post-intervention. This result was statistically non-significant; and post-intervention catheterisation rates rebounded between 4 and 9 months. However, No-CAUTI showed statistically significant catheterisation decreases for medical wards, female patients and for short-term catheterisations. This study presents a budget impact analysis of a projected five year No-CAUTI roll out across New South Wales public hospitals, from the cost perspective of the New South Wales Ministry of Health.; Methods: Budget forecasts were made for five year roll outs of: i) No-CAUTI; and ii) usual care, among all public hospitals in New South Wales hosting overnight stays (n=180). The roll out design maintains intervention effectiveness with ongoing workshops, quality audits, and hospital surveys. Forecasts of catheterisations, procedures and treatments were modelled on No-CAUTI trial observations. Costs were sourced from trial records, the Medical Benefits Scheme, the Pharmaceutical Benefits Scheme and public wage awards. Cost and parameter uncertainties were considered with sensitivity scenarios.; Results: The estimated five-year No-CAUTI roll-out cost was $1.5 million. It had an overall budget saving of $640,000 due to reductions of 100,100 catheterisations, 33,300 urine tests and 6,700 antibiotics administrations. Non-Metropolitan hospitals had a net saving of $1.2 million, while Metropolitan hospitals had a net cost of $0.54 million.; Conclusions: Compared to usual care, NO-CAUTI is expected to realise overall budget savings and decreases in catheterisations over five years. These findings allow a consideration of the affordability of a wide implementation.; Trial Registration: Registered with the Australian New Zealand Clinical Trials Registry (ACTRN12617000090314). First registered 17 January 2017, retrospectively. First enrolment, 15/11/2016. (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12913-022-08313-7

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35932078&custid=ns023446

26. Hand Hygiene Adherence in the Operating Theater: Data From the Netherlands

Item Type: Journal Article

Authors: MARTONICZ, TORI WHITACRE

Publication Date: 2022

Journal: Infection Control Today 26(10), pp. 9-10

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=160596616&custid=ns023446

27. E. coli bacteraemia and antimicrobial resistance following antimicrobial prescribing for urinary tract infection in the community

Item Type: Journal Article

Authors: McCowan, Colin;Bakhshi, Andisheh;McConnachie, Alex;Malcolm, William;Barry, Sarah Je;Santiago, Virginia Hernandez and Leanord, Alistair

Publication Date: 2022

Journal: BMC Infectious Diseases 22(1), pp. 805

Abstract: Background: Urinary tract infections are one of the most common infections in primary and

secondary care, with the majority of antimicrobial therapy initiated empirically before culture results are available. In some cases, however, over 40% of the bacteria that cause UTIs are resistant to some of the antimicrobials used, yet we do not know how the patient outcome is affected in terms of relapse, treatment failure, progression to more serious illness (bacteraemia) requiring hospitalization, and ultimately death. This study analyzed the current patterns of antimicrobial use for UTI in the community in Scotland, and factors for poor outcomes.; Objectives: To explore antimicrobial use for UTI in the community in Scotland, and the relationship with patient characteristics and antimicrobial resistance in E. coli bloodstream infections and subsequent mortality.; Methods: We included all adult patients in Scotland with a positive blood culture with E. coli growth, receiving at least one UTI-related antimicrobial (amoxicillin, amoxicillin/clavulanic acid, ciprofloxacin, trimethoprim, and nitrofurantoin) between 1st January 2009 and 31st December 2012. Univariate and multivariate logistic regression analysis was performed to understand the impact of age, gender, socioeconomic status, previous community antimicrobial exposure (including long-term use), prior treatment failure, and multi-morbidity, on the occurrence of E. coli bacteraemia, trimethoprim and nitrofurantoin resistance, and mortality.; Results: There were 1,093,227 patients aged 16 to 100 years old identified as receiving at least one prescription for the 5 UTI-related antimicrobials during the study period. Antimicrobial use was particularly prevalent in the female elderly population, and 10% study population was on long-term antimicrobials. The greatest predictor for trimethoprim resistance in E. coli bacteraemia was increasing age (OR 7.18, 95% CI 5.70 to 9.04 for the 65 years old and over group), followed by multi-morbidity (OR 5.42, 95% CI 4.82 to 6.09 for Charlson Index 3+). Prior antimicrobial use, along with prior treatment failure, male gender, and higher deprivation were also associated with a greater likelihood of a resistant E. coli bacteraemia. Mortality was significantly associated with both having an E. coli bloodstream infection, and those with resistant growth.; Conclusion: Increasing age, increasing co-morbidity, lower socioeconomic status, and prior community antibiotic exposure were significantly associated with a resistant E. coli bacteraemia, which leads to increased mortality. (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12879-022-07768-7

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36307776&custid=ns023446

28. Harmonized procedure coding system for surgical procedures and analysis of surgical site infections (SSI) of five European countries

Item Type: Journal Article

Authors: Mellinghoff, Sibylle C.;Bruns, Caroline;Al-Monajjed, Rouvier;Cornely, Florian B.;Grosheva, Maria;Hampl, Jürgen A.;Jakob, Carolin;Koehler, Felix C.;Lechmann, Max;Maged, Bijan;Otto-Lambertz, Christina;Rongisch, Robert;Rutz, Jule;Salmanton-Garcia, Jon;Schlachtenberger, Georg;Stemler, Jannik;Vehreschild, Janne;Wülfing, Sophia;Cornely, Oliver A. and Liss, Blasius J.

Publication Date: 2022

Journal: BMC Medical Research Methodology 22(1), pp. 225

Abstract: Background: The use of routine data will be essential in future healthcare research. Therefore, harmonizing procedure codes is a first step to facilitate this approach as international research endeavour. An example for the use of routine data on a large scope is the investigation of surgical site infections (SSI). Ongoing surveillance programs evaluate the incidence of SSI on a national or regional basis in a limited number of procedures. For example, analyses by the European Centre for Disease Prevention (ECDC) nine procedures and provides a mapping table for two coding systems (ICD9, National Healthcare Safety Network NHSN]). However, indicator procedures do not reliably depict overall SSI epidemiology. Thus, a broader analysis of all surgical

procedures is desirable. The need for manual translation of country specific procedures codes, however, impedes the use of routine data for such an analysis on an international level. This project aimed to create an international surgical procedure coding systems allowing for automatic translation and categorization of procedures documented in country-specific codes.; Methods: We included the existing surgical procedure coding systems of five European countries (France, Germany, Italy, Spain, and the United Kingdom UK]). In an iterative process, country specific codes were grouped in ever more categories until each group represented a coherent unit based on method of surgery, interventions performed, extent and site of the surgical procedure. Next two ID specialist (arbitrated by a third in case of disagreement) independently assigned country-specific codes to the resulting categories. Finally, specialist from each surgical discipline reviewed these assignments for their respective field.; Results: A total number of 153 SALT (Staphylococcus aureus Surgical Site Infection Multinational Epidemiology in Europe) codes from 10 specialties were assigned to 15,432 surgical procedures. Almost 4000 (26%) procedure codes from the SALT coding system were classified as orthopaedic and trauma surgeries, thus this medical field represents the most diverse group within the SALT coding system, followed by abdominal surgical procedures with 2390 (15%) procedure codes.; Conclusion: Mapping country-specific codes procedure codes onto to a limited number of coherent, internally and externally validated codes proofed feasible. The resultant SALT procedure code gives the opportunity to harmonize big data sets containing surgical procedures from international centres, and may simplify comparability of future international trial findings.; Trial Registration: The study was registered at clinicaltrials.gov under NCT03353532 on November 27 th , 2017. (© 2022. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12874-022-01702-w

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35962320&custid=ns023446

29. Prediction of hospital-onset COVID-19 infections using dynamic networks of patient contact: an international retrospective cohort study

Item Type: Journal Article

Authors: Myall, Ashleigh;Price, James R.;Peach, Robert L.;Abbas, Mohamed;Mookerjee, Sid;Zhu, Nina;Ahmad, Isa;Ming, Damien;Ramzan, Farzan;Teixeira, Daniel;Graf, Christophe;Weiße, Andrea,Y.;Harbarth, Stephan;Holmes, Alison and Barahona, Mauricio

Publication Date: 2022

Journal: The Lancet.Digital Health 4(8), pp. e573-e583

Abstract: Background: Real-time prediction is key to prevention and control of infections associated with health-care settings. Contacts enable spread of many infections, yet most risk prediction frameworks fail to account for their dynamics. We developed, tested, and internationally validated a real-time machine-learning framework, incorporating dynamic patient-contact networks to predict hospital-onset COVID-19 infections (HOCIs) at the individual level.; Methods: We report an international retrospective cohort study of our framework, which extracted patient-contact networks from routine hospital data and combined network-derived variables with clinical and contextual information to predict individual infection risk. We trained and tested the framework on HOCIs using the data from 51 157 hospital inpatients admitted to a UK National Health Service hospital group (Imperial College Healthcare NHS Trust) between April 1, 2020, and April 1, 2021, intersecting the first two COVID-19 surges. We validated the framework using data from a Swiss hospital group (Department of Rehabilitation, Geneva University Hospitals) during a COVID-19 surge (from March 1 to May 31, 2020; 40 057 inpatients) and from the same UK group after COVID-19 surges (from April 2 to Aug 13, 2021; 43 375 inpatients). All inpatients with a bed allocation during the study periods were included in the

computation of network-derived and contextual variables. In predicting patient-level HOCI risk, only inpatients spending 3 or more days in hospital during the study period were examined for HOCI acquisition risk.; Findings: The framework was highly predictive across test data with all variable types (area under the curve AUC]-receiver operating characteristic curve ROC] 0·89 95% CI 0·88-0·90]) and similarly predictive using only contact-network variables (0·88 0·86-0·90]). Prediction was reduced when using only hospital contextual (AUC-ROC 0·82 95% CI 0·80-0·84]) or patient clinical (0·64 0·62-0·66]) variables. A model with only three variables (ie, network closeness, direct contacts with infectious patients network derived], and hospital COVID-19 prevalence hospital contextual]) achieved AUC-ROC 0·85 (95% CI 0·82-0·88). Incorporating contact-network variables improved performance across both validation datasets (AUC-ROC in the Geneva dataset increased from 0·84 95% CI 0·82-0·86] to 0·88 0·86-0·90]; AUC-ROC in the UK post-surge dataset increased from 0·49 0·46-0·52] to 0·68 0·64-0·70]).; Interpretation: Dynamic contact networks are robust predictors of individual patient risk of HOCIs. Their integration in clinical care could enhance individualised infection prevention and early diagnosis of COVID-19 and other nosocomial infections.; Funding: Medical Research Foundation, WHO, Engineering and Physical Sciences Research Council, National Institute for Health Research (NIHR), Swiss National Science Foundation, and German Research Foundation.; Competing Interests: Declaration of interests After the analysis in this paper was completed, AM and MB received funding from UKRI Research England via the MedTech SuperConnector (awarded on June 1, 2022) for commercial viability testing of infection prevention models. All other authors declare no competing interests.

Access or request full text: https://libkey.io/10.1016/S2589-7500(22)00093-0

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35868812&custid=ns023446

30. Impact of direct hand hygiene observations and feedback on hand hygiene compliance among nurses and doctors in medical and surgical wards: an eight-year observational study

Item Type: Journal Article

Authors: Ojanperä, H.;Ohtonen, P.;Kanste, O. and Syrjälä, H.

Publication Date: 2022

Journal: The Journal of Hospital Infection 127, pp. 83-90

Abstract: Background: The improvement of hand hygiene compliance (HHC) is vital for preventing healthcare-associated infections (HAIs).; Aim: To determine whether observation and feedback influences HHC among nurses and doctors in surgical and medical wards, and whether these actions impact HAI incidence.; Methods: In this longitudinal observational study, HHC and the incidence of HAIs were observed in six medical and seven surgical wards in a tertiary hospital in Finland from May 2013 to December 2020. Data of the observations of five hand hygiene (HH) moments were collected from the hospital HH and the HAI monitoring registries. For statistical analyses a multivariable logistic regression analysis and a Poisson regression model were used.; Findings: HH monitoring included 24,614 observations among nurses and 6396 observations among doctors. In medical wards, HHC rates increased 10.8%, from 86.2% to 95.5%, and HAI incidence decreased from 15.9 to 13.5 per 1000 patient-days ($P < 0.0001$). In surgical wards, HHC increased 32.7%, from 67.6% to 89.7%, and HAI incidence decreased from 13.7 to 12.0 per 1000 patient-days ($P < 0.0001$). The overall HHC increased significantly among nurses (17.8%) and doctors (65.8%). The HHC was better among nurses than doctors (in medical wards, OR: 3.36; 95% CI: 2.90-3.90; $P < 0.001$; and in surgical wards, OR: 9.85; 95% CI: 8.97-10.8; $P < 0.001$).; Conclusion: Direct observations and feedback of HH increased HHC significantly among nurses and doctors over an eight-year period. During the same period, the incidence of HAIs significantly decreased in both

medical and surgical wards. (Copyright © 2022 The Authors. Published by Elsevier Ltd.. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.jhin.2022.06.007

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35724953&custid=ns023446

31. Infection control in the community: recap on policy and procedure

Item Type: Journal Article

Authors: Palmer, Sarah Jane

Publication Date: 2022

Journal: British Journal of Community Nursing 27(12), pp. 582-584

Abstract: Infection control has long been the focus of the attention of anyone working in healthcare, due to the risks posed to patients and staff if appropriate infection control procedures are not followed properly. This article explores a recap of important infection control measures and also outlines the Government's policy for tackling antimicrobial resistance, and its link to infection control procedures. The article covers the key points of the recent publication from NHS England on the topic of infection control.

Access or request full text: https://libkey.io/10.12968/bjcn.2022.27.12.582

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=160777587&custid=ns023446

32. Assessment of Bacterial Isolates from the Urine Specimens of Urinary Tract Infected Patient

Item Type: Journal Article

Authors: Prasada Rao, Chennu,M.M.;Vennila, T.;Kosanam, Sreya;Ponsudha, P.;Suriyakrishnaan, K.;Alarfaj, Abdullah A.;Hirad, Abdurahman Hajinur;Sundaram, S. R.;Surendhar, P. A. and Selvam, Nagarajan

Publication Date: 2022

Journal: BioMed Research International 2022, pp. 4088187

Abstract: Urinary tract infections (UTIs) maintained a serious public health concern, as did the growth in antibiotic resistance both between uropathogenic microorganisms. A regular assessment of the microbiological agents that cause UTIs, as well as their antimicrobial resistance, is essential for a tailored empirical antibiotic response. Knowing the variables that cause UTIs can help you intervene quickly and simply to get the condition under control. The most common infecting species in acute infection is Escherichia coli (E. coli). To strengthen infection control strategies, it is necessary to know the prevalence and location of UTI. The goal of this research is to measure the frequency of microorganisms isolated from patients with UTIs as well as the antimicrobial sensitivity characteristics of Gram-negative bacteria. The purpose of this research has been to evaluate the frequency of UTIs by extracting and characterizing the various bacterial etiological organisms, as well as to assess the factors linked to UTIs. The goal of this research is to identify, characterize, and establish the antibiotic susceptibility patterns of bacteria linked to urinary tract infections. Fresh collected urine specimen

was taken from inpatients or outpatients in UTI cases and bacteriologically tested using conventional microbiological methods. The Kirby-Bauer disc diffusion method was used to create the antibiogram. Staphylococcus saprophyticus, Staphylococcus aureus (28%), and Escherichia coli (24.6%) were the most common isolates (20%). The evaluated agents' antibacterial activity was all in the following order: cefixime, ciprofloxacin, augmentin, gentamicin, ceftazidime, nitrofurantoin, ofloxacin, and cefuroxime. It was discovered that each and every one of the microbes exhibited varied degrees of resistance to the antibiotics nitrofurantoin, ciprofloxacin, and ofloxacin. Every type of bacteria, with the exception of those belonging to the genus Streptococcus, has a Multiple Antibiotic Resistance Index (MARI) that is more than 0.2. The first-line therapies for urinary tract infections (UTIs) in the region would consist of ciprofloxacin, ofloxacin, and nitrofurantoin. Lower urinary tract infections almost never result in problems if they are diagnosed and treated as soon as possible and in the correct manner. However, if treatment is not sought, a urinary tract infection can lead to serious complications.; Competing Interests: The authors declare that there are no conflicts of interest regarding the publication of this paper.

Access or request full text: https://libkey.io/10.1155/2022/4088187

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35937407&custid=ns023446

33. History of Hand Hygiene Increases Undergraduate Nursing Students' Positive Attitude Toward Hand Hygiene Practice

Item Type: Journal Article

Authors: Radika, Amalia Rizki;Sumarwati, Made and Pratama, Koernia Nanda

Publication Date: Jul ,2022

Journal: International Journal of Nursing Education 14(3), pp. 22-28

Abstract: Various media on hand hygiene topics have been developed to make it easier for students to master the procedure, but positive attitudes toward applying these skills have not significantly developed. The study aimed to determine the effect of hand hygiene history on undergraduate nursing students' attitudes to hand hygiene. A quasi-experiment using a pre- and post-test with a control group design was conducted. Fifty-four students were invited and randomly assigned to an intervention group and a control group. The intervention group obtained the hand hygiene history through a booklet, while the control group got no treatment. The data were collected using a questionnaire. The paired and unpaired t-test was applied to analyze the data. The results showed that the average score of students' attitudes in the intervention group increased from 58.44±5.98 to 65.52±5.29 ($p<0.001$), while in the control group, it only increased from 60.41 ± 4.12 to 60.78 ± 5.06 ($p=0.769$). There was a significant difference in the attitude value between the two groups ($p = 0.021$). In conclusion, hand hygiene history improved students' attitudes toward hand hygiene significantly. This study recommends complementing hand hygiene learning with its history so that students are skilled and have the expected attitude to apply it.

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=158328501&custid=ns023446

34. Large-Scale Evaluation of a Rapid Fully Automated Analysis Platform to Detect and Refute Outbreaks Based on MRSA Genome Comparisons

Item Type: Journal Article

Authors: Raven, Kathy E.;Bragin, Eugene;Blane, Beth;Leek, Danielle;Kumar, Narender;Rhodes, Paul A.;Enoch, David A.;Thaxter, Rachel;Brown, Nicholas M.;Parkhill, Julian and Peacock, Sharon J.

Publication Date: 2022

Journal: MSphere 7(6), pp. e0028322

Abstract: Genomic epidemiology of methicillin-resistant Staphylococcus aureus (MRSA) could transform outbreak investigations, but its clinical introduction is hampered by the lack of automated data analysis tools to rapidly and accurately define transmission based on sequence relatedness. We aimed to evaluate a fully automated bioinformatics system for MRSA genome analysis versus a bespoke researcher-led manual informatics pipeline. We analyzed 781 MRSA genomes from 777 consecutive patients identified over a 9-month period in a clinical microbiology laboratory in the United Kingdom. Outputs were bacterial species identification, detection of mec genes, assignment to sequence types (STs), identification of pairwise relatedness using a definition of ≤25 single nucleotide polymorphisms (SNPs) apart, and use of genetic relatedness to identify clusters. There was full concordance between the two analysis methods for species identification, detection of mec genes, and ST assignment. A total of 3,311 isolate pairs ≤25 SNPs apart were identified by at least one method. These had a median (range) SNP difference between the two methods of 1.2 SNPs (0 to 22 SNPs), with most isolate pairs (87%) varying by ≤2 SNPs. This similarity increased when the research pipeline was modified to use a clonal-complex-specific reference (median 0 SNP difference, 91% varying by ≤2 SNPs). Both pipelines clustered 338 isolates/334 patients into 66 unique clusters based on genetic relatedness. We conclude that the automated transmission detection tool worked at least as well as a researcher-led manual analysis and indicates how such tools could support the rapid use of MRSA genomic epidemiology in infection control practice. IMPORTANCE It has been clearly established that genome sequencing of MRSA improves the accuracy of health care-associated outbreak investigations, including the confirmation and exclusion of outbreaks and identification of patients involved. This could lead to more targeted infection control actions but its use in clinical practice is prevented by several barriers, one of which is the availability of genome analysis tools that do not depend on specialist knowledge to analyze or interpret the results. We evaluated a prototype of a fully automated bioinformatics system for MRSA genome analysis versus a bespoke researcher-led manual informatics pipeline, using genomes from 777 patients over a period of 9 months. The performance was at least equivalent to the researcher-led manual genomic analysis. This indicates the feasibility of automated analysis and represents one more step toward the routine use of pathogen sequencing in infection prevention and control practice.

Access or request full text: https://libkey.io/10.1128/msphere.00283-22

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36286527&custid=ns023446

35. Computing antimicrobial use/antimicrobial resistance ratios: A novel way to assess inpatient antimicrobial utilization using current National Healthcare Safety Network metrics

Item Type: Journal Article

Authors: Santos, Carlos A. Q.;Martinez, Ashley I.;Won, Sarah Y.;Varughese, Christy A.;Tseng, Marion;Zhang, Huiyuan and Trick, William E.

Publication Date: 2022

Journal: Transplant Infectious Disease : An Official Journal of the Transplantation Society 24(5), pp. e13924

Abstract: Background: Current methods for benchmarking inpatient antimicrobial use (AU) could benefit from combining AU with antimicrobial resistance (AR) information to provide metrics benchmarked to microbiological data; this may yield more instructive and better risk-adjusted measurements than AU and AR in isolation.; Methods: In this retrospective single-center study, we computed facility-wide AU/AR ratios from 2019 to 2020 for specific antimicrobial agents and corresponding AR events, and compared median monthly AU/AR ratios between March 2019 through December 2019 (pre-COVID period) and March 2020 through December 2020 (COVID period). Aggregate AU was expressed as a ratio to aggregate AR events for antimicrobials that typically have activity against the AR organism and are frequently used to treat the AR organism in clinical practice. We also computed AU/AR ratios in our surgical intensive care unit in the pre-COVID period.; Results: High-median facility-wide monthly AU/AR ratios were observed for intravenous vancomycin/methicillin-resistant Staphylococcus aureus, with 130.0 in the pre-COVID period and 121.3 in the COVID period (p =.520). Decreases in facility-wide median monthly AU/AR ratios were observed between periods for meropenem/ESBL Enterobacterales (20.9 vs. 7.9, p < .001), linezolid/vancomycin-resistant Enterococcus (48.5 vs. 15.8, p =.004), and daptomycin/vancomycin-resistant Enterococcus (32.2 vs. 4.8, p = .002). Increases in facility-wide median monthly AU/AR ratios were observed between periods for ceftazidime-avibactam/carbapenem-resistant Enterobacterales (0.0 vs. 3.2, p = .020) and ceftazidime-avibactam/multidrug-resistant Pseudomonas aeruginosa (0.0 vs. 4.0, p = .017). The AU/AR ratio for intravenous vancomycin/methicillin-resistant S. aureus in the surgical intensive care unit was 191.5 in the pre-COVID period.; Conclusions: AU/AR ratios may be used to supplement current AU and AR metrics. Future directions should include the development of more AU metrics benchmarked to microbiological information. AU metrics more specific to transplant infectious diseases should be developed. (© 2022 Wiley Periodicals LLC.)

Access or request full text: https://libkey.io/10.1111/tid.13924

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36254516&custid=ns023446

36. Measuring Basic Reproduction Number to Assess Effects of Nonpharmaceutical Interventions on Nosocomial SARS-CoV-2 Transmission

Item Type: Journal Article

Authors: Shirreff, George;Zahar, Jean-Ralph;Cauchemez, Simon;Temime, Laura and Opatowski, Lulla

Publication Date: 2022

Journal: Emerging Infectious Diseases 28(7), pp. 1345-1354

Abstract: Outbreaks of SARS-CoV-2 infection frequently occur in hospitals. Preventing nosocomial infection requires insight into hospital transmission. However, estimates of the basic reproduction number (R 0) in care facilities are lacking. Analyzing a closely monitored SARS-CoV-2 outbreak in a hospital in early 2020, we estimated the patient-to-patient transmission rate and R 0 . We developed a model for SARS-CoV-2 nosocomial transmission that accounts for stochastic effects and undetected infections and fit it to patient test results. The model formalizes changes in testing capacity over time, and accounts for evolving PCR sensitivity at different stages of infection. R 0 estimates varied considerably across wards, ranging from 3 to 15 in different wards. During the outbreak, the hospital introduced a contact precautions policy. Our results strongly support a reduction in the hospital-level R 0 after this policy was implemented, from 8.7 to 1.3, corresponding to a policy efficacy of 85% and demonstrating the effectiveness of nonpharmaceutical interventions.

Access or request full text: https://libkey.io/10.3201/eid2807.212339

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35580960&custid=ns023446

37. Clostridioides difficile infection (CDI) in a previous room occupant predicts CDI in subsequent room occupants across different hospital settings

Item Type: Journal Article

Authors: Sood, Geeta;Truelove, Shaun;Dougherty, Geoff;Landrum, B. M.;Qasba, Sonia;Patel, Mayank;Miller, Amanda;Wilson, Christina;Martin, John;Sears, Cindy;Schuster, Alyson;Sulkowski, Mark;Bennett, Richard and Galai, Noya

Publication Date: 2022

Journal: American Journal of Infection Control 50(12), pp. 1352-1354

Abstract: Background: Previous single-center studies suggest that exposure to a room previously occupied by a patient with CDI may increase the risk of CDI in subsequent patients. We evaluated the risk of previous room occupant on CDI risk across 5 adult hospitals.; Methods: This is a non-concurrent cohort study of adult inpatients admitted to 5 hospitals. Exposed rooms were identified as being occupied by a patient diagnosed with CDI and a logistic regression was performed to assess if staying in an exposed room increases the risk of CDI in subsequent patients.; Results: Patients admitted to a room that was previously occupied by a patient with CDI had a 27% increased odds of subsequently being diagnosed with CDI (odds ratio (OR)=1.269; 95% confidence interval (CI)= 1.12-1.44) if exposed within the last 90 days and 40% increased odds (OR=1.401; 95% CI= 1.25-1.57) if exposed in the last 365 days after controlling for previous admissions and length of stay. Cumulative patient-day exposure to previously CDI-positive occupied rooms within both 90 and 365 days were also found to be independently significant, with a 4.5% (OR 1.045; 95% CI = 1.03-1.06) and 4.2% (OR 1.042; 95% CI = 1.03-1.06) increase in odds of CDI with each day of exposure respectively.; Discussion/conclusions: This study adds further evidence that hospital environment in patient rooms may contribute to risk for CDI.

Access or request full text: https://libkey.io/10.1016/j.ajic.2022.02.006

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35217092&custid=ns023446

38. Effectiveness of rapid SARS-CoV-2 genome sequencing in supporting infection control for hospital-onset COVID-19 infection: Multicentre, prospective study

Item Type: Journal Article

Authors: Stirrup, Oliver;Blackstone, James;Mapp, Fiona;MacNeil, Alyson;Panca, Monica;Holmes, Alison;Machin, Nicholas;Shin, Gee Yen;Mahungu, Tabitha;Saeed, Kordo;Saluja, Tranprit;Taha, Yusri;Mahida, Nikunj;Pope, Cassie;Chawla, Anu;Cutino-Moguel, Maria;Tamuri, Asif;Williams, Rachel;Darby, Alistair;Robertson, David L., et al

Publication Date: 2022

Journal: ELife 11
Abstract: Background: Viral sequencing of SARS-CoV-2 has been used for outbreak investigation, but there is limited evidence supporting routine use for infection prevention and control (IPC) within hospital settings.; Methods: We conducted a prospective non-randomised trial of sequencing at 14 acute UK hospital trusts. Sites each had a 4-week baseline data collection period, followed by intervention periods comprising 8 weeks of 'rapid' (<48 hr) and 4 weeks of 'longer-turnaround' (5-10 days) sequencing using a sequence reporting tool (SRT). Data were collected on all hospital-onset COVID-19 infections (HOCIs; detected ≥48 hr from admission). The impact of the sequencing intervention on IPC knowledge and actions, and on the incidence of probable/definite hospital-acquired infections (HAIs), was evaluated.; Results: A total of 2170 HOCI cases were recorded from October 2020 to April 2021, corresponding to a period of extreme strain on the health service, with sequence reports returned for 650/1320 (49.2%) during intervention phases. We did not detect a statistically significant change in weekly incidence of HAIs in longer-turnaround (incidence rate ratio 1.60, 95% CI 0.85-3.01; p = 0.14) or rapid (0.85, 0.48-1.50; p = 0.54) intervention phases compared to baseline phase. However, IPC practice was changed in 7.8 and 7.4% of all HOCI cases in rapid and longer-turnaround phases, respectively, and 17.2 and 11.6% of cases where the report was returned. In a 'per-protocol' sensitivity analysis, there was an impact on IPC actions in 20.7% of HOCI cases when the SRT report was returned within 5 days. Capacity to respond effectively to insights from sequencing was breached in most sites by the volume of cases and limited resources.; Conclusions: While we did not demonstrate a direct impact of sequencing on the incidence of nosocomial transmission, our results suggest that sequencing can inform IPC response to HOCIs, particularly when returned within 5 days.; Funding: COG-UK is supported by funding from the Medical Research Council (MRC) part of UK Research & Innovation (UKRI), the National Institute of Health Research (NIHR) (grant code: MC_PC_19027), and Genome Research Limited, operating as the Wellcome Sanger Institute.; Clinical Trial Number: NCT04405934.; Competing Interests: OS, JB, FM, AM, MP, AH, NM, TM, KS, TS, YT, NM, CP, AC, AT, RW, AD, DR, FF, SR, ML, KL, IM, BK, SH, RG, MB, AW, MB, MC, JH, GN, DP, MP, JP, CP, SR, LS, Td, ET, AC, JB No competing interests declared, GS has an unpaid role as Deputy Chair, British Medical Association London Regional Council. The author has no other competing interests to declare, MC received payment for anonymous interview conducted by Adkins Research Group. The author has no other competing interests to declare, EN holds grants by NIHR, EPSRC, MRC-UKRI , H2020, ViiV Healthcare, Pfizer and Amfar, and has received grants to attend meetings from H2020 and ViiV Healthcare, DS holds the following grants that are not specifically for the present work: COG-UK, PHE test and trace funded the sequencing aspect. HOCI funded a technician to support sequencing during study period. The author has no other competing interests to declare, FC received consulting fees from Next Gen Diagnostics LLC (during 2018/2019), received payment or honoria for lectures from University of Cambridge and Wellcome Genome Campus Advanced Courses, and received support for attending meeting and/or travel to meetings from European Congress of Clinical Microbiology & Infectious Diseases (ECCMID), The American Society for Microbiology (ASM), Microbiology Society, European Congress of Clinical Microbiology & Infectious Diseases (ECCMID), and the British Infection Association (BIA). The author has no other competing interests to declare, SP received consultancy fees from Pfizer (Coronavirus External Advisory Board) and Melinta Therapeutics, received payment from SVB Leerink for a round table meeting and for Mary Strauss Distinguished Public Lecture from the Fralin Biomedical Research Institute, US, and support for attending ICPIC conference, Geneva and World Health Summit, Berlin in 2021, and hold stocks or stock options in Specific Technologies (European Union Scientific Advisory Board) and Next Gen Diagnostics (Scientific Advisory Board). SP also serves as Chair, Medical Advisory Committee, Sir Jules Thorn Charitable Trust, Board member of the Wellcome SEDRIC (Surveillance and Epidemiology of Drug Resistant Consortium), and Non-Executive Director of Cambridge University Hospitals NHS Foundation Trust. The author has no other competing interests to declare, PF is a member of the SAGE hospital onset covid working group 2020-2022. The author has no other competing interests to declare (© 2022, Stirrup et al.)

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39. Real-world effectiveness of pneumococcal vaccination in older adults: Cohort study using the UK Clinical Practice Research Datalink

Item Type: Journal Article

Authors: Streeter, Adam J.;Rodgers, Lauren R.;Masoli, Jane;Lin, Nan X.;Blé, Alessandro;Hamilton, Willie and Henley, William E.

Publication Date: 2022

Journal: PloS One 17(10), pp. e0275642

Abstract: Background: The 23-valent pneumococcal polysaccharide vaccine (PPV23) is recommended for UK older adults, but how age moderates effectiveness is unclear.; Methods: Three annual cohorts of primary-care patients aged≥65y from the Clinical Practice Research Datalink selected from 2003-5 created a natural experiment (n = 324,804), reflecting the staged introduction of the vaccine. The outcome was symptoms consistent with community-acquired pneumococcal pneumonia (CAP) requiring antibiotics or hospitalisation. We used the prior event rate ratio (PERR) approach to address bias from unmeasured confounders.; Results: Vaccinated patients had higher rates of CAP in the year before vaccination than their controls, indicating the potential for confounding bias. After adjustment for confounding using the prior event rate ratio (PERR) method, PPV23 was estimated to be effective against CAP for two years after vaccination in all age sub-groups with hazard ratios (95% confidence intervals) of 0.86 (0.80 to 0.93), 0.74 (0.65 to 0.85) and 0.65 (0.57 to 0.74) in patients aged 65-74, 75-79 and 80+ respectively in the 2005 cohort. Age moderated the effect of vaccination with predicted risk reductions of 8% at 65y and 29% at 80y.; Conclusions: PPV23 is moderately effective at reducing CAP among UK patients aged≥65y, in the two years after vaccination. Vaccine effectiveness is maintained, and may increase, in the oldest age groups in step with increasing susceptibility to CAP.; Competing Interests: Further to the competing interests section, Alessandro Blé has since joined Glaxo-Smith Kline and so “Alessandro Blé is currently an employee of Glaxo-Smith Kline (GSK) and declares that GSK had neither a role nor influence in the study design, data collection, preparation of the manuscript or decision to publish. The authors have no other potentially competing interests to declare. There are no patents, products in development or marketed products associated with this research to declare. This does not alter our adherence to PLOS ONE policies on sharing data and materials.

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URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36227889&custid=ns023446

40. Hospital-treated infections in early- and mid-life and risk of Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis: A nationwide nested case-control study in Sweden

Item Type: Journal Article

Authors: Sun, Jiangwei;Ludvigsson, Jonas F.;Ingre, Caroline;Piehl, Fredrik;Wirdefeldt, Karin;Zagai, Ulrika;Ye, Weimin and Fang, Fang

Publication Date: 2022

Journal: PLoS Medicine 19(9), pp. e1004092

Abstract: Background: Experimental observations have suggested a role of infection in the etiology of

neurodegenerative disease. In human studies, however, it is difficult to disentangle whether infection is a risk factor or rather a comorbidity or secondary event of neurodegenerative disease. To this end, we examined the risk of 3 most common neurodegenerative diseases in relation to previous inpatient or outpatient episodes of hospital-treated infections.; Methods and Findings: We performed a nested case-control study based on several national registers in Sweden. Cases were individuals newly diagnosed with Alzheimer's disease (AD), Parkinson's disease (PD), or amyotrophic lateral sclerosis (ALS) during 1970 to 2016 in Sweden, identified from the National Patient Register. For each case, 5 controls individually matched to the case on sex and year of birth were randomly selected from the general population. Conditional logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) with adjustment for potential confounders, including sex, year of birth, area of residence, educational attainment, family history of neurodegenerative disease, and Charlson comorbidity index. Infections experienced within 5 years before diagnosis of neurodegenerative disease were excluded to reduce the influence of surveillance bias and reverse causation. The analysis included 291,941 AD cases (median age at diagnosis: 76.2 years; male: 46.6%), 103,919 PD cases (74.3; 55.1%), and 10,161 ALS cases (69.3; 56.8%). A hospital-treated infection 5 or more years earlier was associated with an increased risk of AD (OR = 1.16, 95% CI: 1.15 to 1.18, P < 0.001) and PD (OR = 1.04, 95% CI: 1.02 to 1.06, P < 0.001). Similar results were observed for bacterial, viral, and other infections and among different sites of infection including gastrointestinal and genitourinary infections. Multiple infections before age 40 conveyed the greatest risk of AD (OR = 2.62, 95% CI: 2.52 to 2.72, P < 0.001) and PD (OR = 1.41, 95% CI: 1.29 to 1.53, P < 0.001). The associations were primarily due to AD and PD diagnosed before 60 years (OR = 1.93, 95% CI: 1.89 to 1.98 for AD, P < 0.001; OR = 1.29, 95% CI: 1.22 to 1.36 for PD, P < 0.001), whereas no association was found for those diagnosed at 60 years or older (OR = 1.00, 95% CI: 0.98 to 1.01 for AD, P = 0.508; OR = 1.01, 95% CI: 0.99 to 1.03 for PD, P = 0.382). No association was observed for ALS (OR = 0.97, 95% CI: 0.92 to 1.03, P = 0.384), regardless of age at diagnosis. Excluding infections experienced within 10 years before diagnosis of neurodegenerative disease confirmed these findings. Study limitations include the potential misclassification of hospital-treated infections and neurodegenerative diseases due to incomplete coverage of the National Patient Register, as well as the residual confounding from unmeasured risk or protective factors for neurodegenerative diseases.; Conclusions: Hospital-treated infections, especially in early- and mid-life, were associated with an increased risk of AD and PD, primarily among AD and PD cases diagnosed before 60 years. These findings suggest that infectious events may be a trigger or amplifier of a preexisting disease process, leading to clinical onset of neurodegenerative disease at a relatively early age. However, due to the observational nature of the study, these results do not formally prove a causal link.; Competing Interests: I have read the journal's policy and the authors of this manuscript have the following competing interests: JL coordinates a study (independent of the present study) on behalf of the Swedish IBD quality register (SWIBREG). That study has received funding from Janssen Corporation. Other authors declared no competing interests.

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41. Effectiveness of Infection Control Teams in Reducing Healthcare-Associated Infections: A Systematic Review and Meta-Analysis

Item Type: Journal Article

Authors: Thandar, Moe Moe;Rahman, Md Obaidur;Haruyama, Rei;Matsuoka, Sadatoshi;Okawa, Sumiyo;Moriyama, Jun;Yokobori, Yuta;Matsubara, Chieko;Nagai, Mari;Ota, Erika and Baba, Toshiaki

Publication Date: 2022

Journal: International Journal of Environmental Research and Public Health 19(24)

Abstract: The infection control team (ICT) ensures the implementation of infection control guidelines in healthcare facilities. This systematic review aims to evaluate the effectiveness of ICT, with or without an infection control link nurse (ICLN) system, in reducing healthcare-associated infections (HCAIs). We searched four databases to identify randomised controlled trials (RCTs) in inpatient, outpatient and long-term care facilities. We judged the quality of the studies, conducted meta-analyses whenever interventions and outcome measures were comparable in at least two studies, and assessed the certainty of evidence. Nine RCTs were included; all were rated as being low quality. Overall, ICT, with or without an ICLN system, did not reduce the incidence rate of HCAIs risk ratio (RR) = 0.65, 95% confidence interval (CI): 0.45-1.07], death due to HCAIs (RR = 0.32, 95% CI: 0.04-2.69) and length of hospital stay (42 days vs. 45 days, p = 0.52). However, ICT with an ICLN system improved nurses' compliance with infection control practices (RR = 1.17, 95% CI: 1.00-1.38). Due to the high level of bias, inconsistency and imprecision, these findings should be considered with caution. High-quality studies using similar outcome measures are needed to demonstrate the effectiveness and cost-effectiveness of ICT.

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URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=36554953&custid=ns023446

42. Insertion sequences and other mobile elements associated with antibiotic resistance genes in Enterococcus isolates from an inpatient with prolonged bacteraemia

Item Type: Journal Article

Authors: Udaondo, Zulema;Abram, Kaleb Z.;Kothari, Atul and Jun, Se-Ran

Publication Date: 2022

Journal: Microbial Genomics 8(8)

Abstract: Insertion sequences (ISs) and other transposable elements are associated with the mobilization of antibiotic resistance determinants and the modulation of pathogenic characteristics. In this work, we aimed to investigate the association between ISs and antibiotic resistance genes, and their role in the dissemination and modification of the antibiotic-resistant phenotype. To that end, we leveraged fully resolved Enterococcus faecium and Enterococcus faecalis genomes of isolates collected over 5 days from an inpatient with prolonged bacteraemia. Isolates from both species harboured similar IS family content but showed significant species-dependent differences in copy number and arrangements of ISs throughout their replicons. Here, we describe two inter-specific IS-mediated recombination events and IS-mediated excision events in plasmids of E. faecium isolates. We also characterize a novel arrangement of the ISs in a Tn1546-like transposon in E. faecalis isolates likely implicated in a vancomycin genotype-phenotype discrepancy. Furthermore, an extended analysis revealed a novel association between daptomycin resistance mutations in liaSR genes and a putative composite transposon in E. faecium , offering a new paradigm for the study of daptomycin resistance and novel insights into its dissemination. In conclusion, our study highlights the role ISs and other transposable elements play in the rapid adaptation and response to clinically relevant stresses such as aggressive antibiotic treatment in enterococci.

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URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=35921144&custid=ns023446

43. Digital Wristband Provides a Fuller Picture of Hand Hygiene Adherence in an Intensive Care Unit

Item Type: Journal Article

Authors: WARD, ALEXANDRA

Publication Date: Jul ,2022

Journal: Infection Control Today 26(6), pp. 28

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=158261480&custid=ns023446

44. Effect of a real-time automatic nosocomial infection surveillance system on hospital-acquired infection prevention and control

Item Type: Journal Article

Authors: Wen, Ruiling;Li, Xinying;Liu, Tingting and Lin, Guihong

Publication Date: 2022

Journal: BMC Infectious Diseases 22(1), pp. 857

Abstract: Background: The systematic collection of valid data related to hospital-acquired infections (HAIs) is considered effective for nosocomial infection prevention and control programs. New strategies to reduce HAIs have recently fueled the adoption of real-time automatic nosocomial infection surveillance systems (RT-NISSs). Although RT-NISSs have been implemented in some hospitals for several years, the effect of RT-NISS on HAI prevention and control needs to be further explored.; Methods: A retrospective, descriptive analysis of inpatients from January 2017 to December 2019 was performed. We collected hospital-acquired infection (HAI) cases and multidrug resistant organism (MDRO) infection cases by traditional surveillance in period 1 (from January 2017 to December 2017), and these cases were collected in period 2 (from January 2018 to December 2018) and period 3 (from January 2019 to December 2019) using a real-time nosocomial infection surveillance system (RT-NISS). The accuracy of MDRO infection surveillance results over the 3 periods was examined. The trends of antibiotic utilization rates and pathogen culture rates in periods 2 and 3 were also analysed.; Results: A total of 114,647 inpatients, including 2242 HAI cases, were analysed. The incidence of HAIs in period 2 was significantly greater than that in period 1 (2.28% vs. 1.48%, $\chi 2 = 61.963$, $p < 0.001$) and period 3 (2.28% vs. 2.05%, $\chi 2 = 4.767$, $p = 0.029$). The incidence of five HAI sites, including respiratory infection, urinary tract infection (UTI), surgical site infection (SSI), bloodstream infection (BSI) and skin and soft tissue infection, was significantly greater in period 2 compared with period 1 (both $p < 0.05$) but was not significantly different from that in period 3. The incidence of hospital-acquired MDRO infections in period 3 was lower than that in period 2. The identification of MDRO infection cases using the RT-NISS achieved a high level of sensitivity (Se), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV), especially in period 3 (Se = 100%, Sp = 100%, PPV = 100% and NPV = 100%).; Conclusion: The adoption of a RT-NISS to adequately and accurately collect HAI cases is useful to prevent and control HAIs. Furthermore, RT-NISSs improve accuracy in MDRO infection case reporting, which can timely and accurately guide and supervise clinicians in implementing MDRO infection prevention and control measures. (© 2022. The Author(s).)

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