**Healthcare Associated Infection Report**

**April 2017 - March 2018 data**

**Section 1 – Board Wide Issues**

**Key Healthcare Associated Infection Headlines**

* ***Staphylococcus aureus* Bacteraemia**- 1 SAB to report in March in ICU2.

From April 17- March 18, 11 SABs have been reported, this equates to an annual rate of 0.23 SAB per 1000 occupied bed days. Whilst the Board will not meet its own local target for SAB reduction (0.12) our current rate sits just below the nationally defined annual HEAT target of 0.24.

* ***Clostridium difficile* infection**- 1 case to report in March with a PMH of CDI.

From April 17- March 18, 2 cases of CDI have been reported, this equates to an annual rate of 0.04 CDI per 1000 occupied bed days. This is well below the national HEAT target of 0.32 cases CDI per 1,000 occupied bed days

* **Hand Hygiene**- The **bimonthly** report from March demonstrates a Board compliance rate of 97%. Medical staff compliance has increased slightly from 90% to 92%

Although 92% of medical staff are compliant with Hand Hygiene a key element of Standard Infection Control Precautions, this remains below the national target of 95%. In order to optimise and sustain levels of hand hygiene compliance the Medical Director met with the Nurse Director and Senior Infection Prevention and Control Team to discuss additional improvement measures.(see p7/17 overview of agreed measures).

* **Cleaning and the Healthcare Environment- Facilities Management Tool**

**Housekeeping Compliance March:** 98.59% **Estates Compliance March:** 99.48%

* **Surgical Site Infection**-

CABG, Hip and Knee replacement SSI rates are within control limits.

Cardiac SSI rates breached upper control limits in February, no commonalities in surgeon, theatre or organism noted. The PCIT are working with Tissue Viability, SCNs, Nurse Practitioners and SS Clinical Governance Lead to review and optimise practices to promote SSI prevention. Next meeting planned 9/5/18.

**Other HAI Related Activity**

**Problem Assessment Groups (PAG**) - Locally convened group to further investigate an HAI issue which may require additional multidisciplinary controls.

|  |  |
| --- | --- |
| **PAGs** | **Update** |
| ***Mycobacterium chimaera*** | **No further updates Nationally**    GJF Annual risk assessment ratified by PCIC April 2018 and will be held within the Perfusion risk register. |

Section 1 of the HAIRT covers Board wide infection prevention and control activity and actions. For reports on individual departments, please refer to the ‘Healthcare Associated Infection Report Cards’ in Section 2.

***Staphylococcus aureus* (including MRSA)**

*Staphylococcus aureus* is an organism which is responsible for a large number of healthcare associated infections, although it can also cause infections in people who have not had any recent contact with the healthcare system. The most common form of this is Meticillin Sensitive *Staphylococcus aureus* (MSSA), but the more well known is MRSA (Meticillin Resistant *Staphylococcus aureus*), which is a specific type of the organism which is resistant to certain antibiotics and is therefore more difficult to treat. More information on these organisms can be found at: <http://www.nhs24.com/content/default.asp?page=s5_4&articleID=346>

MRSA: <http://www.nhs24.com/content/default.asp?page=s5_4&articleID=252>

NHS Boards carry out surveillance of *Staphylococcus aureus* blood stream infections, known as bacteraemias. These are a serious form of infection and there is a national target to reduce them. The number of patients with MSSA and MRSA bacteraemias for the Board can be found at the end of section 1 and for each hospital in section 2. Information on the national surveillance programme for *Staphylococcus aureus* bacteraemias can be found at:

<http://www.hps.scot.nhs.uk/haiic/sshaip/publicationsdetail.aspx?id=30248>

|  |
| --- |
| **GJNH approach to SAB prevention and reduction**  It is accepted within HPS that care must be taken in making comparisons with other Boards data because of the specialist patient population within GJNH. All SAB isolates identified within the laboratory are subject to case investigation to determine future learning and quality improvement.  Small numbers of cases can quickly change our targeted approach to SAB reduction.  **Broad HAI initiatives which influence our SAB rate include-**   * Hand Hygiene monitoring * MRSA screening at pre-assessment clinics and admission * Compliance with National Cleaning Standards Specifications * Audit of the environment and practices via Prevention and Control of Infection Annual Reviews & monthly SCN led Standard Infection Control Precautions and Peer Review monitoring * Participation in National Enhanced SAB surveillance- gaining further intelligence on the epidemiology of SAB locally and nationally.   **SSI Related SAB**   * Introduction of MSSA screening for cardiac and subsequent treatment pre and   post op as a risk reduction approach.   * Surgical Site Infection Surveillance in collaboration with Health Protection   Scotland and compared with Health Protection Agency data to allow rapid identification of increasing and decreasing trends of SSI.   * Standardisation of post op cardiac wound care. * Development and implementation of a wound swabbing protocol and competency.   **Device Related SAB**   * SPSP work streams continue to aim to sustain compliance with PVC, CVC, PICC and IABP bundles; assessment of compliance locally aids targeting of interventions accordingly. * Implementation of new combined PVC insertion and maintenance bundle * Implementation of arterial line maintenance bundle in Critical Care. |

**SAB Local Delivery Plan (LDP) Heat Delivery Trajectories**

Boards are expected to achieve a rolling target of 0.24 cases per 1,000 acute occupied bed days or lower by year ending March 2018.Boards are expected to continue with these targets 18/19.

Boards currently with a rate of less than 0.24 are expected to at least maintain this, as reflected in their trajectories. Our local rate Jan- Mar 18 slightly increased to 0.25 (n= 3) per 1000 occupied bed days.

**From April 17- March 18, 11 SABs have been reported, this equates to an annual rate of 0.23 SAB per 1000 occupied bed days. Therefore, the Board will not meet its own local target for SAB reduction (0.12) and sits just below the nationally defined annual HEAT target of 0.24.**



**Sources of SAB**

The Prevention and Control of Infection Team continue to work closely with the clinical teams, CGRMDU and clinical educators to gain insight into the sources of SAB acquisition and associated learning. The data below demonstrates the area attributed with the largest number of SAB is ICU2 with varying sources of SAB noted.

Each SAB is subject to an enhanced surveillance process involving the PCIT, SCN and responsible consultant to determine any learning from the source of the SAB. Thereafter the Enhanced SAB surveillance reports are submitted to the relevant division clinical governance group to share potential learning and note actions required.

**ICU2**

May 17- Endocarditis

Aug 17- 1 IABP/1 ART LINE

Oct 17- 1 ART LINE

Dec 17-Unknown – Positive sputum/ contaminant?

Feb 18- Unknown- possible IABP

Mar 18- Unknown- possible device related

**3 EAST**

Jan 18- SSI



**NSD**

Oct 17 – Chest Drain site /Empyema

**3 West**

Jul 17 – Chest Drain

**2West**

Aug 17 - PVC



* PVC

Due to the number of PVC related SAB in 3 East 17/18 our initial SAB reduction workplan focused on refining developing a combined insertion and maintenance and insertion bundle in 3East, as a result our last PVC related SAB in 3 East was in March 17.

This work has progressed throughout 17/18 to spread the standardised PVC bundle to all clinical areas including critical care within CIS. Compliance monitoring is lead by SPSP and supported by PCIN monthly snapshots and CNM Peer reviews that both include review of PVC/CVC documentation.

* Arterial Lines

Arterial line maintenance bundles have been developed within critical care on CIS. The aim of this bundle is to provide clear direction and documentation of care delivered during arterial line use. Critical care is also in the process of reviewing the arterial line policy.

* Emergency vs Planned Admissions

Six of the eleven SAB cases in 17/18 were emergency admits to cath lab from SAS /GGC.

Of the 7 SAB cases attributed to ICU 2, 6 of these were emergency cases admitted to cath lab. This type of emergency patient journey is integral to the service we provide and it is difficult to determine the impact of interventions performed in other units/services in emergency situations. Moving forward we will collect this data to determine any further trends.

***Clostridium difficile***

*Clostridium difficile* is an organism which is responsible for a large number of healthcare associated infections, although it can also cause infections in people who have not had any recent contact with the healthcare system. More information can be found at:

<http://www.nhs.uk/conditions/Clostridium-difficile/Pages/Introduction.aspx>

NHS Boards carry out surveillance of *Clostridium difficile* infections (CDI), and there is a national target to reduce these. The number of patients with CDI for the Board can be found at the end of section 1 and for each hospital in section 2. Information on the national surveillance programme for *Clostridium difficile* infections can be found at:

<http://www.hps.scot.nhs.uk/haiic/sshaip/ssdetail.aspx?id=277>

|  |
| --- |
| **GJNH approach to CDI prevention and reduction**  Our numbers of CDI cases are low in comparison with other Boards, which is likely to relate to our specialist patient population.  **Actions to reduce CDI-**   * Ongoing alert organism surveillance and close monitoring of the severity of cases by the PCIT. * Unit specific reporting and triggers. * Implementation of HPS Trigger Tool if trigger is breached. * Implementation of HPS Severe Case Investigation Tool if the case definition is met * Typing of isolates when two or more cases occur within 30 days in one unit. |

**CDI LDP Heat Delivery Trajectories**

Boards are again expected to achieve a rolling trajectory of 0.32 cases CDI per 1,000 occupied bed days by year ending March 2018. This relates to people aged 15 and over. Boards currently with a rate of less than 0.32 will be expected to at least maintain this, as reflected in their trajectories.

**From April 17- March 18, 2 cases of CDI have been reported to date this equates to an annual rate of 0.04 CDI per 1000 occupied bed days.**



**Hand Hygiene**

**GJNH approach to Hand Hygiene**

The **bimonthly** report from March demonstrates a Board compliance rate of 97%.

Medical staff compliance has increased slightly from 90%- to 92%

Although 92% of medical staff are compliant with the Hand Hygiene a key element of Standard Infection Control Precautions, this remains below the national target of 95%. In order to optimise and sustain levels of hand hygiene compliance the Medical Director met with the Nurse Director and Senior Infection Prevention and Control Team to discuss additional improvement measures.

 The following direct measures have been agreed, to be implemented as a matter of urgency;

* **Re-emphasising the collective responsibility that prevention and control of infection control remains “everyone’s business “**
* **Hand Hygiene compliance must be included as a separate agenda item in the next consultant meetings**
* **A message to reinforce Hand Hygiene Policy to all medical staff at Clinical Medical Education and Mortality &Morbidity meetings.**
* **Medical Director and Nurse Director will  meet with Medical  Director of Education to explore ways to help progress the GJNH HAI  Education Strategy for Medical staff**
* **Highlight the importance of immediate escalation for non compliance as appropriate**
* **Full compliance by medical staff with Zero tolerance policy relating to all elements of Hand Hygiene.**
* **Prevention and Control of Infection Team to meet Medical  Director and Director of Nursing  monthly re the impact of the above measures and any ongoing challenges .**

Good hand hygiene by staff, patients and visitors is a key way to prevent the spread of infections. More information on the importance of good hand hygiene can be found at:

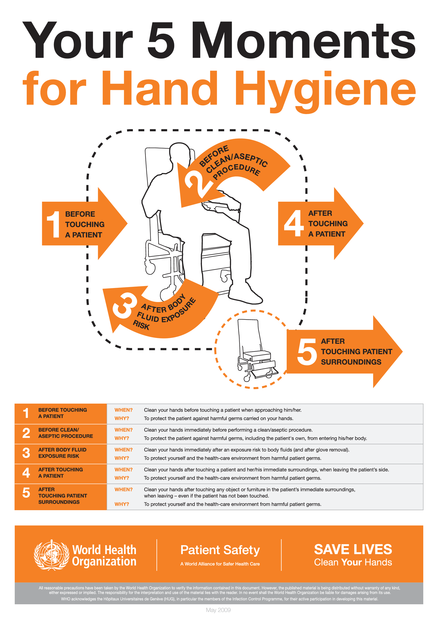
<http://www.washyourhandsofthem.com/>

NHS Boards monitor hand hygiene and ensure a zero tolerance approach to non compliance. The hand hygiene compliance score for the Board can be found at the end of section 1 and for each hospital in section 2. Information on national hand hygiene monitoring can be found at:

<http://www.hps.scot.nhs.uk/haiic/ic/nationalhandhygienecampaign.aspx>

Staff within GJF actively promote good hand hygiene practice and challenge non-compliance.

All non compliant staff were spoken to at the time of episode and reminded of their responsibilities and requirement to comply with Standard Infection Control Precautions (SICP’s), of which hand hygiene is a critical element.







**Hand Hygiene Non Compliance by department**

|  |  |
| --- | --- |
| DEPARTMENT | COMPLIANCE |
| TH 12 | 90% |
| PACU | 90% |
| NSD | 90% |
| HDU 2 | 95% |
| ENDOSCOPY | 95% |
| TH 1 | 100% |
| TH 8 | 100% |
| CCU | 100% |
| ICU 2 | 100% |
| HDU 3 | 100% |
| 3 WEST | 100% |
| 2 EAST | 100% |
| CDU | 100% |
| 2C | 100% |
| OPD | 100% |

|  |  |
| --- | --- |
| COMPLIANCE |  |
| 95% COMPLIANCE OR ABOVE |  |
| 80-94% COMPLIANCE |  |
| BELOW 80% |  |

**Department Specific non compliance by Key Moment, Opportunity and Technique**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DEPT | STAFF GROUP | KEY MOMENT | OPPORTUNITY TAKEN | CORRECT TECHNIQUE |
| TH 12 | N | 1 (before touching the patient) | NO | Na |
| TH 12 | N | 1 (before touching the patient) | NO | Na |
| PACU | N | 1 (before touching the patient) | NO | Na |
| PACU | N | 1 (before touching the patient) | NO | Na |
| NSD | D | 1 (before touching the patient) | NO | Na |
| NSD | D | 1 (before touching the patient) | NO | Na |
| HDU 2 | D | 5 (after touching patients surroundings) | YES | NO |
| ENDOSCOPY | D | 2 (before clean/aseptic procedure) | NO | Na |

**Cleaning and Maintaining the Healthcare Environment**

**Housekeeping FMT Audit Results**

Cleaning services continue to be monitored against the NHSScotland National Cleaning Service Specifications (NCSS) using the HFS Domestic monitoring tool. All healthcare facilities and component parts, e.g. wards, treatment rooms, corridors etc, are expected to be at least 90% compliant with the requirements set out in the NCSS. All areas for March were above 96% compliance with 2 west achieving 100%, their highest in the preceeding12 month period.

Integral to the updated National Cleaning Services Specifications, the Housekeeping team have reviewed existing task sheets for each area to risk assess the frequency of tasks. The PCIT will conduct final review and they will be presented to the PCIC for approval and sign off at the June meeting



**MRSA Screening Compliance**

Long Term Patient Screening

* All patients should be rescreened on Day 10 of stay and weekly thereafter.
* Day 10 screen was identified as the initial screen date as it captures patient stay beyond routine pathways.
* Compliance is monitored via reviewing a sample of eligible patients against submitted MRSA screens.
* SCNs are informed of results at the time of audit and informed an action plan required to improve compliance should be submitted.



March Data

Admission screens

* ICU 2- Emergency admission
* 2 West- Patients admitted via SDU

7 and 10 day screens

* Majority taken late as opposed to omitted (3 of 4) – areas are reminded to use Trakcare to ensure compliance.

**Healthcare Associated Infection Reporting Template (HAIRT)**

**Section 2 – Healthcare Associated Infection Report Cards**

The following section is a series of ‘Report Cards’ that provide information, for each acute hospital and key community hospitals in the Board, on the number of cases of *Staphylococcus aureus* blood stream infections *(*alsobroken down into MSSA and MRSA) and *Clostridium difficile* infections, as well as hand hygiene and cleaning compliance. In addition, there is a single report card which covers all community hospitals [which do not have individual cards], and a report which covers infections identified as having been contracted from outwith hospital. The information in the report cards is provisional local data, and may differ from the national surveillance reports carried out by Health Protection Scotland and Health Facilities Scotland. The national reports are official statistics which undergo rigorous validation, which means final national figures may differ from those reported here. However, these reports aim to provide more detailed and up to date information on HAI activities at local level than is possible to provide through the national statistics.

**Understanding the Report Cards – Infection Case Numbers**

*Clostridium difficile* infections (CDI)and *Staphylococcus aureus* bacteraemia(SAB)cases are presented for each hospital, broken down by month. *Staphylococcus aureus* bacteraemia (SAB) cases are further broken down into Meticillin Sensitive *Staphylococcus aureus* (MSSA) and Meticillin Resistant *Staphylococcus aureus* (MRSA). More information on these organisms can be found on the NHS24 website:

*Clostridium difficile* :[**http://www.nhs24.com/content/default.asp?page=s5\_4&articleID=2139&sectionID=1**](http://www.nhs24.com/content/default.asp?page=s5_4&articleID=2139&sectionID=1)

*Staphylococcus aureus* : <http://www.nhs24.com/content/default.asp?page=s5_4&articleID=346>

MRSA: <http://www.nhs24.com/content/default.asp?page=s5_4&articleID=252&sectionID=1>

For each hospital the total number of cases for each month are those which have been reported as positive from a laboratory report on samples taken more than 48 hours after admission. For the purposes of these reports, positive samples taken from patients within 48 hours of admission will be considered to be confirmation that the infection was contracted prior to hospital admission and will be shown in the “out of hospital” report card.

**Targets**

There are national targets associated with reductions in *C. difficile* and SABs. More information on these can be found on the Scotland Performs website:

<http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance>

**Understanding the Report Cards – Hand Hygiene Compliance**

Hospitals carry out regular audits of how well their staff are complying with hand hygiene. Each hospital report card presents the combined percentage of hand hygiene compliance with both opportunity taken and technique used broken down by staff group.

**Understanding the Report Cards – Cleaning Compliance**

Hospitals strive to keep the care environment as clean as possible. This is monitored through cleaning and estates compliance audits. More information on how hospitals carry out these audits can be found on the Health Facilities Scotland website:

<http://www.hfs.scot.nhs.uk/online-services/publications/hai/>

**Understanding the Report Cards – *‘Out of Hospital Infections’***

*Clostridium difficile* infectionsand *Staphylococcus aureus (*including MRSA*)* bacteraemiacasesare all associated with being treated in hospitals. However, this is not the only place a patient may contract an infection. This total will also include infection from community sources such as GP surgeries and care homes. The final Report Card report in this section covers ‘*Out of Hospital Infections*’ and reports on SAB and CDI cases reported to a Health Board which are not attributable to a hospital.

**NHS BOARD REPORT CARD**

***Staphylococcus aureus* bacteraemia monthly case numbers**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apr**  **17** | **May**  **17** | **June**  **17** | **July**  **17** | **Aug**  **17** | **Sept**  **17** | **Oct**  **17** | **Nov 17** | **Dec**  **17** | **Jan 18** | **Feb 18** | **Mar**  **18** |
| **MRSA** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |
| **MSSA** | 0 | 1 | 0 | 1 | 3 | 0 | 2 | 0 | 1 | 1 | 1 | 1 |
| **Total SABS** | 0 | 1 | 0 | 1 | 3 | 0 | 2 | 0 | 1 | 1 | 1 | 1 |

***Clostridium difficile* infection monthly case numbers**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apr**  **17** | **May**  **17** | **June**  **17** | **July**  **17** | **Aug**  **17** | **Sept**  **17** | **Oct**  **17** | **Nov 17** | **Dec**  **17** | **Jan 18** | **Feb 18** | **Mar 18** |
| **Ages15-64** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **Ages 65+** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Ages 15 +** | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Hand Hygiene Monitoring Compliance (%)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apr**  **17** | **May**  **17** | **June**  **17** | **July**  **17** | **Aug**  **17** | **Sept**  **17** | **Oct**  **17** | **Nov 17** | **Dec**  **17** | **Jan 18** | **Feb 18** | **Mar 18** |
| **AHP** |  | 100% |  | 97% |  | 100% |  | 100% |  | 96% |  | 100 |
| **Ancillary** |  | 86% |  | 92% |  | 100% |  | 95% |  | 100% |  | 100 |
| **Medical** |  | 100% |  | 96% |  | 97% |  | 91% |  | 90% |  | 92 |
| **Nurse** |  | 97% |  | 97% |  | 98% |  | 99% |  | 99% |  | 98 |
| **Board Total** |  | 98% |  | 94% |  | 98% |  | 97% |  | 97% |  | 97 |

**Cleaning Compliance (%)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apr**  **17** | **May**  **17** | **June**  **17** | **July**  **17** | **Aug**  **17** | **Sept**  **17** | **Oct**  **17** | **Nov 17** | **Dec**  **17** | **Jan 18** | **Feb 18** | **Mar 18** |
| **Board Total** | 99.17 | 98.42 | 98.6 | 98.48 | 98.21 | 98.46 | 98.78 | 98.88 | 98.66 | 98.59 | 98.43 | 98.56 |

**Estates Monitoring Compliance (%)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apr**  **17** | **May**  **17** | **June**  **17** | **July**  **17** | **Aug**  **17** | **Sept**  **17** | **Oct**  **17** | **Nov 17** | **Dec**  **17** | **Jan 18** | **Feb 18** | **Mar 18** |
| **Board Total** | 99.15 | 99.04 | 98.9 | 99.17 | 99.06 | 99.34 | 99.31 | 98.48 | 99.52 | 99.48 | 99.37 | 99.39 |

**Surgical Site Surveillance**

**CABG and CABG +/- Valve SSI Local Data**

**CABG @30 days**

Jan 18- 1 Deep Sternal SSI &1 Sup sternum

Feb18- 2 Sup Sternum

Mar 18- 1 Sup Sternum/ 1 Deep Sternum





**Valve +/- CABG @30 days**

Feb 18- 3 Sup Sternum/2 Sup Leg

Mar 18- 2 Sup Sternum

**\***A surgical site infection is defined a superficial, deep or organ space infection occurring within 30 days of operation.

Definitions of superficial, deep and organ space are defined in Health Protection Scotland Surgical Site Infection Surveillance Protocol.

**Orthopaedic SSI Local data**

**THR SSI @ 30 days**

Jan18- Primary THR - Deep

**\***A surgical site infection is defined a superficial, deep or organ space infection occurring within 30 days of operation. Definitions of superficial, deep and organ space are defined in Health Protection Scotland Surgical Site Infection Surveillance Protocol.



HAIRT Table of Abbreviations

|  |  |
| --- | --- |
| AHP | Allied Healthcare Practitioner |
| CABG | Coronary Artery Bypass Graft |
| CCU | Coronary Care Unit |
| CDI/C.*difficile* | Clostridium Difficile Infection |
| CVC | Central Venous Catheter |
| DMT | Domestic Monitoring Tool |
| E.coli | Escherichia coli |
| FMT | Facilities Monitoring Tool |
| GJNH | Golden Jubilee National Hospital |
| GP | General Practitioner |
| HAI | Healthcare Associated Infection |
| HAIRT | Healthcare Associated Infection Report Template |
| HA MRSA | Hospital Acquired Meticillin Resistant Staphylococcus aureus |
| HEI | Healthcare Environment Inspection |
| HFS | Healthcare Facilities Scotland |
| HH | Hand Hygiene |
| HIS | Healthcare Improvement Scotland |
| HPA | Health Protection Agency |
| HPS | Health Protection Scotland |
| IABP | Intra aortic balloon pump |
| IC | Infection Control |
| ICAR | Infection Control Audit Review |
| LDP | Local Delivery Plan |
| MRSA | Meticillin Resistant Staphylococcus Aureus |
| MSSA | Meticillin Sensitive Staphylococcus Aureus |
| NAT | National |
| NCSS | National Cleaning Standard Specification |
| PAG | Problem Assessment Group |
| PCIC | Prevention & Control of Infection Committee |
| PCINs | Prevention & Control of Infection Nurses |
| PCIT | Prevention & Control of Infection Team |
| PICC Line | Peripherally inserted central catheter line |
| PNE | Patient Notification Exercise |
| PVC | Peripheral Venous Cannula |
| SAB | Staphylococcus *aureus* bacteraemia |
| SCN | Senior Charge Nurse |
| SICP s | Standard Infection Control Precautions |
| SPSP | Scottish Patient Safety Programme |
| SSI | Surgical Site Infection |
| TBPs | Transmission Based Precautions |
| THR | Total Hip Replacement |
| VAP | Ventilator Associated Pneumonia |