

Healthy skin, safe patients:

The value of
patient hygiene



Clinical Consensus Statement





Foreword

The COVID-19 pandemic has had an adverse impact on the quality of healthcare delivery in the UK. Infection preventionists have had to grapple with the rapidly changing nature of the hospital environment, while also navigating the risks posed by this new disease. The proliferation of life-threatening hospital acquired infections (HCAs) across the world has placed more impetus on hospitals and healthcare environments to develop a consistent approach to patient hygiene practices, and the UK is no different. With the heightened risk of HCAs since the pandemic, we owe it to our patients to drive a change in hygiene practices that can ultimately protect them from preventable illnesses.

There is a significant variation in approaches and outcomes in HCAI prevention in the UK, including the different types of intervention they utilise. While some infection preventionists deliver chlorhexidine gluconate (CHG) washes for patients, others wash all patients with CHG or use soap and water. This indicates that, despite the National Institute for Health and Care Excellence's (NICE) presentation of the clinical and cost efficacy of CHG in reducing the risk of Surgical Site Infections (SSIs)¹, there is no standardised approach to patient hygiene, and often these protocols are implemented in an inconsistent manner across practices.

From a Mölnlycke perspective, we feel that we have a responsibility to help empower healthcare providers and organisations with the tools they need to prevent HCAs. We believe that this not only comes from the provision of the products that we manufacture, but also through our dedication to education in hospitals, clinical support, and our work with compliance monitoring. As a company, we are deeply passionate about delivering professional education to our colleagues and partners in the NHS via sponsored lectures and educational events. We believe that we should constantly engage with experts in the field, so that we can learn and share knowledge with healthcare professionals (HCPs) and infection preventionists around the world.

Our UK Patient Hygiene Advisory Board meeting, which brought together leading experts from across the UK infection prevention landscape, is the latest chapter in this journey. During this discussion, we reached a consensus on the value of high-quality hygiene practice and the crucial role that it plays during a patient's hospital stay. I and everyone at Mölnlycke hope that the 'Healthy skin, safe patients: The value of patient hygiene' report can act as the start of a conversation on this important and often overlooked area of clinical care. I am thankful to all our colleagues who gave up their time to share their expertise, insights and perspectives and I look forward to building on this work in promoting patient hygiene practices.



Dr Tod Brindle
Global Medical Director-Antiseptics,
Gloves and ORS, Mölnlycke

1. <https://www.nice.org.uk/guidance/NG125>



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Executive Summary of Statements



The scale and impact that HCAs have on hospitals and other healthcare environments is a persistent and significant challenge for the NHS. It is estimated that 300,000 patients a year in England acquire HCAs, costing the NHS an estimated £1 billion per year, with £56 million of this incurred after patients are discharged from hospital.^{2,3} COVID-19 has further complicated the issue by lessening our collective focus on these dangerous forms of infections. If left unchecked, the long-term implications for patients, clinical teams and the NHS could be detrimental.

Despite the best efforts of HCPs, many forms of surgery will have a high risk of infection rates in particular patient populations - one in eleven people will acquire a potentially life-threatening infection while in hospital.⁴ In addition to the pain and worry that this can cause to patients, carers and families, the risk of infection has implications in reducing the backlog of elective care, as well as substantial costs to the UK economy.^{5,6} It is therefore imperative that hospitals across the UK implement the best practice protocols and ensure that any avoidable risks are lessened.

Mölnlycke works in close collaboration with the infection prevention and control community to understand how we can best support HCPs to prevent HCAs in hospitals and other healthcare settings. Government measures, such as the 'Health and Social Care Act 2008: Code of Practice for the NHS on the Prevention and Control of Healthcare Associated Infections and Related Guidance' requires that all NHS bodies have systems in place that are sufficient to minimise the risk of infections to patients, staff and visitors.⁷ We believe that a grass-roots approach, supported through constant dialogue with infection prevention experts, is vital in alleviating the day-to-day pressures that HCPs face, which, in turn, can assist the NHS in its post-COVID recovery.

On 26 April 2022, Mölnlycke convened a two-hour patient hygiene advisory board, bringing together leading infection control preventionists working across the United Kingdom. The purpose of this advisory board was to provide a forum in which healthcare professionals could reflect on the role that patient bathing has in improving patient care in hospitals post-pandemic.

2. Assets.publishing.service.gov.uk. 2022. [online] Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/212798/Sage-2-percent-Chlorhexidine-Gluconate-Cloth.pdf> [Accessed 5 April 2022].

3. Nice.org.uk. 2022. Introduction | Healthcare-associated infections; prevention and control in primary and community care | Guidance | NICE. [online] Available at: <<https://www.nice.org.uk/guidance/cg139/chapter/introduction#:~:text=Healthcare%2Dassociated%20infections%20are%20estimated,patients%20are%20discharged%20from%20hospital.>> [Accessed 4 May 2022].

4. National Audit Office. Improving Patient Care by Reducing The Risk of Hospital Acquired Infection: A Progress Report. 2004.

5. Leaper DJ, van Goor H, Reilly J, Petrosillo N, Geiss HK, Torres AJ, et al. Surgical site infection - a European perspective of incidence and economic burden. *Int Wound J.* 2004;1(4):247-73.

6. European Centre for Disease Prevention and Control. Annual epidemiological report on the communicable diseases in Europe. 2008: Ch 2: Healthcare-associated infections (Euro Conversion: €1=£0.835950).

7. Department of Health, The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/449049/Code_of_practice_280715_acc.pdf [accessed May 2022]



Executive Summary of Statements



This 'Health skin, safe patients: The value of patient hygiene' report sheds a light on the best approaches to empowering HCPs and organisations with key tools to prevent HCAs. The experts who joined the panel came to a consensus on five key statements on the importance of patient hygiene, skin integrity and the value of CHG bathing as an efficacious preventative tool, one which can improve patient outcomes and deliver added value to the NHS. We believe that these five consensus statements help demonstrate the value that safe and effective hygiene practices can have in preventing infections and aiding patients in their recovery.

- 1 **Statement One** - Patient hygiene is more than a discretionary process; it is a fundamental element of basic care and must be seen as an essential, evidence-based infection prevention and control protocol.
- 2 **Statement Two** - Healthcare associated infections-associated pathogens on a patient's skin can pose a considerable risk to their healthy recovery, before and after surgical procedures.
- 3 **Statement Three** - Promotion of skin integrity carries importance in infection prevention and helps eliminate new portals of entry for pathogens.
- 4 **Statement Four** - A consistent approach to CHG bathing should be considered best practice for high-risk surgical procedures as part of an SSI preventative bundle to reduce the risk of infection.
- 5 **Statement Five** - Consistent use of CHG bathing is effective in improving patient outcomes and provides added value for the NHS.

Joining us at the roundtable were:

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Global Medical Director -
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Ruth Collins
Incoming President of
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Anna Thompson
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Professor David Leaper
Emeritus Professor of
Clinical Sciences,
Institute of Skin Integrity and
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Professor of Surgery, University
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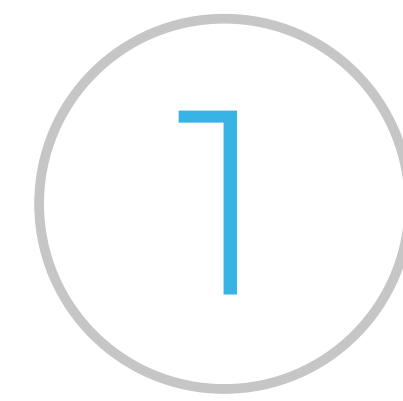
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Foundation Trust



Consensus Statements

- 1 **Statement One**
- 2 Statement Two
- 3 Statement Three
- 4 Statement Four
- 5 Statement Five



Statement One: Patient hygiene is more than a discretionary process; it is a fundamental element of basic care and must be seen as an essential, evidence-based infection prevention control protocol.

Healthcare-associated infections (HCAIs) are preventable forms of illnesses.⁸ Despite this, the risk of infection in hospitals remains high.^{9,10} Traditional efforts to mitigate the risks of HCAIs have resulted in varying degrees of success.¹¹ Despite the widespread introduction of evidence-based guidelines for the prevention of HCAIs, such as that of the National Institute for Health and Clinical Excellence and the World Health Organisations' (WHO) 'Safe Surgery Saves Lives' checklist, limited compliance rates of care bundles across hospitals pose a significant barrier to improving patient hygiene outcomes.^{12,13}

Participants at our advisory board were clear on the challenge in assuring hospital hygiene routines return to normal and ensuring that compliance rates were improved. They highlighted that it was important for staff and patients develop a strong understanding of the hygiene protocols available to them, including the use of CHG whole-body washes.

Significantly, panellists came to a consensus around the need to tackle HCAIs in an effective and systematic manner through a bundled approach to healthcare, that ensured high compliance rates. Participants agreed that it was essential to develop a highly accessible education system offered to all nursing staff, to ensure that they are aware of the importance of maintaining high-quality patient safety practices.

Moreover, our panel stated that a lack of compliance around infection prevention measures meant that patients were often at higher risk from HCAIs. Such issues have been magnified further by the low retention rate of hospital staff, particularly nurses in Intensive Care Units (ICUs). This had been compounded throughout the COVID-19 pandemic, where one in ten nurses had left the NHS by September 2021.¹⁴ This higher level of turnover resulted in a reduction of institutional knowledge and a drop in overall rates of infection prevention compliance. Therefore, there was a need to introduce incentives for nurses to remain in their posts.

The group also came to a consensus on the need to develop new and comprehensive data on the use of CHG whole body washes, to illustrate its effectiveness and to ensure that hospital staff were confident in its use and application. As part of this, it was important to fully measure compliance rates across trusts to identify where care could be improved for the benefit of patients. Finally, participants also highlighted that there was an inequality of hygiene practices across the UK, with several hospitals lacking access to basic hygiene equipment and care bundles. Panellists stated this needed to be addressed urgently to reduce the risk of HCAIs for patients across the whole NHS system.



8. Wagh, A. and Sinha, A., 2018. Prevention of healthcare-associated infections in paediatric intensive care unit. *Child's Nervous System*, 34(10), pp.1865-1870.

9. Guest, J., Keating, T., Gould, D. and Wigglesworth, N., 2020. Modelling the annual NHS costs and outcomes attributable to healthcare-associated infections in England. *BMJ Open*, 10(1), p.e033367.

10. Leaper DJ, van Goor H, Reilly J, et al. Surgical site infection - a European perspective of incidence and economic burden. *Int Wound J*. 2004;1(4):247-273.

11. 2022. [online] Available at: <<https://commonslibrary.parliament.uk/research-briefings/cdp-2018-0116/>> [Accessed 24 May 2022].

12. Leaper, D., Tanner, J., Kiernan, M., Assadian, O. and Edmiston, C., 2014. Surgical site infection: poor compliance with guidelines and care bundles. *International Wound Journal*, 12(3), pp.357-362.

13. GOV.UK. 2022. Health and Social Care Act 2008: code of practice on the prevention and control of infections. [online] Available at: <<https://www.gov.uk/government/publications/the-health-and-social-care-act-2008-code-of-practice-on-the-prevention-and-control-of-infections-and-related-guidance>> [Accessed 23 May 2022].

14. The Nuffield Trust. 2022. The long goodbye? Exploring rates of staff leaving the NHS and social care. [online] Available at: <<https://www.nuffieldtrust.org.uk/resource/the-long-goodbye-exploring-rates-of-staff-leaving-the-nhs-and-social-care>> [Accessed 17 May 2022].



Consensus Statements

1 Statement One

2 Statement Two

3 Statement Three

4 Statement Four

5 Statement Five



Statement Two: HCAI-associated pathogens on a patient’s skin can pose a considerable risk to their healthy recovery, before and after surgical procedures.

One of the core functions of the skin is to protect the host from invasion, and this is achieved firstly through physical barriers.¹⁵ However, during a patient’s visit to a hospital, infectious pathogens can access the bloodstream of a patient, especially when an open wound is present from an injury or following an invasive surgical procedure.¹⁶ Once a patient becomes infected, their hospital stay is likely to be extended, sometimes by months and can result in death.

Our advisory board members came to a consensus on the need to introduce and retain simple hospital hygiene practices which could help enhance infection prevention compliance rates. The panel acknowledged that basic practices, such as handwashing can play a crucial role in the prevention and transmission of pathogens within a hospital.¹⁷ Hand hygiene is often considered one of the most important factors in reducing the risks of HCAs, with hand decontamination dramatically reducing rates of cross-transmission rates between organisms and humans.¹⁸

Panellists noted strong evidence to suggest that CHG skin preparation reduces levels of SSIs. Importantly, attendees highlighted the benefits that CHG whole body washing played in reducing the risks associated with a range of HCAs. For example, participants stated that care for patients having a Caesarean section was enhanced following the use of pre-operative and post-operative CHG washes, as part of a wider, bundled approach to hospital hygiene practices.



15. Hse.gov.uk. 2022. HSE - Skin at work: Work-related skin disease – Skin structure and function. [online] Available at: <<https://www.hse.gov.uk/skin/professional/causes/structure.htm>> [Accessed 25 May 2022].

16. Health.org.uk. 2022. [online] Available at: <<https://www.health.org.uk/sites/default/files/InfectionPreventionAndControlLessonsFromAcuteCareInEngland.pdf>> [Accessed 25 May 2022].

17. Infection Prevention Control. 2022. Hand hygiene Policy for General Practice - Infection Prevention Control. [online] Available at: <<https://www.infectionpreventioncontrol.co.uk/resources/hand-hygiene-for-general-practice/#:~:text=Handwashing%20is%20the%20single%20most,which%20may%20cause%20them%20harm.>> [Accessed 17 May 2022].

18. Your Bibliography: Uhcw.nhs.uk. 2019. [online] Available at: <[https://www.uhcw.nhs.uk/download/clientfiles/files/Patient%20Information%20Leaflets/Trauma%20and%20Neuro%20services/Trauma%20and%20Orthopaedics/119016_General_advice_following_hand_and_wrist_surgery_\(868\)_-_June_2019.pdf](https://www.uhcw.nhs.uk/download/clientfiles/files/Patient%20Information%20Leaflets/Trauma%20and%20Neuro%20services/Trauma%20and%20Orthopaedics/119016_General_advice_following_hand_and_wrist_surgery_(868)_-_June_2019.pdf)> [Accessed 23 May 2022].

19. Carty, N., Leaper, D., Perry, L. and Edmiston, C., 2021. Preliminary analysis of the antimicrobial activity of a novel surgical incise drape containing chlorhexidine gluconate against methicillin-resistant Staphylococcus aureus (MRSA) in an in vivo porcine, incisional-wound model. American Journal of Infection Control, 49(7), pp.857-861.



Consensus Statements

1 Statement One

2 Statement Two

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5 Statement Five

3 Statement Three: Promotion of skin integrity carries importance in infection prevention and helps eliminate new portals of entry for pathogens.

The COVID-19 pandemic has exposed the NHS to many pressures, including tackling the backlog of non-COVID care whilst still treating a substantial number of COVID-19 patients.²⁰ An overstretched workforce, coupled with increases in hospital admission rates has resulted in greater risks of patients' skin becoming susceptible to pathogenic flora.²¹ Throughout the pandemic and beyond, ICUs reported a high incidence of pressure injuries, attributed in part to a loosening of pressure ulcers.²² These issues are likely to be compounded by workforce shortages and burnout, meaning less time and effort is placed towards monitoring individual patients for the invasion of harmful pathogens.

Our attendees were acutely aware of the risks posed by breaks in skin integrity. There was consensus on the need to maintain best practice approaches to promoting skin integrity and preventing skin related injuries. Attendees also emphasised that the importance of risk assessments and surveillance exercises to take place throughout the patient's time in hospital, to ensure that risks from HCAs were minimised. A growing body of literature indicates that surveillance methodologies have a considerable impact on SSI rates, and differences as even minor ones result in variations in the prevalence of SSIs.^{23,24} These concerns were expressed by our panel, who made clear that it was essential that hospitals need to adhere to consistent and high-quality SSI surveillance practices.

Members of our panel also emphasised that staff should regularly moisturise their hands, because they act a vessel for transmitting bacteria. Participants highlighted that HCPs often suffer from higher rates of work-related contact dermatitis, which could result in greater levels of breakage in the skin thus increasing the risks posed by entry from pathogens.²⁵

There was a clear consensus among participants about the importance of communicating infection prevention and control messaging in an effective and clear manner across hospital trusts. Of note, attendees stated that there had been a cultural shift in the way that infection prevention messaging is communicated by the NHS. Increasingly a greater emphasis is placed on reducing readmission rates, patient comfort and fundamental care, rather than focusing exclusively on mortality rates. This has helped build a positive case for the preventative aspects of infection prevention and control methods.



20. The Health Foundation. 2022. Why is the NHS really under 'record pressure?'. [online] Available at: <<https://www.health.org.uk/news-and-comment/charts-and-infographics/do-we-really-understand-why-the-nhs-is-under-record-pressure>> [Accessed 25 May 2022].

21. Iacobucci, G., 2022. Covid-19: NHS relaxes infection prevention and control measures. *BMJ*, p.o1029.

22. Resolution.nhs.uk. 2022. [online] Available at: <<https://resolution.nhs.uk/wp-content/uploads/2021/10/20211014-Learning-from-Claims-hospital-acquired-pressure-ulcers-presentation.pdf>> [Accessed 23 May 2022].

23. Horan TC, Gaynes RP, Martone WJ, Jarvis WR, Emori TG. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. *Am J Infect Control* 1992;20:271-4.

24. Tanner J, Padley W, Kiernan MA, Leaper DJ, Norrie P, Baggott R. A benchmark too far: findings from a national survey of surgical site infection surveillance. *J Hosp Infect* 2013;83:87-91

25. Hse.gov.uk. 2022. Work-related contact dermatitis - health and safety topics in cleaning. [online] Available at: <<https://www.hse.gov.uk/cleaning/topics/dermatitis.htm>> [Accessed 17 May 2022].



Consensus Statements

1 Statement One

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Statement Four: A consistent approach to CHG bathing should be considered best practice for high-risk surgical procedures as part of an SSI preventative bundle to reduce the risk of infection.

Throughout the UK, there are multiple examples of trusts successfully integrating CHG daily washes and subsequently recording a drop in their HCAI rates. For example, when CHG washes were utilised by Guys and St Thomas' NHS Foundation Trust, nurses and clinicians found that it led to a sustained reduction and almost total elimination of MRSA bacteraemia from their ICU units.²⁶

One of the core themes that emerged throughout the advisory board meeting, was the risk posed by SSIs on a patient's mortality and mental health, as well as the financial burdens placed on the NHS. Panellists expressed interest in finding new methods by which to reduce SSIs through a bundled approach. They acknowledged that challenges existed, particularly due to the national and multi-regional guidance that often did not provide a strong steer in terms of the best types of hygiene practices that should be taken. This was a topic of particular concern for our panel, and they highlighted the need for consistent, data driven advice for trusts to adhere to.

Members of the advisory board discussed the value of topical antiseptic washing and they strongly favoured the use of CHG washes as part of a wider SSI bundle of patient hygiene. Attendees viewed CHG washes as a highly effective protocol by which to reduce rates of bacterial load, especially in comparison to traditional wash methods. As part of this, our panel highlighted that it was important to develop a consistent approach to hospital hygiene practices, which includes the use of CHG washes.



26. Wyncoll D, Shankar-Hari M, Beale R; 2015. Daily Bathing with 2% CHG Washcloths Leads to Almost Total Elimination of MRSA Bacteraemia. King's Health Partners



Consensus Statements

1 Statement One

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Statement Five: Consistent use of CHG bathing is effective in improving patient outcomes and provides added value for the NHS.

SSI rates account for one in seven HCAI cases, and from a patient-centric lens, SSIs can cause significant physical or psychological disability.²⁷ The median length of stay for an SSI in the UK is eleven days and the NHS is often burdened by litigation measures made by patients.²⁸ At a time when the risks from SSIs are heightened, the use of topical antiseptics such as CHG washes offers a powerful tool by which to mitigate the impact of these infections due to its preventative approach to patient hygiene.

Many of these concerns presented were echoed by the participants of our roundtable, who highlighted that it was important to establish protocols that act in a preventative manner to aid in a patient's recovery, while also reducing the risks from harmful pathogens. Members of our advisory board stated that a holistic approach that included a range of interventions in the form of standard precautions, environmental cleaning, hand hygiene and the use of CHG washes acted as the most effective means to reduce HCAI rates.

Participants reflected on the value of high-quality interventions such as CHG washes, and highlighted that that it has resulted in longer-term cost savings for the NHS. They were particularly keen to reflect on the fact with financial constraints gripping the NHS, it was important to integrate consistent interventions that would help drive down lengthy hospital stays, reduce readmittance rates and consequently save the NHS precious financial and manpower resources.

Consensus was also achieved on the need to ensure that patients and staff members were fully educated on the consistent use of hygiene protocols, such as CHG washes. Participants called for a greater focus on patient outcomes from an institutional perspective, by ensuring that hospital teams were well versed with the positive impacts that a bundled approach could offer to their trusts. This included having nuanced conversations with infection prevention and control teams, dermatologists, workplace health teams and procurement teams. Moreover, it was important to build the positive case for its use among patients, to ensure that they fully understood the benefits of high-quality hygiene practices, and to help them take ownership of their own hygiene.



27. Adam-Howell P, Bhabra M, Enright M, et al. Taking a zero tolerance approach to preventable surgical site infections in UK hospitals; 2011. Available from: http://www.carefusion.co.uk/documents/international/continuing-education/infection-prevention/IP_Under-the-Knife_CE_EN.pdf.

28. Totty, J., Moss, J., Barker, E., Mealing, S., Posnett, J., Chetter, I. and Smith, G., 2020. The impact of surgical site infection on hospitalisation, treatment costs, and health-related quality of life after vascular surgery. *International Wound Journal*, 18(3), pp.261-268.



The Value of Patient Hygiene



What is CHG Bathing?

CHG is an antiseptic with a wide range of antimicrobial activity and has been proven through numerous studies to act as an infection prevention tool in intensive care units.²⁹ CHG is a broad spectrum cationic bis-biguanide antiseptic which is active against Gram-positive bacteria such as Methicillin-resistant *Staphylococcus aureus* (MRSA), as well as Gram-negative bacteria, and some fungi. CHG reduces the density of microorganisms on the skin by binding to the negatively charged bacterial cell walls, causing bacterial cell death.

Daily bathing with CHG is an effective intervention for HCAI prevention.³¹ It is used throughout a patient's stay in a hospital, where a nurse will help clean an individual using a CHG skin cleanser and water, instead of a soap bath. CHG bathing, implemented universally across the hospital, offers a key tool to reduce instances of Healthcare Acquired Infections (HAI). There are a range of successful interventions by hospitals that demonstrate the clear benefit that CHG bathing has in preventing the spread of HAIs, reducing long-term costs, and promoting greater patient satisfaction.^{32,33,34,35}

Overview of literature on the value of CHG bathing

There are many publications and case studies which demonstrate the value of CHG bathing and reports that CHG bathing is particularly effective in both killing bacteria and helping to cleanse pathogens from the skin. This means that CHG bathing captures susceptible bacteria such as MRSA and washes away those that are not affected by antiseptics such as *Clostridioides difficile* organisms.^{36,37} Treatments which utilise four percent CHG are found to kill pathogens on contact and patients that have benefited from daily CHG bathing have reported fewer complications, greater ease of use and are less likely to be re-admitted to hospital.^{38,39,40}

Similarly, one clinical study which compared the effectiveness of soap and water against CHG bathing found that CHG is far more effective in reducing the risks of HAIs than traditional practices. Implementation of a comprehensive four percent CHG bathing programme reduced HAIs by 45% compared to soap and water.³⁸ Moreover, the application of CHG daily bathing led to a durable reduction in skin microbes with growth increasing one to three days after CHG use was stopped.³⁹

The benefits of CHG bathing as part of a broader horizontal approach have been demonstrated by the financial savings that the protocol can help provide in the longer term. As discussed during our patient advisory board meeting, the reduction in downstream costs such as readmittance to hospitals and reduced hospital stay provides a compelling case for utilising this intervention.⁴⁰ Moreover, hospitals which recognised the benefits of horizontal approaches have seen increases in the quality of services provided by healthcare teams.

29. Lewis, S., Schofield-Robinson, O., Rhodes, S. and Smith, A., 2019. Chlorhexidine bathing of the critically ill for the prevention of hospital-acquired infection. *Cochrane Database of Systematic Reviews*

30. McDonnell G, Russell AD. Antiseptics and disinfectants: activity, action, and resistance. *Clin Microbiol Rev* 1999;12:147-79.

31. NICE. 2022. Surgical site infections: prevention and treatment. [online] Available at: <<https://www.nice.org.uk/researchrecommendation/antiseptic-skin-preparation>> [Accessed 26 May 2022].

32. Wyncoll D, Shankar-Hari M, Beale R; 2015. Daily Bathing with 2% CHG Washcloths Leads to Almost Total Elimination of MRSA Bacteraemia. *King's Health Partners*

33. Edmiston, C., Seabrook, G., Johnson, C., Paulson, D. and Beausoleil, C., 2007. Comparative of a new and innovative 2% chlorhexidine gluconate-impregnated cloth with 4% chlorhexidine gluconate as topical antiseptic for preparation of the skin prior to surgery. *American Journal of Infection Control*, 35(2), pp.89-96.

34. Rbht.nhs.uk. 2022. Available at: <<https://www.rbht.nhs.uk/sites/nhs/files/PILs/Your%20pre-operative%20skin%20wash%20-%20June%202014.pdf>> [Accessed 24 May 2022].

35. NICE.org.uk. 2022. [online] Available at: <<https://www.nice.org.uk/guidance/ng125/evidence/intraoperative-antiseptics-and-antibiotics-before-wound-closure-pdf-6727104400>> [Accessed 26 May 2022].

36. Bui LN, Swan JT, Shirkey BA, Olsen RJ, Long SW, Graviss EA. Chlorhexidine bathing and *Clostridium difficile* infection in a surgical intensive care unit. *J Surg Res*. 2018 Aug; 228:107-111. doi: 10.1016/j.jss.2018.02.063. Epub 2018 Apr 3. PMID: 29907198.

37. NICE. 2022. Surgical site infections: prevention and treatment. [online] Available at: <<https://www.nice.org.uk/researchrecommendation/antiseptic-skin-preparation>> [Accessed 26 May 2022].

38. Reducing Infections and Increasing Patient Satisfaction: One Hospital's Journey, Paulina Rodriguez,

39. Abilene Regional Medical Center, *Infection Control Today*, June 2018)

40. Reducing Infections and Increasing Patient Satisfaction: One Hospital's Journey, Paulina Rodriguez, Abilene Regional Medical Center, *Infection Control Today*, June 2018



Case Studies

Case studies drawn from across the UK and Europe reflect on the overwhelming benefits that daily CHG bathing can yield for hospitals, staff and most importantly patients.

Kettering General Hospital has used CHG bathing for two decades. During that time, the hospital expanded its staff training to educate more on the importance of CHG bathing and the application of the solution. Kettering has also increased its testing for MRSA and carried out the full-body CHG washing on those who tested positive with the bacteria. The hospital then began 'early full-body washing', whereby all patients were washed regardless, as opposed to waiting for a positive MRSA test. The hospital has now been MRSA bacteraemia free for over five years, which can be attributed to the regular use of CHG bathing.⁴¹

Kettering General Hospital, UK

The University Hospital of Perugia conducted a study involving 449 individuals, 226 in the treatment arm, using four percent CHG wash, and 223 in the control arm. In the treatment group, 15 percent of the individuals developed at least one HAI but the corresponding figure in the control group was 25.6 percent. In addition, 23.2 and 40.9 infections per 1000 patient-days were detected in the intervention arm and control arm, respectively. The incidence of all bloodstream infections was significantly reduced in the intervention group at 9.2 infections per 1000 patient-days, whereas for the control group it was 22.6 infections per 1000 patient-days. The study concluded that daily bathing with four percent CHG wash significantly reduced HAI incidence in intensive care settings.⁴⁴

University Hospital of Perugia, Italy

West Brompton NHS Trust advocates for the use of a four percent CHG body wash. The solution has been shown to help reduce the risk of infection when used before procedures and operations. CHG bathing has removed microorganisms from patient's skin, ensuring skin protection long after application. Its prolonged antimicrobial effect prevents re-accumulation of microorganisms.⁴³

Royal Brompton and Harefield hospitals, UK

Guy's and St Thomas' conducted a study focused on the 30-bed mixed medical and emergency surgical Intensive Care Unit, which admits approximately 1,100-1,200 patients per year. In 2007, when the two percent CHG bathing was introduced, there were just six MRSA bacteraemias out of 1,125 admissions, 69 MRSA admissions and 44 MRSA acquisitions. Furthermore, the introduction of the two percent CHG bathing cloths has been associated with sustained reduction of MRSA bacteraemia.⁴²

Guy's and St Thomas' NHS Foundation Trust, UK



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Concluding Remarks

The discussions which led to the development of this consensus statement demonstrate that across the four nations of the UK, there is a need to standardise approaches to reduce the impact of surgical site infections. So far, progress has been positive, with the profile of HCAIs being elevated to relevant political and healthcare officials, as well as the introduction of infection prevention guidelines focused on the whole patient pathway. There is also extensive literature on the benefits of full-body CHG bathing, as demonstrated above, which help to illustrate its value.

However, one of the key obstacles to introducing CHG bathing as standard practice is the lack of appropriate data surveillance to allow each healthcare facility to understand its impact, both clinically and financially. At present, the tracking of infection prevention control practices is not standardised across the NHS and varies considerably, which leads to variation in reporting by trusts and unclear outcomes. Having clear, consistent practices and data collection will allow the return on investment for CHG products to be demonstrated to relevant healthcare systems such as SSI teams and procurement colleagues. Although case studies do exist, there is still much to be done to demonstrate the benefits to healthcare systems; more -high-quality research is needed.

It is essential that collaboration drives this improvement, to build on progress already made. It will support healthcare systems through the journey of implementing what will ultimately benefit them, and their patients, greatly.

