Infection Control Update

November 2025

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

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Please contact Holly if you would like more information, or further evidence searches: holly.cook3@nhs.net.

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Changes to NICE Guidance (past 6 months)

Pneumonia: diagnosis and management
NICE guideline: Reference number:NG250
Published: 02 September 2025
https://www.nice.org.uk/guidance/ng250

Suspected sepsis: recognition, diagnosis and early management
Reference number:GID-NG10412
Expected publication date: 19 November 2025
https://www.nice.org.uk/guidance/indevelopment/gid-ng10412

Letermovir for preventing cytomegalovirus infection after a kidney transplant (terminated appraisal)
Technology appraisal
Reference number:TA1082
Published: 23 July 2025
https://www.nice.org.uk/guidance/ta1082

Cabotegravir for preventing HIV-1 in adults and young people [ID6255]
In development
Reference number:GID-TA11304
Expected publication date: 05 November 2025
https://www.nice.org.uk/guidance/indevelopment/gid-ta11304

Lenacapavir for preventing HIV-1 in people aged 16 years or older [ID6495]
In development
Reference number:GID-TA11638
Expected publication date: 11 March 2026
https://www.nice.org.uk/guidance/indevelopment/gid-ta11638

A selection of papers from Medline and CINHAL (< 6 months – most recent first)

1. Pneumococcal vaccination for new residents entering older adult care homes in England: national observational surveillance study

Item Type: Journal Article

Authors: Abdullahi, Fariyo;Patel, Tara;Stoker, Kelly;Carey, Catherine;Andrews, Nick;Ramsay, Mary;Cassell, Jackie and Ladhani, Shamez N.

Abstract: Background: The incidence of invasive pneumococcal disease (IPD) increases rapidly with age. In the UK, adults aged 65 years are eligible for the 23-valent pneumococcal polysaccharide vaccine (PPV23) as part of the national immunisation programme, and a 20-valent pneumococcal conjugate vaccine (PCV20) was recently licensed for adults. Residents of care homes for older adults have a higher risk of IPD and death than the general population. We estimated the potential effect of an additional dose of PPV23 or PCV20 for new residents entering older adult care homes.; **Methods:** In this observational surveillance study, we used national IPD surveillance and care home resident data from England. Care homes for older adults were defined as residential care and nursing homes registered with the Care Quality Commission for adults aged 65 years and older. IPD in adults aged 65 years and older in England was assessed in the 2022-23 epidemiological year (July 1, 2022, to June 30, 2023) by sex and 5-year age bands using data obtained from UK Health Security Agency national IPD surveillance. We calculated the number needed to vaccinate (NNV) with PPV23 or PCV20 in the population of new care home residents to prevent one vaccine-type IPD case and one death compared with adults aged 65 years who were vaccinated as part of the national immunisation programme in England.; **Findings:** In 2022-23, there were 2574 IPD cases among 10 629 867 people aged 65 years and older in England. Of these, 603 109 were aged 65 years. Of the 2574 cases, 69·4% (1787 of 2574) were due to PPV23 serotypes and 60·8% (1566 of 2574) were due to PCV20 serotypes. Under the assumption of 36% vaccine effectiveness against PPV23-type IPD and 18% vaccine effectiveness against death, PPV23, when offered to all 603 109 adults aged 65 years in the general population, could prevent 163 (36%) of 452 cases (NNV 3700) and 31 (47%) of 66 PPV23-type IPD associated deaths over 5 years (NNV 19 455). However, vaccinating 121 587 new care home residents with PPV23 could prevent 177 (36%) of 492 lifetime cases (NNV 687) and 111 (48%) of 233 deaths (NNV 1095). In all adults aged 65 years in the general population, PCV20 could prevent 303 (75%) of 404 cases (NNV 1990) and 43 (80%) of 54 PCV20-type IPD deaths (NNV 14 026), assuming 75% vaccine effectiveness against PCV20-type IPD and 18% against death. However, vaccinating 121 587 new care home residents with PCV20 could prevent 317 (75%) of 422 cases (NNV 384) and 157 (80%) of 197 deaths (NNV 774).; **Interpretation:** Pneumococcal vaccination for new care home residents could prevent substantially more cases and deaths per dose and would require only 20% more doses than the current national PPV23 programme for adults aged 65 years. PCV20 is likely to have a greater impact against IPD and death than PPV23.; Funding: None. (Crown Copyright © 2025. Published by Elsevier Ltd. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.lanhl.2025.100726

2. Hospital-onset bacteraemia and fungaemia as a novel automated surveillance indicator: results from four European university hospitals, 2018 to 2022

Item Type: Journal Article

Authors: Aghdassi, S. J.;van der Werff, S. D.;Catho, G.;Brekelmans, M.;Peña Diaz, L. A.;Buetti, N.;Rüther, F. D.;Teixeira, D.;Sjöholm, D.;Nauclér, P.;Behnke, M. and van Mourik, M. S.

Publication Date: 2025

Journal: Euro Surveillance : Bulletin Europeen Sur Les Maladies Transmissibles = European Communicable Disease Bulletin 30(24)

Abstract: BACKGROUND Conventional manual surveillance of healthcare-associated infections is labour-intensive and therefore often restricted to areas with high-risk patients. Fully automated surveillance of hospital-onset bacteraemia and fungaemia (HOB) may facilitate hospital-wide surveillance.AIM To develop an algorithm and minimal dataset (MDS) required for automated surveillance of HOB and apply it to real-life routine data in four European hospitalsMETHODS Through consensus discussion, a HOB definition with MDS suitable for automated surveillance was developed and applied in a retrospective multicentre observational study including all adult patients admitted to hospitals in the Netherlands, Germany, Sweden and Switzerland (2018-22). Annual HOB rates were calculated per 1,000 patient days for hospital, intensive care unit (ICU) and non-ICU settings.RESULTS HOB was defined as a positive blood culture with a recognised pathogen 2 or more days after hospital admission. For common commensals, two blood cultures with the same commensal within 2 days were required. HOB rates were comparable between the four hospitals (1.0-2.2/1,000 patient days). HOB rates were substantially higher in ICU than non-ICU settings, and HOB with common commensals accounted for 14.8-28.2% of all HOB. HOB rates per 1,000 patient days were consistent over time, but higher in 2020-21. HOB caused by Staphylococcus aureus comprised 8.4-16.0% of all HOB. CONCLUSION Automated HOB surveillance using a common definition was feasible and reproducible across four European hospitals. Future studies should investigate clinical relevance and preventability of HOB, and focus on strategies to make the automated HOB metric an actionable infection control tool.

Access or request full text: https://libkey.io/10.2807/1560-7917.ES.2025.30.24.2400613

3. Harnessing artificial intelligence for infection control and prevention in hospitals: A comprehensive review of current applications, challenges, and future directions

Item Type: Journal Article

Authors: Alhusain, F. A.

Publication Date: 2025

Journal: Saudi Medical Journal 46(4), pp. 329–334

Abstract: Hospital-acquired infections (HAIs) significantly burden global healthcare systems, exacerbated by antibiotic-resistant bacteria. Traditional infection control measures often lack consistency due to variable human compliance. This comprehensive review aims to explore the role of artificial intelligence (AI) in enhancing infection control and prevention in hospitals. A systematic literature search was conducted using databases such as PubMed, Scopus, and Web of Science up to October 2024, focusing on studies applying AI to infection control. The review synthesizes current applications of AI, including predictive analytics for early detection, automated surveillance systems, personalized medicine approaches, decision support systems, and patient engagement tools. Findings demonstrate that AI effectively predicts HAIs, optimizes antimicrobial use, and improves compliance with infection prevention protocols. However, challenges such as data quality issues, interoperability, ethical concerns, regulatory hurdles, and the need for substantial investment impede widespread adoption. Addressing these challenges is crucial to leverage AI's potential to enhance patient safety and improve overall healthcare quality. (Copyright: © Saudi Medical Journal.)

Access or request full text: https://libkey.io/10.15537/smj.2025.46.4.20240878

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40254319&profid=ehost

4. Post-pandemic upsurge in Group A Streptococcus infections at an Italian tertiary university hospital

Item Type: Journal Article

Authors: Arcari, Gabriele;Novazzi, Federica;Colombini, Lorenzo;Drago Ferrante, Francesca;Boutahar, Sara;Paolo Genoni, Angelo;Cassani, Gianluca;Gigante, Paolo;Carbotti, Mattia;Bianco, Alessandro;Tirziu, Mariana;Capuano, Riccardo;Pasciuta, Renee;Iannelli, Francesco;Clementi, Nicola;Santoro, Francesco and Mancini, Nicasio

Publication Date: 2025

Journal: Microbiology Spectrum 13(5), pp. e0249424

Abstract Streptococcus pyogenes (Group A Streptococcus ; GAS) is a pathogen of global significance. In the pre-antibiotic era, GAS was a major cause of childhood morbidity and mortality, but its spread rapidly declined until the mid-2010s. The continuing increase in GAS infections, associated with the expansion of the M1 UK lineage, was observed first in the United Kingdom (UK) and, later, globally. Here, we endeavor to assess the various determinants underlying the post-pandemic GAS upsurge, with a focus on microbial genomic features.

We performed an epidemiological analysis of all laboratory-confirmed GAS infections identified between June 2018 and June 2024 at a tertiary University Hospital located in Northern Italy, dividing them into three levels of severity: mild, moderate, and invasive GAS infections. A subset of 34 representative GAS isolates identified in the post-pandemic period were subjected to short- and long-read whole genome sequencing (WGS). Of the 531 GAS cases analyzed during this period, the majority (415, 78.2%) occurred in the last two years. This increase in GAS cases correlated with a significant shift in infection severity: among the 118 GAS cases identified in the June 2018-May 2022 period, only one resulted in an invasive infection (1/118, 0.8%). In contrast, among the 531 GAS cases identified in the June 2022-May 2024 period, 32 caused invasive infections (32/531, 7.9%). WGS of 34 isolates (including 15 invasive isolates) identified 11 different emm types, the most frequent being emm 1 (9 isolates) followed by emm 12 (7 isolates), then emm 89 and emm 28 (4 isolates each). Among the emm 1 isolates, the M1 UK sublineage was the most represented (8 out of 9 isolates), with the remaining "singleton" belonging to the M1 13SNP sublineage.; Importance: Streptococcus pyogenes (GAS) is a narrow-spectrum pathogen, circulating only in humans. Following the loosening of various public health measures implemented to face the challenge of the COVID-19 pandemic, a significant rise in GAS cases has been observed. Our study revealed a significant rise in GAS cases, particularly invasive infections, over the last two years. Genomic analysis identified multiple sequence types, including isolates belonging to an emerging lineage named M1 UK . These findings underscore the importance of ongoing surveillance and genomic monitoring of GAS infections, especially considering their rising incidence and severity. Public health strategies should consider not only microbe-associated aspects but also host-associated and external factors to effectively address this resurgence and prevent future outbreaks.

Access or request full text: https://libkey.io/10.1128/spectrum.02494-24

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40135916&profid=ehost

5. Negative Pressure Dressings to Prevent Surgical Site Infection After Emergency Laparotomy: The SUNRRISE Randomized Clinical Trial

Item Type: Journal Article

Authors: Atherton, K.;Brown, J.;Clouston, H.;Coe, P.;Duarte, R.;Dudi-Venkata, N. N.;Duff, S.;Egoroff, N.;Fish, R.;Glasbey, J.;Ives, N.;Kaur, M.;Magill, L.;Mehta, S.;Pinkney, T.;Pockney, P.;Richards, T.;Sammour, T.;Sekhar, H.;Sinha, Y., et al

Publication Date: 2025

Journal: JAMA 333(10), pp. 853–863

Abstract: Importance: Patients undergoing unplanned abdominal surgical procedures are at increased risk of surgical site infection (SSI). It is not known if incisional negative pressure wound therapy (iNPWT) can reduce SSI rates in this setting.; **Objective:** To evaluate the effectiveness of iNPWT in reducing the rate of SSI in adults undergoing emergency laparotomy with primary skin closure.; **Design, Setting, and Participants:** SUNRRISE was an assessor-masked, pragmatic, phase 3, individual-participant, randomized clinical trial. Adult patients

undergoing emergency laparotomy in 22 hospitals in the UK and 12 hospitals in Australia between December 18, 2018, and May 25, 2021, were recruited. Patients were followed up for 30 days postprocedure; database closure was on August 25, 2021.; Interventions: Participants were randomized 1:1 to receive iNPWT (n = 411), which involved a specialized dressing used to create negative pressure over the closed wound vs the surgeon's choice of wound dressing (n = 410). Randomization and dressing application occurred in the operating room at the end of the surgical procedure.; **Main Outcomes and Measures:** The primary outcome measure was SSI up to 30 days postprocedure, evaluated by an assessor masked to the randomized allocation and using criteria from the US Centers for Disease Control and Prevention. There were 7 secondary outcomes, including length of hospital stay, postoperative complications up to 30 days, hospital readmission for wound-related complications within 30 days, wound pain, and quality of life.; **Results:** A total of 840 patients were randomized (536 from the UK; 304 from Australia). Overall, 52% were female; the mean age was 63.8 (range, 18.8 to 95.3) years. After postrandomization exclusions (N = 52), 394 participants per group were included in the primary analysis. The number of participants who had an SSI in the iNPWT group was 112 of 394 (28.4%), compared with 108 of 394 (27.4%) in the surgeon's preference group (relative risk, 1.03 95% CI, 0.83-1.28]; P = .78). This finding was consistent across the preplanned subgroup analyses, including degree of contamination, presence of a stoma, participant body mass index, and skin preparation used, and across all preplanned sensitivity analyses. Of 7 secondary outcomes, 6 showed no significant difference, including hospital readmission, quality of life, and hospital stay (median IQR], 8 6-14] days in the iNPWT group and 9 6-14.5] days in the surgeon's preference group ratio of geometric means, 0.96 (95% CI, 0.88-1.06); P = .21]).; **Conclusions and Relevance:** Routine application of iNPWT to the closed surgical wound after emergency laparotomy did not prevent SSI more than other dressings.; Trial Registration: isrctn.com Identifier: ISRCTN17599457; anzctr.org.au Identifier: ACTRN12619000496112.

Access or request full text: https://libkey.io/10.1001/jama.2024.24764

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39869330&profid=ehost

6. Air and surface sampling for clade Ib monkeypox virus in United Kingdom hospitals, 2024 to 2025

Item Type: Journal Article

Authors: Atkinson, B.;Gould, S.;Nicholls, I.;Manzoor, K. N.;Smith, J.;Hindle, A. J.;Tunbridge, A. J.;Cole, J.;Collini, P.;Alonso, A.;O'Hara, G.;Tuudah, C.;Otter, J. A.;Hack, B.;Taylor, C.;Pottage, T.;Fletcher, T. and Dunning, J.

Publication Date: 2025

Journal: Euro Surveillance : Bulletin Europeen Sur Les Maladies Transmissibles = European Communicable Disease Bulletin 30(19)

Abstract: Air and surface sampling was performed in isolation rooms of seven patients with clade Ib mpox admitted to high consequence infectious disease centres in the United Kingdom. We detected monkeypox virus (MPXV) DNA in 66/90 surfaces samples and 1/14 air samples; replication competent MPXV was identified

in 4/21 surface samples selected for viral isolation. These findings demonstrate that viable clade Ib MPXV contamination can occur during treatment of clade Ib mpox patients reinforcing the importance of infection prevention and control measures.

Access or request full text: https://libkey.io/10.2807/1560-7917.ES.2025.30.19.2500288

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40376820&profid=ehost

7. Economic Evaluation of Enhanced Cleaning and Disinfection of Shared Medical Equipment

Item Type: Journal Article

Authors: Brain, David;Sivapragasam, Nirmali;Browne, Katrina;White, Nicole M.;Russo, Philip L.;Cheng, Allen C.;Stewardson, Andrew J.;Matterson, Georgia;Tehan, Peta E.;Graham, Kirsty;Amin, Maham;Kiernan, Martin;King, Jennie and Mitchell, Brett G.

Publication Date: 2025

Journal: JAMA Network Open 8(4), pp. e258565

Abstract: Importance: The economic value of cleaning and disinfection of shared medical equipment is currently unknown.; **Objective:** To evaluate whether or not better environmental cleaning and disinfection of shared medical equipment would be cost-effective compared with usual care.; **Design, Setting, and Participants:** This economic evaluation study was a within-trial cost-effectiveness analysis of a stepped-wedge cluster randomized clinical trial: the Cleaning and Enhanced Disinfection (CLEEN) study. The trial included 5002 inpatients and was conducted in 10 adult acute-care wards at a tertiary hospital in Australia between March 20, 2023, and November 24, 2023. The evaluation takes a hospital costing perspective. A decision-tree model was developed to evaluate the intervention; costs are presented in Australian dollars. Statistical analysis was performed from May to October 2024.; **Interventions:** A multimodal cleaning intervention was introduced during the intervention, focusing on additional cleaning hours, education, audit, and feedback. The control group received usual care, including routine cleaning by clinical staff.; **Main Outcomes and Measures**: Incremental cost-effectiveness ratio, where the mean change to costs associated with the intervention is divided by the mean change in outcomes.; Results: This study assessed 5002 patients (2478 49.5%] male, 2524 50.5%] female 50.5%]; mean SD] age, 71.6 16.1] years). For a cohort of 1000 patients at risk of health care-associated infection (HAI), the estimated total costs associated with the intervention were $1 513 300, compared with $2 155 310 for usual care. The estimated number of HAIs was 100 in the intervention group, compared with 130 for the usual care group. Compared with usual care, the intervention was associated with reduced HAIs and costs, with a 90.5% chance that intervention adoption was cost-saving. This probability increased to 99.9% if a decision-maker was willing to pay $20 000 to avoid an infection.; **Conclusions and Relevance:** In this economic evaluation study of enhanced cleaning and disinfection of shared medical equipment, the intervention resulted in reduced HAIs and a $642 010 reduction in costs per 1000 patients, compared with the control group. These results suggest that the CLEEN intervention is a cost-saving initiative.

Access or request full text: https://libkey.io/10.1001/jamanetworkopen.2025.8565

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40208588&profid=ehost

8. Efficacy of air cleaning units for preventing SARS-CoV-2 and other hospital-acquired infections on medicine for older people wards: a quasi-experimental controlled before-and-after study

Item Type: Journal Article

Authors: Brock, R. C.;Goudie, R. J. B.;Peters, C.;Thaxter, R.;Gouliouris, T.;Illingworth, C. J. R.;Conway Morris, A.;Beggs, C. B.;Butler, M. and Keevil, V. L.

Publication Date: 2025

Journal: The Journal of Hospital Infection 155, pp. 1–8

Abstract: Background: Nosocomial infections are costly, and airborne transmission is increasingly recognized as important for spread. Air cleaning units (ACUs) may reduce transmission, but little research has focused on their effectiveness on open wards.; **Aim:** To assess whether ACUs reduce nosocomial severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), or other, infections on older adult inpatient wards.; **Methods:** This was a quasi-experimental before-and-after study on two intervention-control ward pairs in a UK teaching hospital. Infections were identified using routinely collected electronic health record data during 1 year of ACU implementation and the preceding year ('core study period'). Extended analyses included 6 months of additional data from one ward pair following ACU removal. Hazard ratios (HRs) were estimated through Cox regression controlling for age, sex, ward and background infection risk. The time that the ACUs were switched on was also recorded for Intervention Ward 2.; **Findings:** ACUs were initially feasible, but compliance reduced towards the end of the study (average operation in first vs second half of ACU time on Intervention Ward 2: 77% vs 53%). In total, 8171 admissions for >48 h (6112 patients, median age 85 years) were included. Overall, the incidence of ward-acquired SARS-CoV-2 was 3.8%. ACU implementation was associated with a non-significant trend of lower hazard for SARS-CoV-2 infection HR core study period 0.90, 95% confidence interval (CI) 0.53-1.52; HR extended study period 0.78, 95% CI 0.53-1.14]. Only 1.5% of admissions resulted in other notable ward-acquired infections.; **Conclusion:** ACUs may reduce SARS-CoV-2 infection to a clinically meaningfully degree. Larger studies could reduce uncertainty, perhaps using a crossover design, and factors influencing acceptability to staff and patients should be explored further. (Copyright © 2024 The Authors. Published by Elsevier Ltd.. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.jhin.2024.09.017

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39374708&profid=ehost

9. Domestic laundering of healthcare textiles: Disinfection efficacy and risks of antibiotic resistance transmission

Item Type: Journal Article

Authors: Cayrou, C.;Silver, K.;Owen, L.;Dunlop, J. and Laird, K.

Publication Date: 2025

Journal: PloS One 20(4), pp. e0321467

Abstract: Hospital-acquired infections (HAIs) and antimicrobial resistance (AMR) are a major public health concern, with the evidence base for the potential role of textiles as fomites in microbial transmission growing. In the UK, domestic laundering machines (DLMs) are commonly used to clean healthcare worker uniforms, raising concerns about their effectiveness in microbial decontamination and role in AMR development. This study aimed to evaluate DLMs' ability to decontaminate microorganisms and their potential impact on AMR. The performance of six DLMs was assessed using Enterococcus faecium bioindicators under various wash cycles and detergent conditions. Shotgun metagenomics was used to analyse the microbiome and resistome of DLMs. The minimum inhibitory concentrations of domestic detergents were determined for Staphylococcus aureus, Klebsiella pneumoniae, and Pseudomonas aeruginosa, and detergent tolerance and antibiotic cross-resistance were assessed. Results showed only 50% (3/6) of DLMs achieved sufficient decontamination (≥5 log10 CFU reduction) at 60°C during full-length cycles, with rapid cycles performing inconsistently. Microbiome analysis revealed the presence of potentially pathogenic bacteria (e.g., Mycobacterium sp. Pseudomonas sp. and Acinetobacter sp.) and antibiotic resistance genes, including efflux pumps and target modification genes. Detergent tolerance assays showed increased bacterial tolerance to detergents, with cross-resistance to antibiotics observed in S. aureus and K. pneumoniae, including carbapenem and β-lactam groups. Whole genome sequencing identified mutations in genes encoding efflux pumps in S. aureus (MrgA) and K. pneumoniae (AcrB) after detergent exposure, which could impact efflux pump function. Findings suggest domestic laundering of healthcare uniforms may be insufficient for decontamination, posing risks for HAI transmission and AMR. Revising laundering guidelines to ensure effective DLM performance, detergent efficacy, and considering alternatives like onsite/industrial laundering are crucial to enhancing patient safety and controlling AMR in healthcare settings. (Copyright: © 2025 Cayrou 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.0321467

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40305442&profid=ehost

10. The NOSO-COVID study: a large-scale survey assessing stakeholder perspectives on patient and family engagement in infection prevention, informed by Q-methodology findings

Item Type: Journal Article

Authors: Clavel, Nathalie;Chen, Jiacheng;Paquette, Jesseca;Briand, Anaïck;Lavoie-Tremblay, M.;Bernard, Laurence;Biron, Alain;Brault, Diane;Zahir, Adila and Gélinas, Céline

11. Public perceptions and support for introduced microbes to combat hospital-acquired infections and antimicrobial resistance

Item Type: Journal Article

Authors: Cummings, C. L.;Landreville, K. D. and Kuzma, J.

Abstract: Hospital-acquired infections and antimicrobial resistance (AMR) remain major global health threats, prompting interest in microbiome-based interventions that introduce beneficial microbes or genetic interventions to control pathogens and reduce AMR genes in hospital environments. Microbiome engineering, which can use advanced biotechnology, genetics, and microbial ecology principles to restructure microbial communities, is a rapidly growing field with applications in infection control. As researchers explore deploying beneficial microbes and other genetic interventions in clinical settings like hospital sinks, public perception becomes critical to responsible implementation. This study addresses how U.S. adults perceive microbiome evaluation, and education. Drawing on a nationally representative survey (N = 1,000), we conducted hierarchical ordinary least squares regression modeling to assess predictors of support across three domains: implementation of introduced microbiomes (IM), rigorous testing, and education for healthcare stakeholders. Results demonstrate that support for IM in hospital sinks is shaped less by demographic traits and more by emotional responses, trust in institutional efficacy, belief in intervention benefits, and a desire to learn about microbiome science. These findings advance previous knowledge by distinguishing cognitive, affective, and contextual predictors across distinct types of support. Contrary to expectations, prior familiarity and information-seeking were negatively associated with IM support, suggesting that some engagement or exposure to risk-framing may drive skepticism. Meanwhile, emotional reactions and perceived efficacy consistently predicted support for IM, testing, and education (i.e., across all dependent variables), underscoring the need to address affective and trust-based components of public engagement. This research contributes to an emerging empirical foundation for responsible microbiome innovation by grounding the analysis in the Responsible Research and Innovation (RRI) framework. With the technology still in early

development, these insights provide critical guidance for biotechnology developers, policymakers, and hospital leaders seeking to align microbiome engineering with societal values through transparent communication, rigorous oversight, and inclusive education. (Copyright: This is an open access article, free of all copyright, and may be freely reproduced, distributed, transmitted, modified, built upon, or otherwise used by anyone for any lawful purpose. The work is made available under the Creative Commons CC0 public domain dedication.)

Access or request full text: https://libkey.io/10.1371/journal.pone.0332578

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=41061000&profid=ehost

12. Whole-genome sequencing, strain composition, and predicted antimicrobial resistance of Streptococcus pneumoniae causing invasive disease in England in 2017-20: a prospective national surveillance study

Item Type: Journal Article

Authors: D'Aeth, Joshua,C.;Bertran, Marta;Abdullahi, Fariyo;Eletu, Seyi;Hani, Erjola;Fry, Norman K.;Ladhani, Shamez N. and Litt, David J.

Publication Date: 2025

Journal: The Lancet. Microbe 6(7), pp. 101102

Abstract: **Background:** Surveillance of the invasive disease burden caused by Streptococcus pneumoniae in England is performed by the UK Health Security Agency (UKHSA). In 2017, UKHSA switched from phenotypic methods to whole-genome sequencing (WGS) approaches for pneumococcal surveillance. Here, we present the first results of national WGS surveillance, up to the start of the COVID-19 pandemic, with the aim of describing the population genomics of this important pathogen.; **Methods:** We examined prospective national surveillance data from England, using bacterial isolates from cases of invasive pneumococcal disease (IPD) submitted to the national reference laboratory at UKHSA. A bioinformatic pipeline was developed to quality control WGS data and routinely report species and serotype. We assembled isolate data, assigned global pneumococcal sequencing clusters (GPSCs), and predicted antimicrobial resistance (AMR) profiles for isolates that passed further quality control. We collected additional data on patient outcomes and characteristics using enhanced surveillance questionnaires completed by patients' general practitioners. We used logistic regression analysis to assess the effects of various genomic and patient characteristics on the outcomes of IPD.; **Findings:** In England, between July 1, 2017, and Feb 29, 2020, there were 15 400 cases of IPD. From these cases, 13 749 (89·3%) isolates were sequenced, passed quality control, and were included in analyses. Serotype diversity was high during the study period, with 2751 (20%) isolates serotyped as 13-valent pneumococcal conjugate vaccine (PCV13) types, whereas serotype 8 was the most prevalent serotype (n=3074 22·4%]) overall. There were 157 GPSCs within the collection, with GSPC3 the most common, encompassing 98·7% (3033 of 3074) of serotype 8 isolates. Most isolates (n=10 198 74·2%]) did not contain AMR-associated genes. Resistance to co-trimoxazole was the most frequently predicted resistance (n=2331

17%]), followed by resistance to tetracycline (n=1199 8·7%]) and β-lactams (n=1149 8·4%]). Logistic regression analysis found the presence of AMR-associated genes significantly increased the odds of patient death (odds ratio 1·18, 95% CI 1·01-1·38). Some GPSCs were also associated with a significant increase in the odds of patient death, such as GPSC12 (1·88, 1·48-2·38). Isolates from 2018 were associated with a significant increase in the odds of patient death (1·12, 1·00-1·25), whereas younger patient age was significantly associated with a reduction in the odds of patient death compared with being aged 85 years or older.; **Interpretation:** WGS-based surveillance has allowed us to interrogate country-wide population dynamics driving changes in pneumococcal serotype frequency. Here, we observe a stable but diverse population before the COVID-19 pandemic restrictions were enforced in England, with low rates of AMR. These findings will provide the baseline for pandemic and post-pandemic data, to collectively inform implementation and development of the vaccination programme within the country.; Funding: None. (Crown Copyright © 2025. Published by Elsevier Ltd. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.lanmic.2025.101102

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40425021&profid=ehost

13. Control of an outbreak of invasive Group A Streptococcus in a care home in Lincolnshire, England

Item Type: Journal Article

Authors: Davison, Natalie;Clements, Jennifer;Pruteanu, Victoria;Enstone, Joanne;Lamagni, Theresa;Moganeradj, Kartyk;Ryan, Yan;MairJenkins, John;Roulston, Kerry;Stoddart, Bethan and Kumbang, Jharna

Publication Date: 2025

Journal: Epidemiology and Infection 153, pp. e81

Abstract: In March 2024, the East Midlands Health Protection Team was notified of a case of invasive Group A Streptococcus (iGAS) infection in an elderly care home resident. Twenty-two days later, another case in a resident from the same floor of the care home was notified. In accordance with national guidelines, an outbreak was declared, and a multidisciplinary outbreak control team (OCT) was urgently convened. Screening for GAS throat carriage was undertaken for staff and residents, excluding those receiving end-of-life care. All isolates were strain typed and characterised. Infection prevention and control (IPC) visits were undertaken to provide ongoing support. Screening identified five residents and five staff members positive for GAS. Antibiotic prophylaxis was provided to all staff throughout the setting (n = 74) and all residents on the affected floor (n = 35). Three individuals were positive on repeat screening. All staff and residents screened negative after 4 months and the two clinical cases recovered. Eleven of the 12 GAS isolates were identified as emm 3.93. This outbreak highlighted the importance of rapid screening, possible only through the deployment of a dedicated team, and rescreening post-decolonising treatment, as a means to contain such outbreaks.

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40551457&profid=ehost

14. Methicillin-resistant Staphylococcus aureus (MRSA) in men having sex with men (MSM): a systematic review

Item Type: Journal Article

Authors: de Jong, G. M.;van der Boor, S. C.;van Bokhoven, C.;Bos, H.;Hoornenborg, E.;Joosten, R. E.;Notermans, D. W. and de Stoppelaar, S. F.

Publication Date: 2025

Journal: BMC Infectious Diseases 25(1), pp. 299

Abstract: Background: Outbreaks of community-acquired methicillin-resistant Staphylococcus aureus (CA-MRSA) have been documented at multiple sites worldwide. Several studies have reported an elevated infection rate of CA-MRSA infections in men having sex with men (MSM), suggesting CA-MRSA can behave as a sexually transmitted infection (STI). To assess the potential public health impact of CA-MRSA transmission amongst MSM, a systematic review of the literature was conducted to identify risk factors and prevalence of CA-MRSA colonization and infection in MSM.; **Methods:** The electronic database Embase.com (containing Embase and Medline) was systematically searched to identify studies investigating CA-MRSA colonization and infection from inception up to 19 January 2024. Two independent reviewers selected potentially relevant articles for full-text screening. Only English-language articles meeting the inclusion criteria were considered. In case of reviewer disagreement, a third independent reviewer was consulted. Information regarding prevalence, strains, and risk factors for CA-MRSA colonization and infection were extracted by one reviewer and checked by a second reviewer.; **Results:** 54 studies were screened; 18 were included for analysis. Notably, 3 distinct CA-MRSA clusters were observed in MSM in the USA and Japan. Screening in other MSM cohorts did not reveal an elevated prevalence of CA-MRSA colonization or infection. Identifying as MSM by itself is not a risk factor for MRSA colonization and infection, but specific behavior factors such as intravenous drugs use and high-risk sexual behavior do increase this risk.; **Discussion:** Recognizing the potential presence of CA-MRSA in MSM experiencing (skin) infections is crucial for informed clinical decisions. In cases where a cluster of CA-MRSA infections occurs within a sexual network, eradication strategies and non-pharmaceutical interventions should be carefully considered to prevent further spreading. Given the limited available data on this topic and incomplete data on the prevalence on a global scale, further investigations should prioritize studying the impact of CA-MRSA transmission within sexual networks. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12879-025-10593-3

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40025423&profid=ehost

15. Enhancing Food Safety and Infection Control in Mass Foodservice Operations: Implementing a Foodservice Provision Audit Tool for Sport (FPAT-S)

Item Type: Journal Article

Authors: Dufour, Angela C.;Pelly, Fiona E.;Wright, Hattie H. and Thurecht, Rachael

Publication Date: 2025

Journal: Journal of Human Nutrition & Dietetics 38(5), pp. 1–11

Abstract: Ensuring food safety and infection control in large-scale foodservice operations is critical to protecting health in mass feeding environments, including athletes' dining halls and institutional dining settings. Athletes at major competitions are at risk of illness in overcrowded dining areas, especially where foodservice safety standards are inconsistent. Objectives: This study aimed to (1) develop and pilot-test a Foodservice Provision Audit Tool for Sport (FPAT-S) at two major sport competitions to evaluate compliance with infection control and food safety measures, and (2) determine its inter-rater reliability. Methods: The FPAT-S was tested by health professionals during the 2022 Canada Summer (n = 12) and 2023 Winter Games (n = 9). The tool included 19 questions with binary, multiple-choice, and Likert scale responses. Compliance trends over time and inter-rater reliability were analyzed. Results: Hand sanitizer availability exceeded 75% compliance and improved over time, whereas staff sanitation compliance declined by the end of both events. Physical distancing compliance remained below 50% throughout. Binary response questions showed moderate agreement ($\kappa = 0.471$, $p = 0.028$) between auditors compared to scale and multiple-choice questions during the Summer phase, while agreement was lower and non-significant for scale and multiple-choice responses in both phases. Auditor variability was attributed to subjectivity and audit timing. Conclusion: The FPAT-S provides a structured approach to assessing food safety and infection control in mass foodservice settings. With refinement, it can support dietitians and foodservice managers in maintaining compliance across a range of institutional and commercial operations, beyond sporting events, and inform future public health infection control strategies. Summary: A new audit tool: Foodservice Provision Audit Tool for Sport (FPAT-S) was developed and tested to assess food safety and infection control in foodservice sport operations.Tool results revealed strong compliance for hand sanitizer availability, but variable compliance for staff sanitation and physical distancing measures to control infection transmission.FPAT-S binary response items were most reliable for consistent auditing across raters.The FPAT-S offers a structured, practical method for dietitians and foodservice managers to monitor and improve compliance with food safety and infection control measures in large-scale dining settings.

Access or request full text: https://libkey.io/10.1111/jhn.70117

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=188898692&profid=ehost

16. The role of surgical helmet systems in reducing infection rate: a systematic review

Item Type: Journal Article

Authors: Hang, Tan Qing;Aurangzeb, Amirzeb;El Dishish, Omar,Mohamed Hussein;King, Charles Kon Kam and How, Moo Ing

Publication Date: 2025

Journal: Journal of Orthopaedic Surgery & Research 20(1), pp. 1–11

Abstract: Background: Periprosthetic joint infection (PJI) is a severe complication of arthroplasty. Surgical helmet system (SHS) was introduced to reduce airborne contamination however their efficacy remains controversial. This systematic review evaluates on the role of SHS in reduction PJI, explores contamination mechanisms and the impact of design and operational factors. **Methods:** A systematic review was performed according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines across PubMed, Medline and Cochrane Library databases from 1950 to 2024. Studies were included if they investigated SHS in arthroplasty and reported on infection rates, contamination or SHS performance. Data extraction focused on study design, SHS type, infection outcomes and contamination mechanisms and whether paper is supporting SHS in reducing PJI. Effective Public Health Practice Project (EPHPP) quality tool was used to assess methodological quality of each included papers. **Results:** Twenty studies met inclusion criteria. Five large registry studies evaluated SHS effectiveness in reducing PJI, with conflicting outcomes: one showed significantly lower infection rates with SHS, while others found no difference or a potential increase in risk. Ten studies assessed contamination pathways, with several reporting higher microbial emission and wound contamination associated with SHS use. Design and operational factors significantly influenced contamination, with delayed fan activation and use of sealed or zippered gowns associated with reduced contamination levels. **Conclusion:** Evidence on SHS effectiveness in reducing PJI remains inconclusive. While modern systems may offer benefits, improper use can increase contamination. Optimized protocols including delayed fan activation, appropriate gowning techniques, and regular helmet decontamination are essential. SHS should complement, not replace, established infection prevention strategies. High-quality prospective studies are needed to define best practices for SHS implementation.

Access or request full text: https://libkey.io/10.1186/s13018-025-06336-4

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=188798199&profid=ehost

17. The broader socio-economic value of adult respiratory disease vaccinations in the UK - results from a benefit cost analysis

Item Type: Journal Article

Authors: Harrison, Cale;Brassel, Simon;Chowdhury, Sulayman;Theakston, Claud;Napier, Matthew;Vietri, Jeffrey;Mendes, Diana;Yang, Jingyan;Hu, Tianyan and Steuten, Lotte

Publication Date: 2025

Journal: Expert Review of Vaccines 24(1), pp. 644–655

Abstract: Background: Respiratory infections such as pneumococcal disease (PD), RSV, influenza (flu), and COVID-19 impose a major socio-economic burden in the UK. Adult vaccination programs cost-effectively reduce this burden, yet their societal value remains under-assessed.; **Methods:** A benefit-cost analysis (BCA) using life-table-based disease modeling estimated morbidity and mortality reductions from current age- and risk-based recommendations. Mortality risk reduction was monetized using two approaches: value of a statistical life year (VSLY) and hence adjusting for remaining life expectancy, and value of a statistical life (VSL), assuming equal valuation across ages. Scenarios included current and expanded eligibility. Outcomes were reported as benefit-cost ratios (BCRs) and net benefits (NBs).; **Results:** Over each cohort's lifetime, vaccinations prevented 313,000 hospitalizations, freed up 1.9 million bed days, and averted over 86,000 deaths. First-year BCRs were 5.1 (VSLY) and 19.3 (VSL), with NBs of £5.1 billion and £23 billion, respectively. Lifetime net benefits ranged from £35.5 billion to £200.1 billion, with BCRs of 5.8 and 27.8. Expanded eligibility further increased NBs but lowered the BCR.; **Conclusion:** Adult respiratory vaccination delivers socio-economic benefits well beyond direct health-care savings, yet investment remains low. Considering broader impacts beyond standard cost-effectiveness can better align policy with public health and economic goals.

Access or request full text: https://libkey.io/10.1080/14760584.2025.2536093

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40684318&profid=ehost

18. Overcoming barriers to infection prevention and control compliance in intensive care units: A call for strategic change

Item Type: Journal Article

Authors: Hasmee, Noor;Singh, Bhupendra;Arora, Vinod;Sangam, Kumari and Gurung, Mamita

Publication Date: 2025

Journal: Nursing in Critical Care 30(3), pp. 1–4

Access or request full text: https://libkey.io/10.1111/nicc.70012

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=185589195&profid=ehost

19. Risk factors for invasive group A streptococcal infection in children aged 6 months to 5 years: a case-control study, the Netherlands, February-May 2023

Item Type: Journal Article

Authors: Hazelhorst, Elizabeth I.;van Ewijk, Catharina,E.;Wielders, Cornelia C. H.;Te Wierik, Margreet,J.M.;Hahné, Susan,J.M.;de Melker, Hester,E.;Knol, Mirjam J. and de Gier, Brechje

Publication Date: 2025

Abstract: In 2022, an increase in invasive group A streptococcal (iGAS) infections was observed in the Netherlands. A particular increase was seen among children; therefore, we aimed to assess risk factors for iGAS infection in children aged 6 months to 5 years. A prospective case-control study was conducted between February and May 2023. We approached parents of notified iGAS cases to complete a questionnaire on exposures during 4 weeks prior to disease onset. Controls were recruited via social media and matched to cases on sex and birthyear. Conditional logistic regression was performed to estimate odds ratios (OR) of exposures. For the analysis, we included 18 cases and 103 controls. Varicella prior to onset of iGAS disease was reported in two (11%) cases and one (1%) control (OR: 12.0, 95% CI: 1.1-139.0). Exposure to group A streptococcal (GAS)-like illnesses such as impetigo, pharyngitis, and scarlet fever was reported in 8 (44%) cases and 15 (15%) controls (OR: 7.1, 95% CI: 1.8-29.0). Our findings are in line with previous studies by identifying varicella as a risk factor for iGAS among young children and highlight the association with non-invasive GAS infections in the community as a possible source of transmission.

Access or request full text: https://libkey.io/10.1017/S0950268825000275

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40145199&profid=ehost

20. Vascular access device dressing optimisation using tissue adhesive

Item Type: Journal Article

Authors: Hitchcock, Jan and Almerol, Leo Andrew

Publication Date: 2025

Abstract: Background: The care and maintenance of vascular access devices (VADs) encompass all stages from assessment and insertion to ongoing care and removal. Post-insertion, dressings protect the site, aid in haemostasis and provide securement. However, catheter-related bloodstream infections (CRBSIs) may occur owing to pathogen migration or contamination during dressing changes. Traditional sterile gauze dressings, which require frequent changes, may offer inadequate protection. Tissue adhesives, specifically cyanoacrylate glue, have shown promise in enhancing haemostasis, securement and offering bacteriostatic properties. **Methodology:** This study reviewed electronic patient records and databases for VADs inserted by the vascular access team using the modified Seldinger technique. The review focused on the use of tissue adhesive in adults and in some cases older children. The study compared traditional dressings with those enhanced by

tissue adhesive, documenting haemostasis, securement and incidence of infection. **Results:** The use of tissue adhesive improved haemostasis and securement, reducing the need for early dressing changes. The bacteriostatic properties of the adhesive decreased the rate of CRBSIs. Its use also preserved dressing integrity by controlling bleeding and exudation, potentially allowing dressings to remain intact for 7 days. Despite the initial expense, tissue adhesive use led to significant savings by reducing the frequency of dressing changes and associated nursing time. **Conclusion:** Tissue adhesives optimise VAD dressing by enhancing haemostasis, securement and infection control. This practice improves patient outcomes and reduces costs. The findings support the integration of tissue adhesives into standard VAD care protocols to enhance patient safety and operational efficiency. In future, research may explore the use of tissue adhesives in larger bore VADs and other clinical applications.

Access or request full text: https://libkey.io/10.12968/bjon.2024.0468

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186085136&profid=ehost

21. Risk of invasive meningococcal disease in people with sickle cell disease: A systematic review

Item Type: Journal Article

Authors: Isitt, Catherine;Campbell, Helen;Cosgrove, Catherine A.;Ramsay, Mary E.;Heath, Paul T.;Borrow, Ray and Ladhani, Shamez N.

Publication Date: 2025

Journal: The Journal of Infection 90(3), pp. 106441

Abstract: Background: Asplenia and splenic dysfunction is associated with an increased risk of severe and fatal infections, especially due to encapsulated bacteria including Streptococcus pneumoniae, Haemophilus influenzae serotype b (Hib) and Neisseria meningitidis. People with sickle cell disease (SCD) develop recurrent splenic infarcts rendering them functionally asplenic. Consequently, additional vaccination against these three pathogens is recommended. There is robust evidence of an increased risk for invasive pneumococcal (IPD) and Hib disease, in people with SCD, but for not invasive meningococcal disease (IMD).; **Methods:** We conducted a systematic review according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) recommendations. Studies published in any language before June 2024 and including people with SCD of all ages and from all geographical locations were included. Studies were included if they documented bacterial culture and/or PCR in patients with SCD with suspected infection. The primary outcome was to estimate IMD risk in people with SCD. Secondary outcomes included estimating the risk of IMD and Hib disease in people with SCD.; **Findings:** We identified 3804 publications and included 86 in the final analyses. Among 74 cohort studies published during 1971-2023, there were three IMD cases among 26,404 persons with SCD compared with 570 IPD and 113 Hib cases. Eight case-control studies published during 1983-2022 reported one IMD case among 932 people with SCD (0.1%) compared to 118 IMD cases among 7143 people without SCD (1.65%). In contrast, there were 126 IPD cases (126/932, 13.5%) in people with SCD compared to

588 (588/7143, 8.2%) in those without SCD. For Hib, the rates were 32/932 (3.4%) and 316/7143 (4.4%), respectively. After including all published studies, we identified five IMD cases in people with SCD across studies published worldwide during 1965-1995 and all five survived their infection.; **Interpretation:** We found no evidence of any increased risk of IMD in people with SCD. This has important implications for policymakers in countries and organisations that currently recommend meningococcal vaccination for people with SCD. (Copyright © 2025. Published by Elsevier Ltd.)

Access or request full text: https://libkey.io/10.1016/j.jinf.2025.106441

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39952479&profid=ehost

22. An economic evaluation of a hospital-wide bundle intervention to reduce hospital-acquired infections and bladder distension among hip fracture patients in Sweden

Item Type: Journal Article

Authors: Jabbar, Sneha Abdul;Frödin, Maria;Wikström, Ewa;Gillespie, Brigid M.;Gyllensten, Hanna and Erichsen, Annette

Publication Date: 2025

Journal: Antimicrobial Resistance and Infection Control 14(1), pp. 80

Abstract: Background: A theory-driven knowledge translation program was established to co-create and implement evidence-based practices to prevent urinary catheter-associated urinary tract infections (UC-UTIs) and bladder distension (BD). This study investigates the cost-effectiveness of implementing the Safe Hands and Safe Bladder bundle intervention compared to standard care for patients undergoing hip fracture surgery in Sweden.; **Method:** The study included outcomes from a quality register of patients who underwent hip fracture surgery at a Swedish hospital from 2015 to 2020. Adopting a healthcare perspective, estimates for the implementation cost were derived using activity-based costing, while the bundle's cost-effectiveness was estimated using a decision tree model. Health outcomes were evaluated based on adverse events, specifically UC-UTI and BD. Analyses included calculating the incremental cost-effectiveness ratio (ICER), which denotes the incremental cost per added infection rate expressed as a percentage. Additionally, sensitivity analyses were conducted to test the robustness of the results under alternative cost assumptions.; **Results:** The likelihood of avoiding BD or UC-UTI increased from 50 to 87% over the course of the intervention year. The discounted implementation cost was SEK 890,389 (corresponding to Int$ 102,721). However, the implementation cost was offset by costs for a prolonged hospital stay due to these adverse events, resulting in an overall cost savings of SEK - 7,334 per patient (Int$ -846) in 2020 compared to before the intervention was introduced. Consequently, the intervention proved to be cost-effective, leading to savings and a decrease in the occurrence of adverse events.; **Conclusion:** Implementing the bundle intervention in units providing care for patients with acute hip fractures proved cost-effective. This offers decision makers valuable insights and demonstrates that implementation programs incorporating collaboration, facilitation and co-creation processes can effectively use limited resources. Further research should determine the generalizability of the

findings to other settings and populations.; Gov Registration: NCT02983136 and ISRCTN 17,022,695, retrospectively registered after data collection were completed. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13756-025-01573-y

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40611309&profid=ehost

23. Effect of Repeated Education on ICU Nurses' Knowledge and Performance in MDRO Infection Control: A Pretest–Posttest Study

Item Type: Journal Article

Authors: Jang, Kyeongmin

Publication Date: 2025

Journal: Nursing in Critical Care 30(4), pp. 1–9

Abstract: Background: Multidrug-resistant organisms (MDROs) pose a serious threat to patient safety in intensive care units (ICUs), where invasive procedures and extensive antibiotic use elevate the risk of transmission. Although educational interventions can enhance infection control compliance, their effects often decline over time. **Aim:** To evaluate the effectiveness and sustainability of a repeated education programme on ICU nurses' knowledge and performance related to MDRO infection control. **Study Design:** A one-group pretest–posttest study. Results: Forty-three ICU nurses received three monthly 50-min education sessions. Knowledge scores significantly increased from 19.60 (SD = 1.62) at baseline to 21.79 (SD = 1.60) 2 weeks post-intervention and were maintained at 21.42 (SD = 1.40) after 3 months (p < 0.001). Performance scores also improved from 94.65 (SD = 11.69) to 101.49 (SD = 8.29) and remained elevated at 102.63 (SD = 7.26) (p < 0.001). No significant decline was observed between the post-intervention measurements. **Conclusions:** Repeated education significantly improved and sustained ICU nurses' knowledge and performance in MDRO infection control. The spaced and unit-based format supports routine integration and reinforcement of infection control competencies. **Relevance to Clinical Practice:** Brief, structured and repeated education sessions can be feasibly incorporated into ICU training programmes. This approach may strengthen adherence to MDRO prevention protocols and improve patient safety in high-risk clinical settings.

Access or request full text: https://libkey.io/10.1111/nicc.70123

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186997875&profid=ehost

24. Invasive group a streptococcal infection associated with community healthcare services delivered at home, South East England, December 2021-2023: Descriptive epidemiological study

Item Type: Journal Article

Authors: John, Jeeva;Smith, Sonia;Sawyer, Clare;Brokenshire, Beth;Anderson, Charlotte and Roberts, David J.

Publication Date: 2025

Journal: Epidemiology and Infection 153, pp. e56

Abstract: Invasive group A Streptococcal (iGAS) outbreaks have been linked to Community Healthcare Services Delivered at Home (CHSDH). There is, however, very limited evidence describing the epidemiology and mortality of iGAS cases associated with CHSDH. We used routine data to describe iGAS cases in adults who had received CHSDH prior to onset and compare characteristics between CHSDH-outbreak and non-outbreak CHSDH cases, in South East England between December 2021 and December 2023. There were 80/898 (8.9%) iGAS case episodes with CHSDH prior to onset; cases were in elderly people (50% aged 85 and over), and had primarily received wound or ulcer care (93.8%), with almost all care delivered by community nurses (98.8%). The 30-day all-cause case fatality was 26.3%. Emm 1.0 was the most common type (17.5%). In this period, 5/11 iGAS outbreaks (45.4%) were CHSDH-associated, and 25 cases with receipt of CHSDH prior to onset (31.3%, Confidence Interval CI] 21.3-42.6%) were linked to these outbreaks. On univariate analysis, CHSDH-outbreak case episodes were more likely to be associated with emm pattern genotype E (OR 6.1 95% CI 1.8-20.9), and skin or soft tissue infection clinical presentation (OR 3.6, 95% CI 1.1-12.0) than non-outbreak CHSDH cases. There may be an increased risk of propagation of iGAS outbreaks in patients receiving CHSDH, emphasizing the need for rigorous early infection prevention and control, and outbreak surveillance.

Access or request full text: https://libkey.io/10.1017/S0950268825000287

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40114514&profid=ehost

25. Environmental and financial cost of surgical-site infection by severity after lower limb vascular surgery

Item Type: Journal Article

Authors: Lathan, Ross;Daysley, Hannah;Ravindhran, Bharadhwaj;Lim, Arthur;Cutteridge, Joseph;Sidapra, Misha;Long, Judith;Hitchman, Louise;Beltran-Alvarez, Pedro;Carradice, Daniel;Smith, George and Chetter, Ian

Publication Date: 2025

Journal: BJS Open 9(3)

Abstract: Background: There is sparse evidence of the relationship between environmental and financial costs of surgical-site infection. Identifying areas of high-cost burden would enable key targets for clinical interventions to aid in achieving the UK national net zero healthcare system strategies. The aim of this study was to evaluate the environmental and financial costs of surgical-site infection, subclassified by severity of

infection.; **Methods:** This prospective observational study evaluated patients with and without surgical-site infection after a variety of lower limb vascular surgery using National Health Service and Personal and Social Services perspectives. The severity of surgical-site infection was defined using both Centers for Disease Control and Prevention and management-based criteria where patients with mild surgical-site infection required oral antibiotics, patients with moderate surgical-site infection required intravenous antibiotics, and patients with severe surgical-site infection required further surgical interventions.; **Results:** A total of 99 patients were included, with 22 patients (22.2%) diagnosed with surgical-site infection. The mean(s.d.) environmental cost without surgical-site infection was 10.3(24.3) kgCO2e (95% c.i. 4.8 to 15.9) per patient. Emissions increased with surgical-site infection severity, with mild producing 94.6(53.9) kgCO2e (95% c.i. 63.5 to 125.8, 918% increase), moderate producing 648(407.6) kgCO2e (95% c.i. -0.1 to 1296.6, 6291% increase) and severe producing 2651.4(2217.1) kgCO2e (95% c.i. -966.5 to 6347.2, 25 742% increase) per patient. The mean(s.d.) financial cost without surgical-site infection was €73.26(€160.27) (95% c.i. 36.91 to 109.72) that increased with severity, with mild costing €392.25(225.69) (95% c.i. 262.16 to 523.00, 536% increase), moderate costing €9754.46(5059.77) (95% c.i. 1704.65 to 17 820.68, 13 317% increase), and severe costing €37 035.60(32 910.84) (95% c.i. -15 376.07 to 89 447.52, 50 521% increase) per episode of infection (£1 = €1.20 (conversion date 25 October 2024)).; **Conclusion:** Environmental and financial costs are strongly correlated with surgical-site infection severity and display an exponential increase as severity increases. Overall, surgical-site infection incurs a cost of €15.58 for every kgCO2e produced. Environmental discounting should be explored and incorporated into sustainability assessments for robust accounting methodology. Surgical-site infection should be evaluated for severity rather than as a binary outcome for comprehensive assessment. (© The Author(s) 2025. Published by Oxford University Press on behalf of BJS Foundation Ltd.)

Access or request full text: https://libkey.io/10.1093/bjsopen/zraf015

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40331246&profid=ehost

26. Insights into the implementation of a whole genome sequencing report form (SRF) to reduce nosocomial SARS-CoV-2 in UK hospitals within an unfolding pandemic: A qualitative process evaluation using normalisation process theory

Item Type: Journal Article

Authors: Leiser, R.;McLeod, J.;Mapp, F.;Stirrup, O.;Blackstone, J.;Illingworth, C. J. R.;Nebbia, G.;Price, J. R.;Snell, L. B.;Saluja, T.;Breuer, J. and Flowers, P.

Publication Date: 2025

Journal: PloS One 20(4), pp. e0321534

Abstract: Background: Here we report on a process evaluation conducted as part of a large multisite non-randomised trial of the effectiveness of a novel whole genome sequence report form (SRF) to reduce nosocomial SARS-CoV-2 through changing infection prevention and control (IPC) behaviours during the COVID-19 pandemic. We detail how the SRF was implemented across a heterogeneous purposive sub-sample of

hospital trial sites (n=5/14).; **Methods:** We conducted in-depth interviews from diverse professional staff (N=39). Deductive and inductive thematic analysis initially explored participants' accounts of implementing the SRF. The resulting themes, concerning the way the SRF was used within sites, were then coded in relation to the key tenets of normalisation process theory (NPT).; **Results:** Factors that enabled the implementation of the SRF included: elements of the context such as health care professional passion; the existence of whole genome sequencing (WGS) infrastructure; effective communication channels, the creation of new connections across professionals and teams; the integration of SRF-led discussions within pre-existing meetings and the ability of a site to achieve a rapid turnaround time. In contrast, we found factors that constrained the use of the SRF included elements of the context such as the impact of the Alpha-variant overwhelming hospitals. In turn, dealing with COVID-19 breached the limited capacity of infection prevention and control (IPC) to respond to the SRF and ensure its routinisation.; **Conclusion:** We show preliminary support for this SRF being an acceptable, useable and potentially scalable way of enhancing existing IPC activities for viral respiratory infections. However, the context of both the trial and the alpha wave of COVID-19 limit confidence in these insights.; Clinical Trial Number: https://www.isrctn.com/ISRCTN50212645, Registration date 20/05/2020. (Copyright: © 2025 Leiser 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.0321534

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40245025&profid=ehost

27. Preventing outbreaks in burn units: the role of hygiene compliance and early warning systems

Item Type: Journal Article

Authors: Lindblad, Marie;Huss, Fredrik;Tano, Eva;Lytsy, Birgitta and Sütterlin, Susanne

Publication Date: 2025

Journal: Antimicrobial Resistance and Infection Control 14(1), pp. 75

Abstract: **Background and Objectives:** To analyse observations of staff's hand hygiene, usage of gloves and plastic aprons, and dress code compliance at the Burn Centre, Uppsala University Hospital in Sweden, and to evaluate the association between hygiene non-compliance and outbreak periods. Furthermore, to explore the potential of using routine hygiene observations as an early warning tool for the risk of uncontrolled spread of (multidrug-resistant) bacteria.; **Methods:** Direct observations of the personnel's compliance with hand hygiene, usage of gloves and plastic aprons, and dress code were studied in relation to two A. baumannii outbreaks in 2014 and 2020. Interrupted time series analyses were conducted from 2013 to 2017 and 2018 to 2022 to evaluate outbreak intervention measures. Rolling sums of observed hygiene errors and 90th percentiles were calculated for four-, five-, and six-month periods.; **Results:** During the study, 13,216 direct observations showed hygiene compliance ranging from 70 to 100% per category. Infection control

interventions significantly reduced non-compliance after both outbreaks, with sustained improvements for two years following the first outbreak. Rolling four- to six-month sums, using 90th percentile thresholds of seven, nine, and eleven non-compliances predicted A. baumannii outbreaks.; **Conclusion:** In this setting, compliance levels above 97% were consistently observed during outbreak-free periods, suggesting a potential protective effect. Focus on non-compliance as a key metric and rolling sums of non-compliance, may support early detection of increased outbreak risk and guide preventive interventions. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13756-025-01592-9

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40598569&profid=ehost

28. Handwashing by healthcare staff using a modified Ayliffe technique to prevent infection transmission

Item Type: Journal Article

Authors: Mandal, Anirban;Nursiah, Karishma;Jamal, Mehvish;Conway, Luke;Thomson, Hamish and Snashall, Emma

Publication Date: 2025

Journal: British Journal of Nursing 34(17), pp. 868–876

Abstract: Background: Hand hygiene is one of the most significant components of standard infection control precautions. Aim: This study aimed to assess local hand hygiene technique and the effectiveness of an instructional video plus adding a seventh step to the Ayliffe technique. **Method:** Adherence of practitioners to the six-step Ayliffe technique and its effectiveness were assessed using a lotion that shows areas not cleansed adequately under ultraviolet light. This was followed by a short instructional video plus an added step to improve cleansing of the dorsal hand. Technique was re-evaluated immediately and 3–4 weeks later. **Findings:** 43% of participants correctly performed all six steps of the Ayliffe technique during the initial assessment; this rose to 97% after watching the video. A majority (59%) of participants initially missed the dorsal hands, which improved to 13% at the third assessment. **Conclusions:** An instructional video is an effective tool for improving hand hygiene technique. Adding the seventh step to the Ayliffe technique improves coverage of the dorsal hand so will increase the effectiveness of hand hygiene protocols.

Access or request full text: https://libkey.io/10.12968/bjon.2025.0288

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=188018288&profid=ehost

29. Nursing students'knowledge and effectiveness of teaching in infection prevention and control

Item Type: Journal Article

Authors: Mohammedi, Stephanie Bouget;Gillois, Pierre and Landelle, Caroline

Publication Date: 2025

Journal: BMC Nursing 24(1), pp. 1–11

Abstract: Introduction: In order to prevent healthcare-associated infections, infection prevention and control (IPC) is taught to nursing students in France as soon as they enter the nursing training institutes. The primary objective of this study was to assess the knowledge of standard precautions and hand hygiene of French nursing students before and after training. Secondary objectives were to measure factors predicting success on knowledge tests, and to investigate the effectiveness of the different teaching techniques used. **Materials and methods**: A quantitative study using online self-administered questionnaires was performed between September 1, 2022 and March 7, 2023 in French nursing training institutes. Three self-administered questionnaires were administered: the first to IPC trainers on their teaching methods, and the next two to nursing students on their knowledge and socio-demographic characteristics, with one questionnaire before and one after IPC training. **Results:** Fifty-nine nursing training institutes took part in the study. Before and after IPC training, 3,739 and 2,378 nursing students participated, respectively. At the start of training, the mean score on the knowledge test was 35.67 out of 50 (35.53–35.77] sd = 3.76), i.e. a moderate level of knowledge. After IPC training, the mean score on the knowledge test was 37.55 out of 50 (37.40-37.68] sd = 3.48), i.e. a good level of knowledge. Students with a Nursing Auxiliary Diploma (NAD) scored significantly better than no NAD students, both before ($p<0.001$) and after ($p<0.001$) IPC training. The teaching techniques used were varied and combined, but only practice audits significantly improved students' knowledge after training ($p = 0.050$). **Discussion:** Nursing students' knowledge of IPC before training is heterogeneous and moderate. After training, knowledge had improved little but significantly. Only auditing was effective to improve students' level of knowledge of IPC. Audits should be included in the IPC training program. **Highlights:** Nursing students' knowledge of hygiene at the beginning of their training is moderate. Students who have previously obtained a nursing auxiliary diploma have a better knowledge of hygiene than other students. Student nurses' knowledge of hygiene improves after the first semester of training. Practice audits help to improve students' knowledge of hygiene.

Access or request full text: https://libkey.io/10.1186/s12912-025-03316-1

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=186463675&profid=ehost

30. Impact of infection prevention and control quality improvements in haemodialysis facilities: a scoping review

Item Type: Journal Article

Authors: Ngema, S. A.;Bale, T. L. A. and Ramukumba, T. S.

Abstract: Background: Healthcare-associated infections (HAIs) pose significant risks to patients undergoing haemodialysis, necessitating effective infection prevention and control (IPC) strategies. This scoping review aims to summarise and analyse the existing literature on quality improvement (QI) interventions that enhance adherence to infection prevention and control measures in dialysis settings.; **Methods:** A comprehensive literature search was conducted across PubMed, Cochrane Library, MEDLINE, EMBASE and Google Scholar databases, identifying 10 relevant studies published between January 2013 and October 2024. The review was conducted according to an established methodology for scoping studies and followed guidelines. Data extraction and analysis were performed to evaluate the effectiveness and applicability of various quality improvement interventions.; **Results:** 31 267 records with 10 studies eligible for final review. Post-intervention evaluation varied considerably across studies. The analysis revealed that diverse QI strategies significantly improved adherence to infection prevention protocols, including staff education, protocol standardisation, and multimodal interventions. However, the evaluation of outcomes differed across different contexts. Common patterns identified included the effectiveness of training programs in enhancing staff knowledge and the importance of leadership support in sustaining IPC practices. Additionally, some studies revealed a significant decrease in infection rates following the interventions, highlighting the effectiveness of structured educational efforts in enhancing patient safety and infection control in clinical settings.; **Conclusion:** This review provides valuable insights for healthcare professionals and policymakers to reduce HAIs in dialysis environments, thereby improving patient outcomes and promoting safety within healthcare systems. Future research should focus on implementing and evaluating integrated QI models tailored to local contexts in diverse healthcare settings.; Clinical Trial: Not applicable. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12882-025-04459-8

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=41013362&profid=ehost

31. Essential medical equipment in community nursing to support patient care at home

Item Type: Journal Article

Authors: Palmer, Sarah Jane

Abstract: Effective community nursing relies on the appropriate use of essential medical equipment to support patient care in the home environment. As healthcare increasingly transitions from hospital to community settings, nurses are responsible for delivering a wide range of interventions, including monitoring of

vital signs, chronic disease management, wound care, and promoting safety and mobility. This article explores the core categories of equipment that enable nurses to provide safe, responsive and person-centred care at home. These include portable digital monitors, mobility aids, wound care technologies such as negative pressure systems, devices for managing long-term conditions, telehealth tools, and infection-prevention resources. The use of such equipment empowers community nurses to make timely clinical decisions, reduce avoidable hospital admissions and support patient independence. Training and competency are essential to ensure safe and effective equipment use, alongside governance measures that ensure accessibility, maintenance and documentation standards. The article also considers future trends, including the increased role of remote monitoring, digital health platforms and wearable technologies. As demands on community services grow, the integration of evidence-based medical equipment into routine practice will continue to play a pivotal role in delivering high-quality care and improving outcomes for patients in their own homes.

Access or request full text: https://libkey.io/10.12968/bjcn.2025.0115

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=187553492&profid=ehost

32. Impact of the COVID-19 pandemic on healthcare-associated infections and multidrug-resistant microorganisms in Italy: A systematic review

Item Type: Journal Article

Authors: Peconi, Chiara;Martini, Enrica;Sarti, Donatella and Prospero, Emilia

Publication Date: 2025

Journal: Journal of Infection and Public Health 18(5), pp. 102729

Abstract: Background: The diffused and prolonged SARS-CoV-2 transmission lead to high levels of hospitalization. During this period, the focus of sanitary structures was to contain COVID-19 mortality and this may have reduced the application of health associated infection (HAI) and multidrug resistant microorganism (MDRO) prevention programs.; **Methods:** A search was performed in PubMed, Science Direct, and Google Scholar databases to identify clinical observational studies that reported the impact of COVID-19 pandemic on the prevalence or incidence on HAIs and/or MDROs from December 2019 to August 2024 in Italy. Studies were included if they reported a comparison with pre-pandemic period and had a full-text available. Eligible studies were assessed for risk of bias and quality with NHI Quality Assessment Tool by two researchers independently. Data were represented in tables and a narrative synthesis was made in the text.; **Results:** Selected studies included 4 studies reporting data on HAI (1497 total patients) and 11 studies reporting data on MDRO (80388 total patients). The majority of the studies reported an increase in HAI prevalence (9-11.1 % range) and MDRO, in particular, gram negative MDRO had an increase range of 0.8 %-45.6 % and gram positive MDRO an increase range of 0.5 %-81.8 % from pre- to post-COVID-19 period in the different studies considered **CONCLUSION:** These findings underscore the critical need for active surveillance in hospital wards, the implementation of antibiotic stewardship and prescribing programs to mitigate the impact of such crises on healthcare-associated infections and antimicrobial resistance. Furthermore, permanent training of healthcare personnel

Access or request full text: https://libkey.io/10.1016/j.jiph.2025.102729

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40056892&profid=ehost

33. Explainable AI for infection prevention and control: modeling CPE acquisition and patient outcomes in an Irish hospital with transformers

Item Type: Journal Article

Authors: Pham, M. K.;Mai, T. T.;Crane, M.;Brennan, R.;Ward, M. E.;Geary, U.;Byrne, D.;O'Connell, B.;Bergin, C.;Creagh, D.;McDonald, N. and Bezbradica, M.

Publication Date: 2025

Journal: BMC Medical Informatics and Decision Making 25(1), pp. 391

Abstract: Background: Carbapenemase-Producing Enterobacteriace (CPE) poses a critical concern for infection prevention and control in hospitals. However, predictive modeling of previously highlighted CPE-associated risks such as readmission, mortality, and extended length of stay (LOS) remains underexplored, particularly with modern deep learning approaches. This study introduces an eXplainable AI (XAI) modeling framework to investigate CPE impact on patient outcomes from Electronic Medical Records (EMR) data of an Irish hospital.; **Methods:** We analyzed an inpatient dataset from an Irish acute hospital (2018-2022), incorporating diagnostic codes, ward transitions, patient demographics, infection-related variables and contact network features. Several Transformer-based architectures (e.g., TabTransformer, TabNet) were benchmarked alongside traditional machine learning models. Clinical outcomes were predicted, and XAI techniques were applied to interpret model decisions.; **Results:** Our framework successfully demonstrated the utility of Transformer-based models, with TabTransformer consistently outperforming baselines across multiple clinical prediction tasks, especially for CPE acquisition (Area Under Receiver Operating Characteristic and sensitivity). We found infection-related features, including historical hospital exposure, admission context, and network centrality measures, to be highly influential in predicting patient outcomes and CPE acquisition risk. Explainability analyses revealed that features like "Area of Residence", "Admission Ward" and prior admissions are key risk factors. Network variables like "Ward PageRank" also ranked highly, reflecting the potential value of structural exposure information.; **Conclusion:** This study presents a robust and explainable AI framework for analyzing complex EMR data to identify key risk factors and predict CPE-related outcomes. Our findings underscore the superior performance of the Transformer models and highlight the importance of diverse clinical and network features. The transparent interpretability offered by our XAI approach provides actionable insights for infection prevention and control, paving the way for more targeted interventions and ultimately enhancing patient safety within acute healthcare settings. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s12911-025-03214-1

34. Localised increase in necrotising fasciitis associated with a shift to monomicrobial aetiology, South Yorkshire, England, 2023

Item Type: Journal Article

Authors: Ronan, Dominic;Holt, Hannah;Utsi, Lara;Arunachalam, Nachi;Tate, David;Lamagni, Theresa;Blakey, Eleanor;Guy, Rebecca L.;Dirckx, Margo;Richards, Helen and Hughes, Gareth J.

Publication Date: 2025

Journal: The Journal of Infection 90(6), pp. 106505

Abstract: Objectives: An increase in necrotising fasciitis (NF) was observed in South Yorkshire by plastic surgeons. A public health response was established.; **Methods:** Data were collected on NF cases from 2023 and 2019 (control group) from two hospitals in South Yorkshire. Data on demographics, risk factors, co-morbidities and outcome were obtained. Microbiological data were extracted from hospital laboratory information systems. A survey was sent to plastic surgery departments in England to enquire if similar increases had been observed.; **Results:** Data were collected on 33 cases of NF in 2023. Of the 32 cases with ≥1 microorganism isolated, 26 were monomicrobial NF and 6 polymicrobial NF. 9 NF cases were admitted to the hospitals in 2019. Cases in 2023 and 2019 had broadly similar demographics and co-morbidities. NF cases in 2023 were characterised by limb foci, group A streptococcus isolations, and wound infection (chronic, traumatic, or surgical) or ulcer. Case fatality rate for 2023 NF cases was 38% (12/32) compared to 25% (2/8) in 2019.; **Conclusions:** In 2023, we observed a substantial rise in NF in South Yorkshire, characterised by a shift from predominantly Type I NF (polymicrobial) in 2019 to Type II and Type III NF (monomicrobial). The causes of this increase require further investigation and are likely multifactorial. (Crown Copyright © 2025. Published by Elsevier Ltd. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.jinf.2025.106505

35. Characteristics of nursing homes with high rates of invasive methicillin-resistant Staphylococcus aureus infections

Item Type: Journal Article

Authors: See, Isaac;Jackson, Kelly A.;Hatfield, Kelly M.;Paul, Prabasaj;Li, Rongxia;Nadle, Joelle;Petit, Susan;Ray, Susan M.;Harrison, Lee H.;Jeffrey, Laura;Lynfield, Ruth;Bernu, Carmen;Dumyati, Ghinwa;Gellert, Anita;Schaffner, William;Markus, Tiffanie;Gokhale, Runa H.;Stone, Nimalie D. and Jacobs Slifka, Kara

Abstract: Background: Nursing home residents experience a large burden of invasive methicillin-resistant Staphylococcus aureus (MRSA) infections. Data are limited regarding nursing home characteristics associated with differences in facility-level invasive MRSA rates.; **Methods:** We analyzed 2011-2015 data from CDC's Emerging Infections Program (EIP) active population- and laboratory-based surveillance for invasive MRSA cases within seven states. A nursing home-onset case was defined as MRSA cultured from a normally sterile site in a person living in a nursing home 3 days before culture collection. Facility rates were calculated as nursing home-onset cases per 100,000 resident-days. Nursing home resident-day denominators and facility characteristics were obtained from four Centers for Medicare & Medicaid Services (CMS) datasets. A general estimating equations model with a logit link assessed characteristics of the facilities with highest rates comprising 50% of nursing home MRSA cases ("high rates").; **Results:** The 626 nursing homes in the surveillance area had 2824 invasive MRSA cases; 82% of facilities had at ≥1 case. The 20% of facilities with highest rates (≥3.84 cases/100,000 resident-days) had 50% of nursing home-onset cases. In multivariable regression, facilities with high rates were more likely to have CMS-derived characteristics of presence of a resident with a multidrug-resistant organism; or greater proportions of residents who were male, were short stay (in the facility <100 days), had a nasogastric or percutaneous gastrostomy tube, or require extensive assistance with bed repositioning; and more likely to be in an EIP area with higher hospital-onset MRSA rates. Higher registered nurses staffing levels (hours/resident/day) and higher proportions of White residents were associated with lower rates.; **Conclusions:** Facilities with higher invasive MRSA rates served residents with more clinical and functional care needs. Increasing registered nurse staffing in high-risk facilities might assist with reduction of invasive MRSA rates. These findings could help prioritize nursing homes for future MRSA prevention work. (© 2025 The Author(s). Journal of the American Geriatrics Society published by Wiley Periodicals LLC on behalf of The American Geriatrics Society. 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/10.1111/jgs.19189

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=39829432&profid=ehost

36. Universal versus targeted chlorhexidine and mupirocin decolonisation and clinical and molecular epidemiology of Staphylococcus epidermidis bloodstream infections in patients in intensive care in Scotland, UK: a controlled time-series and longitudinal genotypic study

Item Type: Journal Article

Authors: Sharaf, Sara;Lawes, Timothy;Roos, Deon;Okoliegbe, Ijeoma;Alapati, Susanth;Ribeiro, Antonio;Nkene, Istifanus;Ghezzi, Daniele;Reid, Stuart J.;Austin, Victoria;Ayansina, Dolapo;Wilson, Becky;Rehman, Tanzeel;Parcell, Benjamin J.;Mellor, Ian;Marwick, Charis A.;Oggioni, Marco and Hijazi, Karolin

Publication Date: 2025

Journal: The Lancet. Microbe , pp. 101118

Abstract: Background: There are concerns that biocide skin and mucous membrane decolonisation, which is widely used to prevent health-care-associated infections in intensive care units (ICUs), might select for multidrug-resistant pathogens. We aimed to evaluate the effects of de-escalating from universal to targeted skin and nasal decolonisation on Staphylococcus epidermidis bloodstream infections (SE-BSI).; **Methods:** We did a retrospective, before-after-control-impact time-series analysis and longitudinal genotypic study in two ICUs with divergent decolonisation practice in tertiary care hospitals of adjacent health boards in Scotland, UK. Participants were aged at least 16 years and admitted between July 1, 2009, and Feb 28, 2022. There were no exclusion criteria for the study. In ICU one (intervention site) universal decolonisation in all admissions was de-escalated to targeted decolonisation of meticillin-resistant Staphylococcus aureus (MRSA) carriers on Feb 1, 2019, while in ICU two (control site) targeted decolonisation was applied throughout. We collected bloodstream infection data from all causes, including clinically significant SE-BSI. Antimicrobial susceptibility testing was used to define meticillin-resistant Sepidermidis (MRSE) and chlorhexidine susceptibility. We used multilocus sequence typing to identify sequence types from archived SE-BSI isolates. Whole-genome sequencing was applied to a sample from ICU one. The primary outcomes were incidence densities of all bloodstream infections, SE-BSI, and meticillin-resistant S epidermidis bloodstream infections (MRSE-BSI), and the percentage probability that SE-BSI were MRSE-BSI. The effects of de-escalation on primary outcomes were estimated by differences between the intervention and control sites, before and after de-escalation, using a before-after-control-impact time-series design. Secondary outcomes included the proportion of multidrug resistant sequence types, carriage of mobile genetic elements and genes for multidrug resistance and biofilm production.; **Findings:** Between July 1, 2009, and Feb 28, 2022, S epidermidis was identified in 334 (45%) of 735 bloodstream infections in ICU one, of which 197 occurred before the de-escalation intervention in Feb 1, 2019, and S epidermidis was identified in 167 (60%) of 278 bloodstream infections in ICU two. There was no increase in all bloodstream infection incidence coinciding with de-escalation in ICU one, whereas MRSE-BSI incidence declined significantly from 10·4 cases per 1000 occupied bed days (OBDs; 95% credible interval CrI] 7·2-15·4) to 4·3 cases per 1000 OBDs (2·5-6·7), as did the percentage probability of MRSE (from 89·2%, 95% CrI 77·8-96·5 to 56·7%, 34·3-77·5%). No significant changes in the primary outcomes were seen in ICU two. MRSE-BSI incidence density was positively associated with chlorhexidine use, but not mupirocin use. De-escalation was associated with a reduced proportion of SE-BSI due to multidrug-resistant sequence types and reduced carriage of mobile genetic elements and genes for multidrug resistance and biofilm production, as observed by multi-locus sequence typing and whole genome sequencing.; Interpretation: In ICU settings with low MRSA incidence, the benefits of universal decolonisation should be balanced against the risks of selecting MRSE sequence types adapted for invasive and device-associated infection.; Funding: National Health Service Grampian Charity. (Copyright © 2025 The Author(s). Published by Elsevier Ltd.. All rights reserved.)

Access or request full text: https://libkey.io/10.1016/j.lanmic.2025.101118

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40516572&profid=ehost

37. Essential Japanese Guidelines for the Prevention of Perioperative Infections in the Urological Field: 2023 Edition

Item Type: Journal Article

Authors: Shigemura, Katsumi;Kamei, Jun;Shigehara, Kazuyoshi;Nukaya, Takuhisa;Etani, Toshiki;Togo, Yoshikazu and Yamamoto, Shingo

Publication Date: 2025

Journal: International Journal of Urology : Official Journal of the Japanese Urological Association 32(6), pp. 621–632

Abstract: Recently, urological surgery has undergone remarkable technological advances and these new technologies are being adapted to a wide array of medical fields. Robotic-assisted laparoscopic procedures are not limited to radical prostatectomy, but include partial nephrectomy, pyeloplasty, radical cystectomy, and more. Perioperative infection control measures are not limited to the selection, method, and duration of antimicrobials, but include new evidence about smoking cessation, abstinence from alcohol, blood glucose control, and nutritional status assessment as well as time off just before operations. The new 2023 JUA guidelines for the prevention of perioperative infections in the urological field include general remarks and itemized discussion. We chose three standard treatments related to background questions and nine clinical questions. Although we have organized information to the best of our ability, there are still many areas where evidence is lacking. We anticipate that urology specialists will continue to report new findings and accumulate more evidence regarding unresolved areas for the next revision. (© 2025 The Author(s). International Journal of Urology published by John Wiley & Sons Australia, Ltd on behalf of The Japanese Urological Association.)

Access or request full text: https://libkey.io/10.1111/iju.70026

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40062575&profid=ehost

38. "I Know What I Have to Do, but I Don't Do It": The Relationship Between Knowledge and Adherence to Hand Hygiene in Healthcare Settings

Item Type: Journal Article

Authors: Silva, Joana;Antunes, Cristina;Batista, Samanta;Braga, José;Gomes, Angélica;Guedes, Rosa;Barbosa, Anabela;Forte, Pedro and Imaginário, Cristina

Publication Date: 2025

Journal: Healthcare (2227-9032) 13(5), pp. 530

Access or request full text: https://libkey.io/10.3390/healthcare13050530

39. CC180 clade dynamics do not universally explain Streptococcus pneumoniae serotype 3 persistence post-vaccine: a global comparative population genomics study

Item Type: Journal Article

Authors: Stanley, Sydney;Silva-Costa, Catarina;Gomes-Silva, Joana;Melo-Cristino, Jose;Malley, Richard and Ramirez, Mario

Publication Date: 2025

Journal: EBioMedicine 117, pp. 105781

Abstract: **Background:** Clonal complex 180 (CC180) is currently the major clone of serotype 3 Streptococcus pneumoniae (Spn) causing disease among children and adults worldwide. The 13-valent pneumococcal conjugate vaccine (PCV13) does not have significant efficacy against serotype 3 despite polysaccharide inclusion in the vaccine. It was hypothesized that PCV13 may effectively control Clade I of CC180 but that Clades III and IV are resistant, provoking a population shift that enables serotype 3 persistence. This has been observed in the United States, England, and Wales but not Spain. We tested this hypothesis further utilizing a dataset from Portugal to conduct our population genomics and molecular epidemiology comparative study.; **Methods:** We performed whole-genome sequencing (WGS) of 501 serotype 3 strains from Portugal isolated from patients with pneumococcal infections between 1999 and 2020. The draft genomes underwent phylogenetic analyses, pangenome profiling, and a genome-wide association study (GWAS). We also completed antibiotic susceptibility testing and compiled over 2600 serotype 3 multilocus sequence type 180 (MLST180) WGSs to perform global comparative genomics.; **Findings:** Relative to strains from all other lineages, CC180 Clades I, II, III, IV, and VI strains trend towards a decreased association with invasive disease cases compared to non-invasive pneumonia cases (binomial logistic regression, odds ratio or OR = 0.59, 95% confidence interval or CI = 0.34, 0.98], P = 0.046) and adult patients compared to paediatric patients (binomial logistic regression, OR = 0.34, 95% CI = 0.098, 0.92], P = 0.054). The serotype 3 CCs shifted post-PCV13 such that Clades I-VI comprise the majority of post-PCV13 lineages (binomial logistic regression, OR = 7.33, 95% CI = 4.36, 12.80, P < 0.0001), with Clade I representing 54% (220/404) of all post-PCV13 strains. As observed elsewhere, Clade I strains from Portugal are largely antibiotic-sensitive and carry the ΦOXC141 prophage. However, strains from Portugal and Spain, where Clade I remains dominant post-PCV13, have larger pangenomes and are associated with the presence of two genes encoding hypothetical proteins.; Interpretation: Clade I became dominant in Portugal post-PCV13, despite the burden of the prophage and antibiotic sensitivity. The additional accessory genome content may mitigate these fitness costs. Regional differences in Clade I prevalence and pangenome heterogeneity suggest that clade dynamics is not a generalizable approach to understanding serotype 3 vaccine escape.; Funding: National Institute of Child Health and Human Development, Pfizer, and Merck Sharp & Dohme. (Copyright © 2025 The Authors. Published by Elsevier B.V. All rights reserved.)

40. Oncology nurses' compliance with standard precautions: a multi-method study

Item Type: Journal Article

Authors: Tarakcioglu Celik, Gul Hatice and Ozdemir, Ecem

Publication Date: 2025

Journal: BMC Nursing 24(1), pp. 1–12

Abstract: Aim: To assess oncology nurses' compliance with standard precautions (SPs) and explore factors influencing adherence to inform targeted interventions in infection prevention. **Design:** A multi-method methodology was used. **Methods:** In the quantitative phase, 232 nurses from two oncology hospitals completed the Compliance with Standard Precautions Scale (CSPS) and a demographic questionnaire. In the qualitative phase, structured observations and semi-structured interviews were conducted with 14 purposively selected nurses. **Results:** The average SP compliance score was moderate (73.9%). Higher compliance was observed in waste disposal (86.2%), while lower rates were noted for hand hygiene (67.2%) and sharps disposal (63.2%). Age, professional experience, and recent infection control training positively correlated with compliance. A higher patient load was associated with lower adherence. Multiple regression analysis showed that both nurse age and daily patient load were significant predictors of compliance scores (F = 6.714, p < 0.01). Older age was associated with higher compliance, while a heavier patient load predicted lower adherence. Qualitative findings revealed key barriers, including time constraints, limited resources, and staffing shortages. Nurses emphasized that consistent training, managerial support, and supervision by infection control personnel facilitated better compliance. **Conclusions:** Oncology nurses moderately adhere to SPs, with critical gaps in high-risk areas. Addressing institutional and workload-related barriers is essential for improving SP practices. Clinical trial number: Not applicable.

41. WHO research agenda on the role of the institutional safety climate for hand hygiene improvement: a Delphi consensus- building study

Item Type: Journal Article

Authors: Tartari, Ermira;Storr, Julie;Bellare, Nita;Kilpatrick, Claire;McGuckin, Maryanne;Schwaber, Mitchell

J.;Pittet, Didier and Allegranzi, Benedetta

Publication Date: 2025

Journal: BMJ Quality & Safety 34(9), pp. 609–620

Abstract: Background Creating and sustaining an institutional climate conducive to patient and health worker safety is a critical element of successful multimodal hand hygiene improvement strategies aimed at achieving best practices. Repeated WHO global surveys indicate that the institutional safety climate consistently ranks the lowest among various interventions. **Methods** To develop an international expert consensus on research agenda priorities related to the role of institutional safety climate within the context of a multimodal hand hygiene improvement strategy, we conducted a structured consensus process involving a purposive sample of international experts. A preliminary list of research priorities was formulated following evidence mapping, and subsequently refined through a modified Delphi consensus process involving two rounds. In round 1, survey respondents were asked to rate the importance of each research priority. In round 2, experts reviewed round 1 ratings to reach a consensus (defined as ≥70% agreement) on the final prioritised items to be included in the research agenda. The research priorities were then reviewed and finalised by members of the WHO Technical Advisory Group on Hand Hygiene Research in Healthcare. **Results** Of the 57 invited participants, 50 completed Delphi round 1 (88%), and 48 completed round 2 (96%). Thirty-six research priority statements were included in round 1 across five thematic categories: (1) safety climate; (2) personal accountability for hand hygiene; (3) leadership; (4) patient participation and empowerment and (5) religion and traditions. In round 1, 75% of the items achieved consensus, with 9 statements carried forward to round 2, leading to a final set of 31 prioritised research statements. **Conclusion** This research agenda can be used by researchers, clinicians, policy-makers and funding bodies to address gaps in hand hygiene improvement within the context of an institutional safety climate, thereby enhancing patient and health worker safety globally.

Access or request full text: https://libkey.io/10.1136/bmjqs-2024-017162

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42. Invasive group A streptococcus infections in the intensive care unit: an unsupervised cluster analysis of a multicentric retrospective cohort

Item Type: Journal Article

Authors: Urbina, T.;Faucheux, L.;Lavillegrand, J. R.;Massol, J.;Lecronier, M.;de Roux, Q.;Turpin, M.;Menard, W.;Gautier, M.;Barnaud, G.;Roux, D.;Luyt, C. E.;Vieillard-Baron, A.;Voiriot, G.;Mongardon, N.;Decavele, M.;Pène, F.;Joffre, J.;Ait-Oufella, H.;de Prost, N., et al

Publication Date: 2025

Journal: Critical Care (London, England) 29(1), pp. 239

Abstract: Background: Invasive group A streptococcus (iGAS) infection incidence is rising. These infections have been studied as a whole but can be associated with critical illness in a population with a wide array of underlying conditions, sites of infection and clinical presentations. Using an unsupervised clustering approach, we aimed to identify specific clinical phenotypes regarding presentation, management and outcome.; **Methods:** This was a retrospective multicentric study including all patients admitted to one of 9 ICUs of Paris University Hospitals for an iGAS infection between 01/03/2018 and 01/08/2023. iGAS infection was defined as GAS growth in any microbiological sample from a sterile site. Patients were grouped according to a clustering algorithm (k-prototypes) using a comprehensive set of clinical and biological variables available upon ICU admission. Clusters were described and clinical presentation, management and outcome were compared.; **Results:** 148 patients were included. According to the Silhouette criterion, patients were grouped in 3 clusters, and 7 patients remained unclassified. Cluster 1 (n = 73) comprised a greater proportion of less severely-ill female patients with painful skin and soft tissue infections, a quarter of whom had taken non-steroidal anti-inflammatory drugs. Cluster 2 (n = 42) was characterized by a high rate of respiratory infections with frequent viral co-infections. Cluster 3 (n = 26) included mostly socially deprived patients with high rates of chronic alcohol consumption and psychiatric illness, with severe organ dysfunction related to otherwise pauci-symptomatic skin and soft tissue infections. There was no significant difference in time to source control across clusters (0 0-0] vs 0 0-0] vs 0 0-1] days, p = 0.12). Patients included in cluster 2 less frequently received antitoxin antibiotics than patients from clusters 1 and 3 (79% vs 45% vs 69%, p < 0.001) and tended to more frequently require ECMO support (3% vs 12% vs 0%, p = 0.07), while those from cluster 1 were less likely to receive invasive mechanical ventilation (48% vs 74% vs 77%, p = 0.005). There was no difference in ICU-mortality between clusters (19% vs 29% vs 31%, p = 0.32).; **Conclusions:** Based on simple and readily available clinical admission characteristics of critically ill patients with iGAS, unsupervised clustering analysis identified three specific patient populations that differed regarding ICU management. Whether tailoring management would affect outcome warrants further research. (© 2025. The Author(s).)

Access or request full text: https://libkey.io/10.1186/s13054-025-05469-6

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43. Overcoming barriers to NHS adoption of innovative IPC products: A qualitative study of SMEs in the Liverpool city region

Item Type: Journal Article

Authors: Villacorta Linaza, R.;Hemingway, J.;Roberts, A. P.;Jones-Philips, B.;Taegtmeyer, M.;Wright, R. L.;Cantillon, D.;Moore, M.;Dacombe, R.;Boro, E.;Argomandkhah, A.;Velasco, C. and Feasey, N.

Publication Date: 2025

Journal: PloS One 20(9), pp. e0331688

Abstract: Healthcare-associated infections (HAIs) result in prolonged hospital stays and an increased incidence of infections caused by antimicrobial-resistant bacteria. Small and Medium Enterprises (SMEs) play

a crucial role in developing innovative Infection Prevention and Control (IPC) solutions, but they face substantial challenges in navigating the complex NHS procurement system. This study, carried out in the Liverpool City Region in 2022, investigated these barriers. The methodology involved qualitative data collection through an online survey and five semi-structured interviews with SMEs involved in IPC innovation. The survey targeted 114 SMEs, and the interviews were conducted remotely with management teams. Data were analysed thematically using NVivo software, allowing for the identification of key barriers and recurring themes across the dataset. Key challenges identified included high market-entry costs, navigating complex regulatory and procurement frameworks, and limited access to key NHS stakeholders. These issues were compounded by fragmented decision-making processes within NHS Trusts, making it difficult for SMEs to secure product adoption. Despite these barriers, SMEs remain committed to innovating IPC solutions, driven by the potential to improve patient care and address antimicrobial resistance. This report recommends streamlining support mechanisms for SMEs, improving access to NHS decision-makers, and advocating for policy reforms to simplify the procurement process. By facilitating collaboration between SMEs, the NHS, and other stakeholders, the adoption of innovative IPC products can be accelerated, ultimately benefiting patients and addressing the significant public health threats posed by HAIs and antimicrobial resistance. (Copyright: © 2025 Villacorta Linaza 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.0331688

URL: https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=mdc&AN=40956811&profid=ehost

44. Analysis and Impact of Infection Prevention Procedures in Long-Term Care Facilities

Item Type: Journal Article

Authors: Viti, Federico;Cartocci, Alessandra;Perinti, Roberto;Guarducci, Giovanni and Nante, Nicola

Publication Date: 2025

Journal: Journal of Preventive Medicine and Hygiene 66(1), pp. E75–E83

Abstract: Background: Healthcare-associated infections (HAIs) are a significant healthcare complication, with major implications for public health. In the EU/EEA, up to 2.6 million new HAIs cases occur annually, causing significant burdens and economic costs. In Italy, the prevalence of HAIs is rising due to factors like invasive devices, antibiotic resistance, and poor infection control. The aim of this work is to evaluate the effectiveness of HAIs containment practices in long-term care facilities (LTCF).; **Materials and Methods:** This cross-sectional study included eight LTCF inspected by Prevention Technicians of the Local Health Authority Tuscany South-East (LHA-TSE) in 2023. The study evaluated non-compliance in procedures for legionellosis prevention, cleaning and disinfection, laundry management, management of pans, HAIs prevention, healthcare tools disinfection, and hairdressing services. Data were analysed using descriptive statistics and the Mann Whitney test to compare infection rates with procedure compliance.; **Results**: In 2023, 606

infections were reported in the eight enrolled LTCF. The most frequent infections were COVID-19 (19.4%), urinary tract infections (16.9%), pharyngitis (15.6%), and influenza-like illness (ILI) (15%). For the "Laundry Procedure," 3 LTCF were compliant and 5 were not, showing a significant relationship with influenza syndromes ($p = 0.02$) and surgical site infections ($p = 0.04$). For the "Cleaning Check" procedure, non-compliance was linked to higher fungal infections ($p = 0.01$) and gastroenteritis ($p = 0.04$). The "Disinfection of Health Tools procedure showed non-compliance correlated with higher gastroenteritis ($p = 0.04$) and conjunctivitis ($p = 0.01$). Gastrointestinal infections from Clostridium difficile were linked to non-compliance with "HAIs Procedures Routes" ($p = 0.04$), "Pans" processes ($p = 0.04$), and cleanliness in the hairdressing service ($p = 0.04$). Herpes simplex or Herpes zoster infections were higher in LTCF with non-compliant hairdressing service rooms ($p = 0.02$). Two legionellosis cases were recorded in LTCF with reported non-compliance in analytical procedures for Legionellosis.; **Conclusions:** Our analysis showed significant correlations between cleanliness procedures and reductions in fungal infections, gastroenteritis, and ear infections. Compliance in laundry procedures was linked to ILI and surgical site infections. Non-compliance in healthcare tools correlated with higher rates of gastroenteritis and conjunctivitis, highlighting the need for stronger practices. The data suggest that effective prevention measures reduce HAIs, though discrepancies in implementation across facilities call for standardization and continuous monitoring. (©2025 Pacini Editore SRL, Pisa, Italy.)

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