5 Moments for HAND HYGIENE

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This Program and manual have been developed by the National HHA Team.

This manual should be read in conjunction with the Australian Guidelines for the Prevention and Control of Infection in Healthcare

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Foreword

Welcome to the 3rd Edition of the HHA Manual. The release of this manual coincides with the fifth year of the National Hand Hygiene Initiative (NHHI). During these five years, we have seen Australian health care facilities embrace the 5 Moments for Hand Hygiene, as significant increases in hand hygiene compliance rates have been demonstrated.

The NHHI received international recognition in 2011 when it was awarded the Centre of Hand Hygiene Excellence award by the World Health Organisation, one of only four centres of excellence worldwide. This award is a credit to all who have participated in the NHHI since its commencement in 2008.

The NHHI has moved into its sustainability phase. As further research is undertaken, and improvements in education, auditing and data management continue, this 3rd Edition of the Manual reflects the most up to date information.

This manual outlines in a clear and systematic manner the HHA approach to HH culture change in Australia.

This manual does not aim to provide an in-depth analysis of infection control or be a textbook on infectious diseases. Instead, it provides a practical step-by-step guide to implementing and sustaining the HH culture-change in your hospital and how to participate in the NHHI. We hope that it helps your hospital to continue to improve the safety and quality of patient care.

Phil Russo & Prof. M. Lindsay Grayson

Hand Hygiene Australia
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Chapter 1

Introduction

This manual should be regarded as part of the toolkit for implementing the National Hand Hygiene Initiative. It contains recommendations based on the WHO Guidelines on Hand Hygiene in Health Care (1) and has been modified for the Australian setting. It is not designed to serve as a regulatory requirement, but to act purely as a guideline for the Australian healthcare sector to improve hand hygiene compliance (HHC) and ultimately reduce healthcare associated infections (HAI).

This manual does not address surgical hand hygiene. Alcohol based hand rubs (ABHRs) for surgical procedures are not addressed within the scope of the Hand Hygiene Australia (HHA) agenda. Please refer to the World Health Organisation (WHO) Guidelines on Hand Hygiene in Health Care (1) for further information.

This manual addresses Hand Hygiene (HH) and the relevant Infection Control practices associated with HH. For further Infection Control Guidelines please refer to the Australian Guidelines for the Prevention and Control of Infection in Healthcare (2), and for Infection Control Education please refer to the Australian Commission on Safety and Quality in Health Care website.
1.1 Historical perspective on hand hygiene

Hand washing with soap and water has been used to improve personal hygiene for centuries; however the link between hand washing and the spread of disease was only established in the mid 1800’s (3).

1800’s - An Austrian doctor, Ignaz Semmelweis, is considered to be the first person who established that hospital acquired diseases were transmitted via the hands of healthcare workers (HCW).

1980’s - First national HH Guidelines published in the USA

2000 - Didier Pittet et al (4) published a landmark study proving that a Hand Hygiene Culture Change Program involving introduction of alcohol based hand rub, education of staff and hand hygiene promotion can significantly improve hand hygiene compliance (HHC) of healthcare workers, and in turn reduce healthcare associated infections (HAI).

2002 - ABHR is defined as the gold standard of care for HH practices in healthcare settings, whereas hand washing is reserved for particular situations only (5)

2005 - WHO released the Advanced Draft of The WHO Guidelines on Hand Hygiene in Health Care providing guidelines based on a the most extensive review of literature on HH in healthcare to date. In 2009 the finalised WHO Guidelines were released (1).

2008 - The Australian Commission for Safety and Quality in Health Care appointed Hand Hygiene Australia to implement the National Hand Hygiene Initiative following endorsement by all Australian health ministers.

1.2 Transmission of pathogens by hands

Transmission of healthcare associated organisms from one patient to another via HCWs’ hands requires five sequential steps (1, 5):

- Organisms are present on the patient’s skin, or have been shed onto inanimate objects immediately surrounding the patient
- Organisms must be transferred on the hands of HCWs
- Organisms must be capable of surviving for at least several minutes on HCWs’ hands
- Hand hygiene by the HCW must be inadequate or entirely omitted, or the agent used for hand hygiene inappropriate
- The contaminated hand or hands of the caregiver must come into direct contact with another patient or with an inanimate object that will come into direct contact with the patient.

HCWs must perform HH before and after every patient contact to prevent patients becoming colonised with healthcare associated organisms from other patients and the hospital environment. Emphasis must also be placed on preventing the transfer of organisms from a contaminated body site to a clean body site during patient care. Hand hygiene should also be performed after contact with inanimate objects, including medical charts and equipment in the immediate vicinity of the patient (5)
1.3 Barriers to hand hygiene

Poor HH practice among HCWs is strongly associated with HAI transmission and is a major factor in the spread of antibiotic-resistant organisms within hospitals (5-6). Despite this, efforts to improve the rate of HHC have generally been ineffective or their efficacy poorly sustained. Numerous barriers to appropriate HH have been reported (3, 7-8) including:

- HH agents causing skin irritation and dryness
- The perception that patient needs take priority over HH
- Hand washing sinks/basins inconveniently located and/or not available
- The perception that glove use dispenses with the need for additional HH
- Insufficient time for HH, due to high workload and understaffing
- Inadequate knowledge of guidelines, protocols or technique for HH
- Lack of positive role models and social norms
- Lack of recognition of the risk of cross-transmission of microbial pathogens
- Until recently, lack of scientific information showing a definitive impact of improved HH on HAI rates
- Simple forgetfulness.

1.4 Other barriers to hand hygiene

1.4.1 Jewellery and watches

The wearing of jewellery and watches should not inhibit the ability of the HCW to perform correct hand hygiene. Several studies have shown that skin underneath rings is more heavily colonised than comparable areas of skin on fingers without rings (1). Wearing rings increases the carriage rate of gram negative bacteria and enterobacteriaceae on the hands of HCWs (9).

Hand hygiene policies and education should include a section on appropriate jewellery to be worn in the workplace. The consensus recommendation from WHO is to strongly discourage the wearing of finger and wrist jewellery during healthcare. The wearing of a simple flat band during routine care may be acceptable, but in high risk settings all rings or other jewellery should be removed (1).
1.4.2 Fingernails, nail polish and artificial nails
Numerous studies have documented that subungual areas (under the nail) of the hand harbour high concentrations of bacteria (1). Freshly applied nail polish does not increase the number of bacteria recovered from periungual skin, but chipped nail polish may support the growth of larger numbers of organisms on fingernails (1). Even after careful hand washing or surgical scrubs, HCWs often harbour substantial numbers of potential pathogens in the subungual spaces (1).

HCWs who wear artificial nails are more likely to harbour gram negative pathogens on their fingertips than are those who have natural nails, both before and after hand washing (2, 5). Whether the length of natural or artificial nails is a substantial risk factor is unknown, because the majority of bacterial growth occurs along the proximal 1 mm of the nail adjacent to the subungual skin (1, 5). Long, sharp fingernails, either natural or artificial, can puncture gloves easily. They may also limit a HCWs performance in hand hygiene practices (1), and tear or scratch a patient’s skin.

Each healthcare facility should develop policies on the wearing of artificial fingernails or nail polish by HCWs. The consensus recommendations from WHO are that HCWs do not wear artificial fingernails, extenders or nail polish when having direct contact with patients, and natural nails should be kept short (<0.5cm long) (1).

1.5 The effect of hand hygiene on Healthcare Associated Infection (HAI)

There is convincing evidence that improved HH can reduce infection rates. More than 20 hospital based studies (including systematic reviews) of the impact of HH on the risk of HAI have been published between 1977 and 2011 (10-11). Despite study limitations almost all reports showed an association between improved HH practices and reduced infection and cross transmission rates.

It is important to note that although the introduction of an ABHR was a key factor to improvement in nearly all the studies, the available evidence highlights that the success of improved HHC and reduced HAI results from the overall effect of the multimodal hand hygiene promotion strategies (1).

Many studies (1, 3-4, 11-14) have demonstrated the clinical efficacy of a multimodal approach to improving HH that includes the introduction of ABHR, with a marked and sustainable increase in HHC and a significant reduction in HAI.
1.6 The National Hand Hygiene Initiative

The Australian Commission on Safety and Quality in Health Care (ACSQHC) instigated the National Hand Hygiene Initiative (NHHI) and assigned its delivery to Hand Hygiene Australia (HHA). The primary aim of the NHHI is to improve HHC among HCWs, and to reduce the transmission of infection in health services throughout Australia. This involves a multi-interventional culture-change program to improve HHC via the increased use of ABHR.

The NHHI aims to improve knowledge about infection control among HCWs, especially regarding the importance of appropriate HH in reducing the risk of HAIs (4, 12, 15-16). The NHHI is multi-faceted and includes the use of ABHR, monitoring HHC, education regarding HH and ABHR, and measuring infection rates. Whilst the educational message is applicable to all healthcare settings, monitoring compliance and infection rates is not.

Key features of the NHHI include the following:

1.6.1 Use of Alcohol Based Hand Rub (ABHR)

ABHR should be placed at point-of-care including on the ends of patient beds, on trolleys and in clinical areas. Clear signage regarding appropriate use should be present. Ensuring ABHR is readily available at the point-of-care can reduce many of the potential barriers to good HH. Education should be provided clearly stating the advantages of ABHR – namely that it takes approximately 15-20 seconds to decontaminate hands, is less irritating and drying than soap and water, and does not require the use of paper towels. (See Chapter 3 regarding specific ABHR product selection).

1.6.2 Auditing Hand Hygiene Compliance (HHC)

HHC auditing is conducted by auditors trained and validated by the standardised HHA program using the same auditing tools. This allows for data comparison between any Australian healthcare facilities.

1.6.3 Ensuring uniform hand hygiene education

To assist with improving HCWs’ general knowledge about HH and infection prevention, HHA offer a range of online learning packages (OLPs) designed for specific healthcare professions: Medical, Surgical, Nursing, Allied Health, Non-clinical, Student Health practitioners, and Standard (for all others).

All OLPs are freely available via the HHA website (http://www.hha.org.au/LearningPackage/olp-home.aspx).

Executive endorsement of the OLP as a compulsory requirement for all staff and students has proven successful in many institutions at improving HHC. The program assists with education even in situations where there are high rates of staff turnover.

For education and training in areas specific to Infection Prevention please refer to the Australian Commission on Safety and Quality in Health Care website: http://infectionprevention.e3learning.com.au.
1.6.4 Monitoring outcome measures

1.6.4.1 Outcome measure 1: Hand Hygiene Compliance
For national reporting of HHC to HHA, HHC should be measured at specified intervals during the program. The number of acute in-patient beds at each facility will dictate the number of areas required to be audited, and the number of observations to be undertaken once an initial pilot period has been completed (see Table 7.2). The standardised HH compliance audit form or mobile data entry via http://hhcapp.hha.org.au/mobile on a mobile device should be used for all audits (see Appendices 1, 2, 3, 4).

Local auditing of HHC can be conducted anytime, according to the needs of each organisation, in addition to the national audits.

1.6.4.2 Outcome measure 2: Rates of Staphylococcus aureus bacteraemia
In conjunction with the ACSQHC, Staphylococcus aureus bacteraemia (SAB) rates will be provided by jurisdictions consistent with agreed national definitions(17). These will be used to measure the effect of the NHHI.

1.6.5 Outcomes of the first 2 years of the Australian NHHI (11)
After two years 521 hospitals around Australia were participating in the NHHI with a national HHC rate of 68.3%. However, HHC before patient contact was 10%–15% lower than after patient contact. Among sites new to the 5 Moments audit tool, HHC improved from 43.6% at baseline to 67.8% ($P < 0.001$). HHC was highest among nursing staff (73.6%) and lowest among medical staff (52.3%) after 2 years.

National incidence rates of methicillin-resistant SAB were stable for the 18 months before the NHHI (July 2007–2008; $P = 0.366$), but declined after implementation (2009–2010; $P = 0.008$). Annual national rates of hospital-onset SAB per 10,000 patient-days were 1.004 and 0.995 in 2009 and 2010, respectively, of which about 75% were due to methicillin-susceptible S. aureus.

The NHHI was associated with widespread sustained improvements in HHC among Australian healthcare workers. Although specific linking of SAB rate changes to the NHHI was not possible, further declines in national SAB rates are expected.
1.7 Who should participate in the NHHI?

The 5 Moments for Hand Hygiene Program has been designed for ALL healthcare facilities. Product placement, staff education and program promotion are relevant in all healthcare settings whether an acute tertiary facility, or the local GP clinic. However, the actual HHC auditing has been designed specifically for acute healthcare facilities. Currently HHA do not recommend routine HHC auditing as an outcome measure in the non-acute, primary care, or mental health setting. HHA recommend the use of other program evaluation tools within these areas. These might include: staff HH knowledge surveys, HH technique audits, product placement/availability audits, and reports of OLP completion by staff. All are available on the HHA website under the heading of Additional Audit Tools www.hha.org.au/ForHealthcareWorkers/auditing.aspx.

Recently, WHO released *Hand Hygiene in Outpatient and Home-based Care and Long-term Care Facilities: A Guide to the Application of the WHO Multimodal Hand Hygiene Improvement Strategy and the “My Five Moments for Hand Hygiene” Approach* (18). This document explains the evidence of how the 5 Moments for Hand Hygiene can be incorporated into the non-acute setting. It also gives detailed examples in non-acute settings of how to audit according to the 5 Moments for Hand Hygiene.

All facilities should be aware of their jurisdictional requirements when planning outcome/process measures of their HH program.
Chapter 2

The 5 Moments for Hand Hygiene

2.1 Aim

To ensure all staff involved in the HHA 5 Moments for Hand Hygiene program understand the 5 Moments for Hand Hygiene.
2.2 What are the 5 Moments for Hand Hygiene?

**Moment 1:** Before touching a patient (1B)

**Moment 2:** Before a procedure (1B)

**Moment 3:** After a procedure or body fluid exposure risk (1A)

**Moment 4:** After touching a patient (1B)

**Moment 5:** After touching a patient’s surroundings (1B)

2.2.1 The levels of evidence to support the 5 Moments for HH (5)

**1A** - Strongly recommended for implementation and strongly supported by well designed experimental, clinical, or epidemiological studies

**1B** - Strongly recommended for implementation and supported by some experimental, clinical, or epidemiological studies and a strong theoretical rationale

2.2.2 Key terms within the 5 Moments for HH

**Patient**
Refers to any part of the patient, their clothes, or any medical device that is connected to the patient.

**Procedure**
Is an act of care for a patient where there is a risk of direct introduction of a pathogen into the patient’s body.

**Body Fluid Exposure Risk**
Any situation where contact with body fluids may occur. Such contact may pose a contamination risk to either HCW or the environment.

**Patient Zone**
Includes the patient and the patient’s immediate surroundings.

Assumptions are generally made that within the patient zone the patient flora rapidly contaminates the entire patient zone; and the patient zone is cleaned between patients.

Within the patient zone there are 2 critical sites, the clean site (e.g. IV access point) that needs to be protected against microorganisms, and the body fluid site (e.g. IDC) that leads to the HCW’s hands being exposed to body fluid.

**Healthcare Zone**
Is the area outside of the patient zone.

Assumptions are generally made that within the healthcare zone there are organisms foreign and potentially harmful to all patients, and that transmission of these pathogens to the patient results in exogenous infection.
2.3 The 5 Moments in Detail

**Moment 1 – Before Touching a Patient**

**WHY:**
To protect the patient against acquiring potential pathogens from the hands of the HCW.

**WHEN:  **

**EXAMPLES:**

<table>
<thead>
<tr>
<th>Before touching a patient in any way:</th>
<th>Shaking hands, Assisting a patient to move, Touching any medical device connected to the patient (e.g. IV pump, IDC), Allied health interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before any personal care activities:</td>
<td>Bathing, Dressing, Brushing hair, Putting on personal aids such as glasses</td>
</tr>
<tr>
<td>Before any non-invasive observations:</td>
<td>Checking the patient’s pulse rate, blood pressure, oxygen saturation, or temperature. Chest auscultation, Abdominal palpation, Applying ECG electrodes, Cardiotocography (CTG)</td>
</tr>
<tr>
<td>Before any non-invasive treatment:</td>
<td>Applying an oxygen mask or nasal cannulae, Fitting slings/braces, Application of incontinence aids (including condom drainage)</td>
</tr>
<tr>
<td>Before preparation and administration of oral medications:</td>
<td>Oral medications, Nebulised medications</td>
</tr>
<tr>
<td>Before oral care and feeding</td>
<td>Feeding a patient, Brushing teeth or dentures</td>
</tr>
</tbody>
</table>

**TO PREVENT:** Patient colonisation with healthcare microorganisms

HCWs may have any number of organisms on their hands. If there is no hand hygiene before touching a patient these microorganisms can be transferred to the patient.
**Moment 2 – Before a Procedure**

**WHY:**
To protect the patient from potential pathogens (including their own) from entering their body during a procedure.

<table>
<thead>
<tr>
<th>WHEN:</th>
<th>EXAMPLES:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before insertion of a needle into a patient’s skin, or into an invasive medical device:</td>
<td>Venipuncture, Blood glucose level, Arterial blood gas, Subcutaneous or Intramuscular injections, IV flush</td>
</tr>
<tr>
<td>Before preparation and administration of any medications given via an invasive medical device, or preparation of a sterile field:</td>
<td>IV medication, NG Tube feeds, PEG feeds, Baby NG/gavage feeds, Set up of a Dressing trolley</td>
</tr>
<tr>
<td>Before administration of medications where there is direct contact with mucous membranes:</td>
<td>Eye drop instillation, Suppository insertion, Vaginal pessary insertion</td>
</tr>
<tr>
<td>Before insertion of, or disruption to, the circuit of an invasive medical device:</td>
<td>Procedures involving the following: Endotracheal tube, Tracheostomy, Nasopharyngeal airway devices, Suctioning of airways, Urinary catheter, Colostomy/ileoostomy, Vascular access systems, Invasive monitoring devices, Wound drains, PEG tubes, NG tubes, Secretion aspiration</td>
</tr>
<tr>
<td>Before any assessment, treatment and patient care where contact is made with non-intact skin or mucous membranes:</td>
<td>Wound dressings, Burns dressings, Surgical procedures, Digital rectal examination, Invasive obstetric and gynaecological examinations and procedures, Digital assessment of newborn palate</td>
</tr>
</tbody>
</table>

**TO PREVENT:** Endogenous and exogenous infections in patients
HCWs may have any number of organisms on their hands, or they may pick up microorganisms from the patients skin, if there is no hand hygiene immediately before a procedure these microorganisms may enter the patient’s body.
Moment 3 – After a Procedure or Body Fluid Exposure Risk

WHY:
To protect yourself and the healthcare surroundings from transmission of potential pathogens from the patient.

WHEN: EXAMPLES:

<table>
<thead>
<tr>
<th>After any Moment 2:</th>
<th>See Moment 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>After any potential body fluid exposure:</td>
<td>Contact with a used urinary bottle / bedpan, Contact with sputum either directly or indirectly via a cup or tissue, Contact with used specimen jars / pathology samples, Cleaning dentures, Cleaning spills of blood, urine, faeces or vomit from patient surroundings, After touching the outside of a drain tube or drainage bottle, Contact with any of the following: Blood, Saliva, Mucous, Semen, Tears, Wax, Breast milk, Colostrum Urine, Faeces, Vomitus, Pleural fluid, Cerebrospinal fluid, Ascites fluid, Lochia, Meconium, Pus, Bone Marrow, Bile, Organic body samples e.g. Biopsy samples, Cell samples</td>
</tr>
</tbody>
</table>

TO PREVENT: Colonisation/Infection in HCWs, contamination of the healthcare environment, and transmission of microorganisms from a colonised site to a clean site on patient X.

After touching a patient the HCW has the patient’s microorganisms on their hands; these microorganisms can be transmitted to the next patient/surface the HCW touches.
Moment 4 – After Touching a Patient

WHY:
To protect yourself and the healthcare surroundings from potential pathogens from the patient.

WHEN:                                                                 EXAMPLES:

After any Moment 1 except where there has been a potential exposure to body fluids: See Moment 1 and 2

TO PREVENT: Colonisation/Infection in HCWs, and contamination of the healthcare environment
After touching a patient the HCW has the patient’s microorganisms on their hands; these microorganisms can be transmitted to the next patient/surface the HCW touches.

Moment 5 – After Touching a Patient’s Surroundings

WHY:
To protect yourself and the healthcare surroundings from potential pathogens from the patient’s surroundings.

WHEN:                                                                 EXAMPLES:

After touching the patient’s immediate surroundings when the patient has not been touched: Patient surroundings include: Bed, Bedrails, Linen, Table, Bedside chart, Bedside locker, Call bell/TV remote control, Light switches, Personal belongings (including books, Mobility aids), Chair, Foot stool, Monkey bar

TO PREVENT: Colonisation/Infection in HCWs, and contamination of the healthcare environment
After touching the patient’s environment the HCW has microorganisms on their hands; these microorganisms can be transmitted to the next patient/surface the HCW touches.
2.4 Two patients within the same patient zone

Two or more patients may be in such close contact that they occupy the same physical space and touch each other frequently. For example, a mother and her newborn child, or twins occupying the same cot. The two close patients may be viewed as occupying a single patient zone. HH is still required when entering or leaving the common patient zone, and before and after procedures on the individual patients, but the indication for HH when moving between the two patients is little preventative value because they are likely to share the same microbial flora (1).
Chapter 3

Alcohol Based Hand Rubs

3.1 Aim

To successfully implement and sustain a HH program a major factor is to ensure the choice of HH solution is acceptable to the users, and that all logistical issues in product installation have been addressed.

A well-planned and well-executed installation of HH products is an essential step in any program to enhance hand hygiene adherence (19).

Before deciding on the selection and placement of ABHR for your facility, it may be useful to provide HCWs with the opportunity to evaluate these products. To gain better compliance the selection strategy requires input from a multi-disciplinary team (1).
3.2 Why use an ABHR

Research (1, 5) has demonstrated that ABHRs are better than traditional soap and water because they:

- Result in a significantly greater reduction in bacterial numbers than soap and water in many clinical situations (20) (see Figure 3.2 below)
- Require less time to use
- Cause less irritation to the skin
- Can be made readily accessible to HCWs
- Are more cost effective (21-22).

Both soap and ABHR products are necessary for the introduction of a HH program; a soap and water wash is required if hands are visibly soiled, and either product can be used if hands are visibly clean. As wet hands can more readily acquire and spread microorganisms, the proper drying of hands is an integral part of routine hand hygiene (1).

Paper towels, cloth towels, and air dryers are commonly used to dry washed hands. There is currently conflicting evidence as to the efficacy of each method for removing bacteria from washed hands (23-25). Ideally, hands should be dried using either individual paper towels, or hand driers which can dry hands as effectively and as quickly as it can be done with paper towels (26). Hand driers used in healthcare should be proven not to be associated with the aerosolisation of pathogens (1), for example using hospital grade HEPA filtration to minimise airborne microorganisms (27).

3.2.1 ABHR is the product of choice

ABHR is the gold standard of care for HH practice in healthcare settings, whereas hand washing is reserved for situations when the hands are visibly soiled, or when gloves have not been worn in the care of a patient with C. difficile (5).

ABHR is the HH product of choice for all standard aseptic technique procedures. Surgical scrub is required for surgical aseptic technique. For definitions on standard vs. surgical aseptic technique see Section 1.7.3 of the 2010 Australian Guidelines for the Prevention and Control of Infections in Healthcare (2).

ABHR is also the recommended product for the prevention of intravascular catheter related infections (28).
With the exception of non-medicated soaps, every new formulation for HH should be tested for its antimicrobial efficacy to demonstrate that:

- It has superior efficacy over normal soap; or
- It meets an agreed performance standard.

### 3.3 Product selection

When selecting an ABHR product, HHA recommends:

1. The Product meets the EN1500 testing standard for bactericidal effect (see Section 3.4.1)
2. The Product has Therapeutic Goods Administration (TGA) approval as a hand hygiene product

However, product selection is *ultimately the choice of each healthcare facility*, and other factors should also be considered, such as:

- Dermal tolerance
- Practical considerations such as availability, convenience, functioning of dispenser, and ability to prevent contamination
- Aesthetic preferences such as fragrance, colour, texture and ease of use
- Cost issues.

Please note that the above information on product selection is a **recommendation** only. HHA do not promote specific products, nor do they mandate product selection. Product selection is ultimately the choice of each healthcare facility.

The following information is the current evidence available to assist healthcare facilities in choosing an appropriate ABHR.
3.4 ABHR Performance Testing
(in vivo laboratory based tests)

3.4.1 EN 1500 (European Committee for Standardisation)
Testing requires 18 – 22 subjects, and a culture of *E. coli*. Subjects are randomly assigned to two groups where one uses the test handrub, and the other a standard reference solution (60% v/v isopropanol). The groups then reverse roles (cross over design). The mean acceptable reduction with a test formulation shall not be significantly inferior to that with the reference handrub (1).

3.4.2 ASTM E-1174 (ASTM International – used by USA and Canada)
Testing requires two groups of 54 subjects. The indicator organism (*S. marcescens or E. coli*) is applied and rubbed over hands. The test handrub is then applied. The efficacy criteria are a $2\log_{10}$ reduction of the indicator organism on each hand within 5 minutes after the first use, and a $3\log_{10}$ reduction of the indicator organism on each hand within 5 minutes after the tenth use (1).

3.4.3 Comparison of ABHR test procedures
The performance criteria in the above tests are not the same; therefore a product could meet one criterion but not the other. The level of reduction in microbial counts needed to produce a meaningful drop in the hand-borne spread of HAIs remains unknown (1).

HHA recommends products tested using the EN 1500 criteria as this test more closely reflects the use of an ABHR in a typical clinical situation. The efficacy criteria for the ASTM E-1174 are extremely low, with non-medicated soap and water being able to achieve a $3\log_{10}$ reduction of the indicator organism within 1 minute. Furthermore, 5 minutes is too long to wait between patients after using an ABHR (1).

3.5 The Activity of ABHRs
The activity of ABHRs against bacteria, fungi and viruses is affected by a number of factors including:

3.5.1 Type of alcohol
Isopropanol and ethanol both have in-vitro activity against bacteria, fungi and viruses. When tested at the same concentration, isopropanol is more efficacious than ethanol (1); however ethanol has greater activity against viruses than isopropanol (1, 29).
3.5.2 Alcohol-only ABHR versus Alcohol-chlorhexidine ABHR

Although alcohols are rapidly germicidal when applied to the skin, they have no appreciable persistent or residual activity. The addition of a low concentration of chlorhexidine to an ABHR results in significantly greater residual activity than alcohol alone (1, 30) and therefore potentially improves efficacy. Notably, most published clinical studies that have demonstrated reductions in HAIs with the use of ABHR, have been associated with the use of ABHR that contains at least 70% alcohol (isopropanol), 0.5% chlorhexidine and a skin emollient (4, 12).

To date there has been one published clinical study showing that alcohol-only ABHR is effective in reducing HAIs (indeed, it is one of the formulations recommended by WHO), however this study was conducted in a developing healthcare setting using a product that has higher concentrations of alcohol than what is currently available on the Australian market (31). Further clinical studies in this area are encouraged.

3.5.3 Alcohol concentration

There is a clear positive association between the extent of bacterial reduction and the concentration of alcohol contained in ABHR products. Furthermore the concentration for maximum efficacy is different for isopropanol than ethanol. For example, ABHR containing 60% isopropanol is associated with similar cutaneous bactericidal activity as ABHR that contains 77% ethanol (30).

When comparing alcohol concentrations it is important to look at the unit of measure, not just the numerical value of the concentration. Alcohol concentrations can be reported in a number of ways:

- Volume / Volume (V/V)
- Weight / Weight (w/w)
- Weight / Volume (w/V)

Conversion tables are available for comparison between V/V and w/w for ethanol only (32). A sample of ethanol labelled with a concentration of 70% V/V is equivalent to an ethanol sample labelled as 62.39% w/w (32).

Significant differences in the efficacy of ABHRs appear to be due to a product’s overall concentration of alcohol (33) with higher concentrations being more effective.
3.5.4 Alcohol absorption

The selection of an ABHR may be influenced by religious factors. According to some religions alcohol consumption is prohibited. Recent studies have demonstrated minimal rates of cutaneous alcohol absorption such that there should be no concern for HCWs (34-35). An Australian study suggested that isopropanol might be less likely to be absorbed than ethanol. Thus, HCWs concerned about absorption for religious reasons may elect to use an ABHR that contains isopropanol rather than ethanol (34). An awareness of commonly held religious and cultural beliefs is vital when introducing new concepts to today’s multicultural healthcare community (36).

When implementing a HH campaign with an ABHR in a healthcare setting where religious groups are represented, it is important to include focus groups on this topic to allow HCWs to raise concerns about the use of ABHRs, help them to understand the evidence underlying this recommendation, and to identify possible solutions to overcome obstacles (1). The same process should be used when implementing ABHRs into areas where there may be concerns about misuse of alcohol.

3.5.5 Solutions versus gels versus foams

Laboratory studies have found that ABHR solutions are more effective than ABHR gels that contain an equivalent concentration of alcohol (37). Historically gels contain approximately 10% less effective alcohol than a similar solution. For example, an ABHR gel containing 60% alcohol has similar effective alcohol activity as a 50% ABHR solution (3). Technically it has proven difficult to develop ABHR gels that contain ≥70% alcohol without the gel becoming less viscous and more solution-like. Thus the first generations of gel formulations have reduced antimicrobial efficacy compared with solutions (1).

There is some evidence to suggest gels are preferred to solutions, and have a trend towards improved compliance (1). Evidence suggests that the efficacy of alcohol based gels may depend mainly on concentration and type of alcohol in the formulation, rather than on product consistency (38).

ABHR foams are also available, but to date are used less frequently. There is currently minimal clinical evidence available for the use of alcohol based foams. Further clinical tests are encouraged.

HHA recommendations for product selection are outlined in Section 3.3; it does not matter if the product chosen is a solution, gel or foam.
3.5.6 ABHR volume and drying time
The volume of hand rub dispensed is important. One ml of alcohol has been shown to be substantially less effective than 3 ml (20). The effective volume of ABHR (2-3 ml; 1-2 squirts from most ABHR dispensers) generally takes 15-20 seconds to dry on hands – hence ABHR drying time is a convenient indicator that sufficient ABHR has been applied. It is important to follow the recommendations of the manufacturer which are usually found on the ABHR bottle.

In clinical practice often smaller volumes are used than what is recommended in the testing of ABHRs. Unless high concentration products are used there is no significant reduction in contaminants with small volumes of ABHR (33).

It is essential that the team in charge of implementing the ABHR educate their staff about the correct use of the product. Specific education is required to ensure the correct dose is administered: it is important to use a two handed action to operate the dispenser, and to recognise that the number of squirts required for the ABHR to be effective may differ between products, or the size of the HCW’s hands. ABHR should never be applied to gloves or to inanimate objects as a cleaning agent.

3.5.7 If hands are wet when ABHR is applied
The antimicrobial efficacy of alcohol is very sensitive to dilution with water and is therefore vulnerable to inactivation, especially if only small volumes of ABHR are applied. For instance, if 60% isopropanol were rubbed onto wet hands in two portions of 3 ml (each for 1 minute), the mean log bacterial reduction achieved is 3.7, as compared to 4.3 with dry hands (30). Thus, it is recommended that ABHR be applied to dry hands.
### 3.5.8 ABHR activity versus other HH antiseptic agents (3):

<table>
<thead>
<tr>
<th>Group</th>
<th>Gram-positive bacteria</th>
<th>Gram-negative bacteria</th>
<th>Mycobacteria</th>
<th>Fungi</th>
<th>Viruses</th>
<th>Speed of action</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohols</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>Fast</td>
<td>Optimum concentration 60-90%; non-persistent activity</td>
</tr>
<tr>
<td>Chlorhexidine (2% and 4% aqueous)</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>+</td>
<td>+++</td>
<td>Intermediate</td>
<td>Persistent activity; rare allergic reactions</td>
</tr>
<tr>
<td>Iodine Compounds</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>Intermediate</td>
<td>Causes skin burns; usually too irritating for hand hygiene</td>
</tr>
<tr>
<td>Iodophors</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>Intermediate</td>
<td>Less irritating than iodine; acceptance varies</td>
</tr>
<tr>
<td>Phenol Derivatives</td>
<td>+++</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Intermediate</td>
<td>Activity neutralised by non-ionic surfactants</td>
</tr>
<tr>
<td>Triclosan</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>−</td>
<td>+++</td>
<td>Intermediate</td>
<td>Acceptability on hands varies</td>
</tr>
<tr>
<td>Quaternary ammonium compounds</td>
<td>+</td>
<td>++</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>Slow</td>
<td>Used only in combination with alcohols; ecologic concerns</td>
</tr>
</tbody>
</table>
3.6 ABHR Limitations

3.6.1 Bacterial spores
Alcohol has virtually no activity against bacterial spores. Washing hands with soap and water is preferred in this situation because it is the best method of physically removing spores from the hands (1). However, the vegetative form of *Clostridium difficile* is highly sensitive to ABHR.

The 2010 ASID / AICA position statement on Infection Control Guidelines for Patients with *Clostridium difficile* Infection (CDI) in Healthcare Settings (39) recommends the primary use of ABHR in accordance with the WHO 5 Moments for Hand Hygiene when caring for patients with CDI. Gloves should be used during the care of patients with CDI, to minimise spore contamination, and if hands become soiled, or gloves have not been used, then hands must be washed with soap and water.

3.6.2 Non-enveloped (non-lipophilic) viruses
Alcohol has poor activity against some non-enveloped viruses e.g. rotavirus, norovirus, polio, Hepatitis A. However, there is conflicting evidence suggesting that ABHR is more effective than soaps in reducing virus titres on finger pads (1, 40-41). Thus, in norovirus outbreaks it is usually best to reinforce the use of ABHR, unless hands are visibly soiled – then soap and water HH is preferred.

3.6.3 Other organisms
Alcohol has a poor activity against tropical parasites, and protozoan oocysts. Hand washing is preferred.

3.7 Repeated ABHR use
There is no maximum number of times that ABHR can be used before hands need to be washed with soap and water (42).
3.8 Glove use

Inappropriate glove use often undermines efforts to sustain correct hand hygiene according to the 5 Moments.

Gloves do not provide complete protection against hand contamination. Pathogens may gain access to the HCW's hands via small defects in gloves or by contamination of the hands during glove removal. Bacterial flora colonising patients may be recovered from the hands of approximately 30% of HCWs who wear gloves during patient contact (5, 43-44).

Gloves can protect both patients and HCWs from exposure to infectious agents that may be carried on hands (45). As part of standard precautions single use gloves must be worn for (2):

- Each invasive procedure
- Contact with sterile sites and non-intact skin or mucous membranes
- Any activity that has been assessed as carrying a risk of exposure to blood, body substances, secretions and excretions.

The recommendation to wear gloves during an entire episode of care for a patient who requires contact precautions, without considering indications for their removal, such as for HH, could lead to the transmission of microorganisms. Hayden and colleagues found that HCWs seldom enter patient rooms without touching the environment, and that 52% of HCWs whose hands were free of VRE upon entering rooms contaminated their hands or gloves with VRE after touching the environment without touching the patient (46).

HH products and gloves should be made available inside isolation/contact precaution rooms to allow for appropriate hand hygiene to occur during the care of a patient.

When should gloves be changed?

- Between episodes of care for different patients, to prevent disease transmission (47-48)
- During the care of each patient, to prevent cross-contamination between body sites (5)
- If the patient interaction involves touching portable computer keyboards or other mobile equipment that is transported from room to room (48)

Sterile gloves must be used for surgical aseptic procedures and contact with sterile sites (2). Single use gloves should always be discarded.

Hand hygiene is required with glove use at the following times:

- Before putting on gloves and immediately after removing gloves
- Gloves should be removed to perform HH during the care for a single patient as indicated by the 5 Moments for Hand Hygiene
- Hand hygiene products should not be applied to gloves

Prolonged and indiscriminate use of gloves should be avoided as it may cause adverse reactions and skin sensitivity (47). For more information on gloves refer to the Australian Guidelines for the Prevention and Control of Infection in Healthcare(2).
3.9 ABHR placement for improved HHC

Critical to the success of the program is having ABHR readily available to HCWs in their work area and near the patient, at the point of care (1). Dispensers act as a visual cue for HH behaviour, and their strategic and ubiquitous placement makes the product highly accessible for frequent use (49). Placement of ABHR needs to be consistent and reliable. Clinical staff should assist with the decision-making process, as they generally best understand the workflow in their area. Although this may be time consuming the benefit of behavioural adherence will be marked.

Where possible ABHR should be placed at the foot of every bed, or within each patient cubicle. An article by Traore (2007) concluded that “availability of a handrub at the point of care increased HHC independently of the type of product used, time of day, professional category and other confounders” (50).

The placement of ABHR can have a significant effect on the HHC of HCWs. In a study by Birnbach et al (51), medical staff had a HHC rate of 54% when the ABHR was in their line of sight on entering a patient’s room, compared to 11.5% when they couldn’t see the ABHR dispenser. When designing new healthcare facilities, consideration should be given to appropriate placement of ABHRs.

The placement of dispensers next to sinks is strongly discouraged as this can cause confusion for some HCWs who may think they need to rinse their hands with water after using ABHR.

The following ABHR placement locations are suggested:

- On the end of every patient bed (fixed or removable brackets)
- Affixed to mobile work trolleys (e.g. intravenous, medication and dressing trolleys)
- High staff traffic areas (e.g. nurse’s station, pan room, medication room and patient room entrance)
- Other multi-use patient-care areas, such as examination rooms and outpatient consultation rooms
- Entrances to each ward, outpatient clinic or Department
- Public areas – e.g. waiting rooms, receptions areas, hospital foyers, near elevator doors in high traffic areas.

A clear decision needs to be made about whose responsibility it will be to replace empty ABHR bottles. Workplace agreements or job descriptions may need to be changed to accommodate prompt replacement of these bottles (12). Never pour ABHR from one bottle into another as this may lead to contamination of the bottle and its contents, and will mix different production batches. Most ABHR approved for use within Australian healthcare facilities are registered as a pharmaceutical product, with a batch number to enable tracking of the product should it be required.
3.10 Safe ABHR placement

There are a number of risks to patients and staff associated with the use of ABHR; however the benefits in terms of its use far outweigh the risks. A risk assessment should be undertaken and a management plan put in place. This particularly applies to clinical areas managing patients with alcohol use disorders, and patients at risk of self harm (see Appendix 5).

3.10.1 Placement recommendations

- The maximum size of an individual ABHR dispenser should not exceed 500mls (52-53)
- No more than 80 individual ABHR dispensers (each with a maximum capacity of 500ml) should be installed within a single smoke compartment
- Corridors should have at least 1.8m wide with at least 150cm between each ABHR dispenser (52-54)
- Dispensers should not project more than 15cm into corridor egress (52-53, 55)
- Wall mounted brackets should be located at a height of between 92cms and 122 cm above the floor (avoid placing at eye level) (55-56)
- Dispensers should not be located over carpeted areas, unless the area is protected by active sprinklers (54)
- Dispensers should not be located over, or directly adjacent to ignition sources (e.g. electrical switches, power points, call buttons, or monitoring equipment) (52, 54-55)
- ABHR dispensers should be separated from heat sources and electric motors (52, 55)
- Dispensers should be installed according to manufacturer’s recommendations and to minimise leaks or spills (54)
- Regular maintenance of dispensers and brackets should occur in accordance with manufacturer’s guidelines (54)
- Product usage signs should be clearly visible and laminated
- Regular monitoring of each area is recommended for misuse, or removal of product
- Each facility should take adequate care regarding the placement of each dispenser so as to protect vulnerable populations, for example in psychiatric units, drug and alcohol units, paediatric units and units caring for cognitively impaired patients (52)
- ABHR bottles should be designed so as to minimise evaporation due to the volatile nature of alcohols
- Site-specific instructions should be developed to manage adverse events, such as ABHR ingestion, eye splashes or allergic reactions
3.10.2 Clinical area placement considerations

Special consideration is necessary when locating ABHR in clinical areas where ingestion or accidental splashing of ABHR is a particular risk (accidental ingestion of ABHR has been reported, but is uncommon (57)).

Such areas include:

- **Paediatrics** – ABHR should be located with care near children (See Section 3.11)
- **Mental Health/Dementia Units** – ABHR should be located with care near mentally ill patients, patients undergoing alcohol- or drug-withdrawal, or where there are cognitively impaired patients
- **Public areas** - ABHR needs placement in high traffic areas with clear signage regarding appropriate use and the need for parents to carefully supervise their children
- **Bracket design** is important since ABHR placement may be affected if ABHR brackets are ill-fitting (e.g. varying sizes of bed rails can affect the efficacy of some ABHR brackets). Consider brackets that are removable, or product that can be removed from brackets easily in case short term patient demands warrant it. Also take into account bracket availability and installation costs, since these expenses can be substantial.

Small personal bottles that HCWs carry with them may be more appropriate in some of the above areas.

3.11 Paediatric exposure to alcohol

ABHR can be placed in paediatric wards/facilities. The placement of ABHR within NICU, SCN, maternity wards, and on cots should follow the HHA recommendations of product placement at point of care.

The placement within general paediatric wards should remain within the point of care, except where a child may have an intellectual disability or cognitive impairment or where the child could unintentionally or intentionally harm themselves. Personal bottles of ABHR could be used in any area where ABHR cannot be placed at the point of care.

Recent research has shown increasing use of ABHRs in the home and community settings, which have corresponded with an increase in the number of calls to poisons centres regarding children misusing the products. However, Miller et al in 2009 report that ABHRs appear relatively safe when misused by children under six years of age as the exposure invariably occurred as a brief ‘taste’ or accidental ocular or dermal exposure, resulting in little or no toxicity (58). This is supported by anecdotal evidence from Australian Poisons Centres, and recent publication from an American Poison’s centre (59).

Further research has shown that use of an ABHR by children in day care centres is safe. Even though children put their hands in their mouth or in contact with other mucous membranes directly after ABHR use, there was nil measurable alcohol detected by breathalyser in any of the children tested (60).
3.12 ABHR and sterilisation departments

The current Australian standards for sterilisation departments imply that ABHR in sterilising services may not be appropriate as they contain emollients/moisturiser. This advice is given due to the requirements specified in AS/NZS 4187:2003 which specifically state that hand creams shall not be used by staff on arrival to work and whilst on duty and notes the presence of hand creams or moisturisers adds to the potential contamination of instruments during handling and inspection and compromises the integrity of the packaging.

These standards are currently under review and should be released in 2013.

3.13 Staff preference

The level of HCW acceptance of ABHRs is a crucial factor in the success of any HH Program. The following features can influence ABHR acceptability (1):

- Product availability. Product should be readily available at the point of care (e.g. bedside) and in all patient-care areas
- The emollient agent(s) in the ABHR should prevent skin drying and irritant skin reactions, but not leave a sticky residue on hands
- Risk of skin irritation and dryness. Proactive and sympathetic management of this problem is vital (see Section 3.14)
- Drying characteristics. In general, ABHR solutions have lower viscosity than gels and therefore tend to dry quicker
- Fragrance and colour - these may increase the initial appeal but may cause allergic reactions, and are therefore discouraged
- There is some evidence to suggest that gels are preferred to solutions (50), however it is important for staff to evaluate products themselves prior to implementation where possible.
3.14 Hand care issues

Intact skin is a first line defence mechanism against infection. Damaged skin can not only lead to infection in the host, but can also harbour higher numbers of microorganisms than intact skin and hence increase the risk of transmission to others (61-62). Damaged skin on HCWs is an important issue and needs to be seriously addressed.

There are two major types of skin reactions associated with hand hygiene. **Irritant contact dermatitis**, which includes symptoms that can vary from mild to debilitating including: dryness, irritation, itching, and even cracking and bleeding. **Allergic contact dermatitis**, which is rare and represents an allergy to some ingredient in a hand hygiene product. In its most serious form allergic contact dermatitis may be associated with symptoms of anaphylaxis (1).

The vast majority of skin problems among HCWs that are related to HH are due to “irritant contact dermatitis” (63). Irritant contact dermatitis is primarily due to frequent and repeated use of HH products - especially soaps, other detergents, and paper towel use, which result in skin drying. The initial use of ABHR among such HCWs often results in a stinging sensation. However, recent studies have suggested that the ongoing use of emollient-containing ABHR leads to improvement in irritant contact dermatitis in approximately 70% of affected HCWs (64-65). Also, the use of an oil-containing lotion or a barrier cream three times a shift can substantially protect the hands of vulnerable healthcare workers against drying and chemical irritation, preventing skin breakdown (66).

It is important to ensure that the selected ABHR, soaps, and moisturising lotions are chemically compatible to minimise skin reactions among staff (19).

**Factors that may contribute to dermatitis include:**

- Fragrances and preservatives. Commonly the cause of contact allergies; these should be kept to a minimum or eliminated when selecting an ABHR
- Washing hands regularly with soap and water immediately before or after using an ABHR is not only unnecessary, but may lead to dermatitis (67-68)
- Donning gloves while hands are still wet from either hand washing or applying ABHR increase the risk of skin irritation (1)
- Using hot water for hand washing
- Failure to use supplementary moisturisers
- Quality of paper towels.

The management of hand care problems associated with the use of HH products requires early recognition and a systematic approach to ensure success.
Strategies for minimising occupational hand dermatitis include:

- Use of a HH product that contains skin emollient to minimise the risk of skin irritation and drying. Several studies have demonstrated that such products are tolerated better by HCWs and are associated with better skin condition when compared to plain or antimicrobial soap (1, 22).

- Use the hand hygiene and hand care products supplied by the healthcare facility. The suite of products should be compatible, and less likely to cause irritation due to chemical interaction.

- Educating staff on the correct use of HH products (1-2, 64).

- Educating staff on caring for their hands, including the regular use of skin moisturisers both at work and at home - such moisturising skin-care products need to be compatible with ABHR.

- Providing a supportive attitude towards staff with skin problems.

ABHR produces the lowest incidence of irritant contact dermatitis of all the HH products currently available (1, 67, 69). True allergy to ABHR is rare and allergy to alcohol alone has not been reported to date (67).

Although some reports have suggested that irritant contact dermatitis can occur in up to 30% HCWs (68); the incidence of this problem among a recent study of Victorian HCWs was extremely low (0.47%), representing one cutaneous adverse event per 72 years of HCW exposure (64). Minimisation of irritant contact dermatitis is essential for improved HHC.

HCWs should notify the HH representative if skin irritation occurs following the use of ABHR. All complaints should be taken seriously and a review process instigated. All healthcare facilities should have access to referral for follow up that may include: an Occupational Dermatologist, local Doctor, or emergency department for HCWs with persistent skin problems. See Appendix 6 for an example of a skin care questionnaire for healthcare workers; alternatively go to http://hha.org.au/ForHealthcareWorkers/manual.aspx for the generic skin care assessment form. For the WHO consensus recommendations on skin care see below.

3.14.1 WHO consensus recommendations on skin care (1)

- Include information regarding hand care practices designed to reduce the risk of irritant contact dermatitis and other skin damage in education programmes for HCWs (IB).

- Provide alternative hand hygiene products for HCWs with confirmed allergies or adverse reactions to standard products used in the healthcare setting (II).

- Provide HCWs with hand lotions or creams to minimise the occurrence of irritant contact dermatitis associated with hand antisepsis or hand washing (IA).

- When alcohol based handrub is available in the healthcare facility for hygienic hand antisepsis, the use of antimicrobial soap is not recommended (II).

- Soap and alcohol based handrub should not be used concomitantly (II).

For levels of evidence on consensus recommendations please see WHO Guidelines on Hand Hygiene in Health Care (1) Table 1.2.2.
3.15 Fire safety

A number of studies have confirmed the safety of ABHR (70-71). Despite many years of use, there have been no documented fires directly related to the presence of ABHR in hospital wards in Australia, and only one documented in the USA. To further reduce the risk of fire following the application of ABHR, hands should be rubbed together until dry and all alcohol is evaporated (1) (See Appendix 5).

3.16 Ingestion

Accidental and intentional ingestion of alcohol based products used for HH have been reported (1, 72). Alcohol toxicity can occur after ingestion, but the effects depend on the amount ingested, and the age/size of the person ingesting it.

Symptoms and signs of alcohol intoxication include: dizziness, lack of coordination, hypoglycaemia, abdominal pain, nausea, vomiting, and haematemesis. Signs of severe toxicity include respiratory depression, hypotension and coma.

With careful consideration of ABHR product placement, and securing product in fixed or lockable brackets in high risk areas (i.e. mental health, alcohol detoxification units), the risk of this potential problem can be minimised.

As with any intervention, the availability and use of ABHR, while being associated with major benefits in terms of reduced risk of acquiring HAIs, may also occasionally be associated with some small risks. Thus, a carefully considered Risk Management strategy should be employed for the safe use of these products (see Appendix 5).

3.17 Storage and safety

Ensure a material safety data sheet (MSDS) for ABHR is available in areas where product is stored (check with local OH&S regulations).

All ABHR products are flammable with flash-points ranging from 21°C to 24°C, depending on the type and concentration of alcohol present. They should be stored away from high temperatures or flames (14). When considering the requirements for minor storage, the total quantities of all flammable liquids must be considered. Minor storage of all flammable liquids is not to exceed 10 litres per 50m² of floor space (AS 1940-2004, Section 2, Table 2.1).

For further product safety information contact your product supplier or local fire service.
3.18 Cost

The promotion of HH is highly cost effective, and the introduction of a waterless system for HH is a cost-effective measure (1). While the purchase price of ABHR is an important factor in product selection, it is far less important than the acceptability of the ABHR to HCWs. There is little point having a cheap ABHR available that has poor HCW acceptance and is therefore rarely used, resulting in poor rates of HHC. The key driver for ABHR selection should not be simple purchase cost (22). However, a study in the dental setting has reported that use of ABHR is more cost effective than antimicrobial soap (21), and the expenditure on ABHR products when compared with excess hospital costs associated with HAI can easily be justified (22).

Cost is an important consideration on set-up, and the ongoing funding source within the health service needs to be clearly identified for the sustainable success of the program.

3.19 Detergent wipes for hand hygiene

Detergent wipes or alcohol wipes should not be used for hand hygiene as they are no more effective than washing hands with soap and water (1). Detergent impregnated wipes are the recommended cleaning product for shared patient equipment. They should be used to wipe over equipment between patients, for example the BP cuff (2).
Chapter 4

Hand Hygiene Promotion and Healthcare Worker Education

4.1 Aim

To develop and maintain an ongoing education program to initiate and sustain HH behaviour change. All HCWs and support staff should be included in educational activities.

Education is critical to the success of the culture change program and careful planning is essential.

To achieve a high rate of HHC, HCWs need education, clear guidelines, some understanding of modes of disease transmission, and acceptable hand hygiene products (1).
4.2 Education about hand hygiene and the patient

Patients who develop HAIs can potentially have a lengthy recovery process, further operations, delayed return to work, and suffer emotional and financial burdens.

Patients receiving care in the healthcare environment expect clean hands on the people caring for them, however most would feel uncomfortable asking a HCW if they had clean hands, or to clean them before beginning their care (73). HH should be performed in front of your patient so that they know you have clean hands prior to their care.

Although HAIs cannot be entirely eliminated, there are strategies which have been proven to significantly reduce their occurrence (1). The ACSQHC Patient Charter stipulates that all Australians have the right to "receive safe and high quality health services provided with professional care, skill and competence" (2). HH is one such effective strategy in the prevention of HAIs.

HH is the single most important strategy to reduce HAIs and applies to everyone - staff, patients and their visitors.


- Glen's Story
  Produced by The Victorian Infection Control Professionals Association (VICPA)
- The Patient Experience
  Produced by The Victorian Quality Council (VQC)
4.3 Education for all healthcare workers

HCW education is a key component of any multi-modal intervention strategy. Basic education sessions for all HCWs should include the following (74):

- Definition, impact and burden of HAIs
- Common pathways for disease transmission, specifically the role of hands
- Prevention of HAIs and the role of HH
- 5 Moments of Hand Hygiene – with key messages
  - When to perform HH
  - How to perform HH, using ABHR or soap and water
  - Use of alcohol based hand rubs
  - Use at point of care

4.3.1 Delivery of hand hygiene education

Staff within healthcare facilities change quite frequently. Therefore as well as introductory education sessions, a program with regular updates should be planned. These could take the form of specific orientation programs, in-service lectures or special workshops. Where possible, HH Coordinators should work with education departments in their facility to identify the most appropriate methods specific to the audience and facility.

On a day to day basis in healthcare facilities, many opportunities arise for informal education. These opportunities may include:

- Medical and Nursing rounds
- Nurse Unit Manager/clinical unit meetings
- Ward "walkabouts"
- Increased presence on the ward by the HH Program Coordinator and Infection Control staff
- Program staff acting as a resource for all staff
- Working one-on-one with staff to improve HH practices
- Corridor/tearoom conversation
- Prompt feedback of HHC results, including rewards/incentives for good results.

High profile promotional activities are also recommended to raise awareness of HH. For example, these can be planned to coincide with World Hand Hygiene Day 5th May each year, or Infection Control Awareness week during October each year.
4.3.2 Hand hygiene education and assessment

HH education and assessment can play a key role in sustaining good HH practice and maintaining the NHHI. The implementation of education and assessment will vary between healthcare facilities. An online HH learning package has been shown to be effective in supporting this process (75).

The HHA online learning packages (OLPs) (http://www.hha.org.au/LearningPackage/olp-home.aspx) include a series of educational slides and questions, and provide immediate feedback after each section is answered - users can only move to the next section after they have selected the correct answers. A user is considered “educated in basic HH theory” on completion of a package.

All Australian healthcare facilities can become registered users of the HHA OLP by contacting the HHA office. Registering provides the ability to report on numbers of staff who have completed the education package. Alternatively, healthcare institutions can develop their own package, or continue with an existing program.

The HH education and assessment package should be readily available to all staff by means of the internet or a link on the hospital intranet. Alternatively, the education and assessment could be undertaken during the hospital orientation program for new staff.

Ideally new employees should complete a hand hygiene education and assessment package on commencement of employment, or as soon as possible after. This condition could be written into employment contracts, and also made a requirement for all student HCWs prior to commencement of clinical placements.

The OLP could become a mandatory component of the annual performance appraisal of all HCWs.

4.3.3 Using the HHC data to target education

The HHC data can be utilised as an educational tool for all HCWs. The HHA HHC reports (see Section 7.6 on report generation) give individual facilities the ability to develop targeted education aimed at specific HCW groups or departments. The data reports on the hand hygiene performance of a number of healthcare worker groups, and will assist with identifying priority areas for education.

HHC rates are both a useful outcome measure for the HH program, and a valuable educational tool for HCWs. Reporting local HH audit results to HCWs is an essential element of a multi-modal strategy. Timely feedback and discussion assists in engaging HCWs in effective cultural-change and in developing locally relevant improvement initiatives.

The overall ward reports should be given to the managers of the wards, with subsequent reporting to all ward staff followed by further training as indicated from the audits.

The overall facility reports should be presented to the healthcare management at regular intervals, and should become a standard agenda item for hospital Executive and quality and safety meetings.
4.3.4 Staff ownership

Staff ownership of the program should be encouraged and supported through:

- Regular and timely feedback to ward staff of HHC rates – national, state and hospital rates, but specifically their own ward data
- Recognition of each ward/department’s achievements
- Enthusiastic ward/department staff should be appointed as HH “liaison officers” or “ward champions” to take responsibility for HH promotion in the ward/department
- Ensuring each ward/department nominates a staff member to be accountable for the HH portfolio (see Section 4.3.5)
- The use of education tools and displays
- Provision of audit tools to ward staff to assess product availability ([Appendix 7](#))
- Staff completion of the HHA OLP. HHA recommend that all employees complete the appropriate package on employment and on an annual basis
- Ward-based promotional activities

4.3.5 Hand hygiene program liaison officers

The appointment of ward/department-based HH liaison officers or champions is helpful in linking the ward and the HH program and assist with the NHHI.

**This role involves:**

- Acting as role models for all staff
- Motivating staff
- Facilitating involvement and ownership of the project by HCWs in each ward
- Presenting outcome data to staff
- Monitoring product placement and availability by conducting audits
- Assisting with promotional activities in their ward
- Assisting HCWs in their ward to complete the online learning package
- Educating new staff in HH, including ward/department orientation to HH product placement, correct usage and storage
- (Optional) HHC auditing as long as the HH Liaison person has been trained as an auditor and is able to be released from their normal duties to conduct audits.
4.4 Education of medical staff

Some of the strategies suggested above may not be appropriate for medical staff. Numerous published studies suggest that medical staff repeatedly under-perform in HHC and can be difficult to reach with education to generate behaviour change (1). Results from the Australian NHHI demonstrate that medical staff have lower HHC than most other HCWs (11).

HH Medical Champions should become involved and encourage medical staff to act as role models for all others. Although a multi-modal approach is likely to be most effective, one-on-one discussions with key/high profile medical officers are especially valuable, particularly for senior medical staff.

Successful programs should:

- Identify those willing to be role models
- Discuss any potential challenges to implementation with medical staff
- Identify medical opinion leaders, “Clinical Champions” and “Department/Unit Heads ”
- Regular attendance by Infection Control staff at medical ward rounds, enables informal HH education to senior and junior medical staff during these rounds
- As with all HCWs, medical staff should be regularly assessed for their rates of HHC and be provided with rapid feedback of results
- Regular scientific presentations at Surgical and Medical meetings, including Grand Rounds are especially important
- Target interns and RMOs during formal education sessions and orientations that are a required component of all medical training programs
- Encourage all medical staff to complete an OLP annually.


4.5 Education of student healthcare practitioners

Performing HH in a healthcare setting is a learned behaviour. To achieve a genuine HH Culture Change it is imperative that healthcare student education becomes a high priority. HHA has designed a student health practitioner HH online education package. This package consists of:

- Two HH OLP modules giving evidence based education on all aspects of HH in healthcare
- Links to extended scope HH information
- A HH program implementation checklist for teaching facilities.

HHA aim to make HH education part of the core educational content of all health related courses. It is important to include students and their mentors in all your HH education sessions in all healthcare settings.
4.6 HHA hand hygiene educational tools

HHA has an array of tools available to assist educational sessions as outlined above:

- Visit www.hha.org.au to access all of HHAs free to download resources for healthcare, and community
- HH Online Learning Packages (OLPs)
- 10 min educational video on “The 5 Moments Explained”
- Video demonstration of each of the 5 Moments individually: http://www.hha.org.au/home/5-moments-for-hand-hygiene.aspx
- Generic slide presentations:
  - Targeting specific groups of HCWs on HH
  - 5 Moments

4.7 Education of auditors

The education sessions suggested above will not be adequate to equip staff to audit compliance with the 5 Moments for Hand Hygiene. This requires specific training, and may not be suitable for some groups of HCWs (e.g. non clinical staff). Auditor training can only be provided by HHA or a coordinator who has passed the required assessments at a HHA Auditor training workshop. Refer to section 5.6 for details on auditor training.
4.8 Promotion of hand hygiene

Promotion of HH in each hospital can be undertaken in many ways. The following include a few popular suggestions:

4.8.1 Talking Walls campaign

A popular method to assist with staff ownership is the Geneva Talking Walls model (4). The principle of Talking Walls is to use art and humour to reinforce the principles of infection prevention through improved HH among staff. Staff from each ward can be invited to help design a poster featuring their own HH message. The resulting posters can then be placed throughout the hospital acknowledging the ward’s creativity. This promotes program ownership and reinforces the NHHI by directly involving local HCWs.

4.8.2 Other promotional activities

Many promotional activities can be conducted for little or no cost to the hospital.
- Awards for the best performing ward / HCW category
  - Measure and Graph HHC for each ward/department or HCW category around the organisation and award prizes for the best performance, or most improved
  - If you have a network of hospitals together the award could be at a hospital level
- Program Awareness via:
  - Internal magazines/newsletters
  - Pay slip notices
  - Screen savers
- Rewarding individual HHC
  - During HHC observation sessions, awarding staff observed to be highly compliant with HH with praise/stickers/chocolates
- Competitions
  - Quizzes, crosswords, word search
  - “Slogan“ competitions
- Involve local community
  - Encourage schools/kindergartens to promote HH
  - Patient involvement in the HH program
Chapter 5

How to Implement the NHHI

5.1 Aim

To form a multidisciplinary team to lead the implementation of the NHHI at each healthcare facility.
5.2 Program implementation model

Once your facility has identified the need to participate in the NHHI and the HHC auditing program, HHA recommend following these steps for program implementation:

- Choosing a steering committee, including a HH coordinator and Medical Champion who, along with the Infection Control team and/or the Safety and Quality team, will be the core team responsible for the project.
- The coordinator should have an understanding of HH and infection control issues and ideally a broader experience in quality and safety; he/she should be able to access high level management staff within the facility (76).
- The HH coordinator should attend a HHA Auditor training workshop (bookings via the website http://www.hha.org.au/ForHealthcareWorkers/workshops/workshop-online-booking.aspx).
- After successful completion of auditor training HHA will set up the new organisation in the HHA HHC Application database (HHCAApp) to enable HHC data collection.
- Choose auditing staff (see Section 5.5) who have time available to assist in the auditing process and are able to attend auditor training.
- Conduct a baseline HHC audit in a pilot ward (see Section 5.7 on ward selection).
- Introduce an ABHR or evaluate a current product on selected pilot wards. Place HH product in the pilot ward as per product placement information (see Section 3.9 – 3.10).
- Educate all staff on the pilot wards on the 5 Moments for Hand Hygiene (see Chapter 2).
- Audit the pilot ward and evaluate the impact of the program by comparing pre and post implementation HHC audit data.
- Expand the HH education and product placement to the wards chosen for NHHI HHC data submission.
- Expand the HH education and product placement to the whole of the healthcare facility.
- Rotate the wards submitting HHC data to the NHHI.
- Monitor the key outcome measures of HHC and SAB.
- Use the HHC data to guide the HH program improvement cycle (see Chapter 8).
- Use the WHO Self Assessment Tool for Program Evaluation (see Section 8.3).
5.3 Forming a HH project team

The Hospital Executive should demonstrate commitment and support for the HH Program (4) through interest, participation and regular reporting on the HH Program at Executive meetings, and to the Hospital Board.

5.3.1 Selecting a steering committee

Identifying key members of a health service is a critical element for engaging clinical and non-clinical staff in the project, and for supporting the core HH Program Team. It is important that an Executive sponsor is identified and that they are a part of the steering committee. Staff from the Departments of Infection Control, Infectious Diseases, Microbiology and Pharmacy (where available) should have an active role in the program implementation throughout the organisation, and should be the key drivers of the Steering Committee. The following list identifies some potential members for this committee:

<table>
<thead>
<tr>
<th>Project Officer/Program Coordinator</th>
<th>Microbiology laboratory representative</th>
<th>Clinical education representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive member/sponsor</td>
<td>Medical and/or surgical representative</td>
<td>Patient representative/consumer</td>
</tr>
<tr>
<td>Medical Champion</td>
<td>Quality Improvement representative</td>
<td>Supply/Stores Department</td>
</tr>
<tr>
<td>Infection Control Consultant(s)</td>
<td>Human resources</td>
<td>Allied Health</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>OH&amp;S representative</td>
<td>Environmental Services representative</td>
</tr>
<tr>
<td>Infectious Diseases Physician(s)</td>
<td>HH program representative from each pilot ward (ward champion)</td>
<td>Public relations/corporate development representative</td>
</tr>
</tbody>
</table>

5.3.2 Allocate roles and responsibilities for the steering committee

Areas for consideration:
- Line of reporting for committee members
- Staff and patient education
- Hand hygiene program marketing
- Data collection – both HHC and SAB
- HH product selection, including ABHR
- HH product placement
  - A well organised and executed plan for installation of HH products is an essential step in any program to enhance HH adherence in healthcare settings (19)
- Implementation of policies and procedures
  - HH Guidelines
  - Participation in HH Education
  - OH&S management of ABHR (Appendix 5).
5.4 Development of policies and protocols

To embed the change in HH practices into the culture of each healthcare institution a number of policies need to be developed:

- Hand Hygiene Policy recommending the use of ABHR by all HCWs
- Education of HCWs with formal assessment of knowledge about HH. Support for this by hospital executive can greatly assist with its implementation
- Clear documented guidelines about wearing jewellery and acrylic/false nails in clinical areas due to increased risk of microbial colonisation (77)
- Guidelines for management of HCWs with dermatitis potentially associated with HH product use (see Appendix 6)
- Clear guidelines on placement of ABHR in healthcare facilities (see Section 3.9 – 3.10)
- Occupational Health and Safety policy on storage of ABHR (as per ABHR MSDS from company supplying product)
- Occupational Health and Safety Risk Assessment for Product Placement (see Appendix 5)
- Education and evaluation of HH auditors on knowledge of HHC assessment (see Section 5.6), including yearly requirements for re-validation
- Identify key staff figures to ensure ABHR containers are replaced when empty, and brackets are installed appropriately and replaced when broken or missing.
- Cleaning shared equipment recommendations (see Section 10.3)

Alcohol based hand rub products at the point of care will improve HHC, but multidisciplinary strategies are required to implement and monitor HH recommendations in the long term (78).

For other infection prevention guidelines please refer to the Australian Guidelines for the Prevention and Control of Infection in Healthcare (2).
5.5 Selecting auditors

Careful thought and planning needs to be put into choosing the most suitable people to conduct the HHC audits. The appropriate people will vary between facilities.

The number of auditors needed to collect the required amount of HHC data for submission to HHA will vary depending on healthcare facility size (see Table 7.2).

Points to consider when selecting auditors include:
- Have a background as a clinical health professional
- Availability to attend HHA Auditor training
- Have time available to conduct audits
- Have a good understanding of auditing/feedback/education processes
- Acknowledge and understand safety and privacy concerns of patients and staff
- Have the ability to provide immediate feedback to staff for good hand hygiene practices, and educate on correct hand hygiene practice
- Auditors from a variety of health professions could promote widespread acceptance/ownership/participation in activities to improve hand hygiene within their area.

5.6 HHC auditor training

There are two types of training proposed by the HHA team: ‘Gold standard’ auditing and general auditing.

To ensure consistency of the auditing program and to ensure validation of auditors, participants trained by HHA become the “Gold standard” auditors.

<table>
<thead>
<tr>
<th>Taught by</th>
<th>Can teach 5 Moments</th>
<th>Can conduct audits</th>
<th>Can teach how to audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Standard</td>
<td>HHA</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Auditor</td>
<td>Gold Standard</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
5.6.1 Auditor training requirements

5.6.1.1 Workshop content
The mandatory content of the training programs for both "gold standard" and "general" auditors is identical.

To achieve HHA auditor status (GSA or general) participants must attend and pass a workshop conducted by a HHA coordinator, or a GSA at their own facility.

See Appendix 8 - How to Train Auditors for detailed instructions.

5.6.1.2 Successful completion requirements
All workshop attendees must pass a written and DVD quiz. The pass mark is >90%. Attendees must also show competence in HHC auditing in the practical session.

Once qualified as a Gold Standard Auditor, attendees are given login access to the “Workshop Resources” page on the HHA website, which allows access to all teaching materials and marking guides required to conduct “auditor” workshops in their own facilities. If you are a qualified GSA and do not have a login please contact HHA via http://www.hha.org.au/ContactUs.aspx

HHA follow a standardised procedure for non-successful participants to gain “auditor” qualifications (see Appendix 9, or contact HHA for further details).

5.6.2 Inter-rater and Intra-rater reliability and validation

Inter-rater reliability should be addressed in the auditor training programs by pairing HH auditors for observations of the same session and then comparing observations recorded, using the HHA trained and validated person as the “gold standard”. Each HH auditor should be paired with each of the other validated auditors (if more than 2 observers). Until there is >90% inter-rater agreement in all recordings (e.g. type of HCW, HCW activity, HH Moment, HH performance), the official data collection process should not begin.

Intra-rater reliability should be addressed through use of the HHA 5 Moments training DVD. This DVD should be observed on at least two occasions, with data recorded on the appropriate DVD Quiz form or mobile device. The rate of agreement for all recordings is then calculated. If there is less than 90% agreement, HH observers should seek further training.

If regular auditing is not done practice sessions are recommended prior to each data collection period to ensure reliable results. Careful attention is required to ensure that observations are recorded correctly and there is consistent reporting, not only by the individual auditors (intra-rater reliability) but also between the various auditors (inter-rater reliability). The HH team should discuss issues as they arise and reach a united approach.
5.6.3 Annual auditor validation
It has been recognised that there is potential for skill fade over time if 5 Moments auditing is not regularly conducted.

To maintain the auditor skill, all auditors are required to undertake an annual validation process. This validation is standard for both auditor classifications and requires the following:
- The annual collection of a minimum of 100 moments (can be collected either in the clinical settings or via the HHA training DVD self assessment)
- The annual completion of the auditor validation online learning package (OLP) www.hha.org.au/LearningPackage/auditor-annual-validation.aspx

5.6.4 Lapsed auditor revalidation
If a period of 12 months or more has elapsed between auditing periods for any auditor then prior to submitting data they are required to
- Contact their facility GSA/HH program manager. If you are the only auditor in your facility, contact your HHA jurisdictional co-ordinator
- Undertake a HHA training DVD quiz
- Forward completed Quiz to their HH program manager or HHA jurisdictional co-ordinator
- Undertake auditing in the clinical setting alongside a current auditor
- Complete the Annual Auditor Validation OLP
5.7 Selection of wards for auditing

HHA recommend the initial selection of one ward to start the pilot implementation of the program. It is important to choose a ward where motivation and interest are high, and the health gain is likely to be substantial, thus impacting on the roll out to subsequent wards.

By piloting the program on one ward, any initial problems with product placement or supply, staff motivation and education can be addressed prior to rolling out the program to the other HHA reportable wards, and eventually the rest of the hospital.

Several factors need to be considered when determining which wards should be audited. As HH is the single most important element of strategies to prevent HAI, wards known to have greater potential for high infection rates should be targeted. Improvements in HHC rates in these wards will have the greatest impact on the prevention of infection and provide a safer environment for patients. Generally, these wards also have the greatest staff/patient activity and interaction, which results in higher numbers of ‘Moments’ being audited in shorter time periods.

Auditing wards where there is little staff/patient activity and interaction (i.e. non-acute settings) will result in a small number of moments being observed and resources required to undertake auditing may be better utilised measuring other aspects of a hand hygiene program e.g. product placement, education etc.

The selection of wards should be made in conjunction with the appropriate committee at the hospital (e.g. Infection Control Committee, Hand Hygiene Committee, Quality Improvement Committee) and with Executive approval.

Once a HH program has been established and HHC is audited regularly, HHA encourage hospitals to ensure that all wards/departments participate in the program throughout the year. Local auditing and reporting results to each ward/department encourages ownership of the program by the whole hospital.
5.7.1 Hand hygiene compliance auditing ward selection options
These are recommended Ward Selection Options for hospitals participating in the NHHI. Please refer to your jurisdictional representative for confirmation of the preferred option.

All participating hospitals
- Minimum of one Intensive Care Unit every audit, and
- Minimum number of High Risk Wards* every audit -

Refer to the Hospital Stratification Table for the number of Moments and number of High Risk Wards.

Hospitals with no ICU or High Risk Wards are required to audit as per either Option A or B.

And Either

OPTION A - Rotation of other Wards
Other Wards to be rotated every audit.
Targeted wards audited for a minimum number of Moments as per the Hospital Stratification Table.

E.g. >400 bed hospital audits 1 ICU, 2 HRWs and 4 other wards for a minimum of 350 Moments on each.

OPTION B - All other wards
All other Wards audited every audit period.
HHA recommend a minimum of 50 moments be collected on each ward.
The minimum total hospital number of Moments audited is dependent on hospital size and is listed in Column “Total Number of Moments per audit” in Hospital Stratification Table.

E.g. 301 to 400 bed hospital. 1 ICU, 1 HRWs audited for 350 moments each. The remaining 1400 Moments will be audited across the remaining 11 wards of the hospital.

*HIGH Risk Wards include haematology/oncology, transplant, renal, dialysis, and wards with immunocompromised patients. High Risk may also include wards with known or suspected high rates of healthcare associated infection, high prevalence of patients with multi-resistant organisms, crowded accommodation.
Chapter 6

Auditing Hand Hygiene Compliance

6.1 Aim

To accurately assess HHC in accordance with published guidelines using a standardised HH observation assessment tool (1, 79).
6.2 Auditing with the 5 Moments for HH tool

HHC auditing is the established outcome measure for assessing the effectiveness of a hand hygiene program within the NHHI. HHC is a valid and reliable measure within the acute care sector, in both public and private hospitals throughout Australia. HHA currently receive data from the majority of acute hospitals within Australia, covering approximately 90% of acute public beds, and over 50% of all acute private beds.

The HHA HHC auditing method is by direct observation of healthcare workers. Direct observation by trained and validated observers is the gold standard to monitor compliance with the 5 Moments for HH (1). For information on other measures of HHC please see “Overview of approaches to measuring adherence to hand hygiene guidelines” appendix 2-2 by The Joint Commission (80).
6.3 Rules for auditing the 5 Moments

<table>
<thead>
<tr>
<th>Rules</th>
<th>Extended Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moment 1</td>
<td>HH Moment 1 is recorded only once the HCW touches the patient.</td>
</tr>
<tr>
<td>Moment 2</td>
<td>HH Moment 2 is recorded immediately prior to any procedure • Once Hand Hygiene has been performed, nothing in the patient’s environment can be touched prior to the procedure starting.</td>
</tr>
<tr>
<td>Moment 3</td>
<td>HH Moment 3 is recorded immediately after a procedure of body fluid exposure risk: • Nothing else should be touched prior to performing hand hygiene • Touching the outside of a drain or drainage bag (e.g., urinary catheter, wound drain, chest tube drain, CSF drain), even when the circuit is not broken, is considered a body fluid exposure risk • Can be recorded as a stand-alone HH Moment when there is a body fluid exposure risk, but no patient contact - e.g., cleaning a spill of vomit, urine or faeces.</td>
</tr>
<tr>
<td>Moment 4</td>
<td>HH Moment 4 is recorded after touching the patient • Touching the patient surroundings after touching the patient is recorded as a single Moment 4. • If after Moment 3 there is touching of the patient surroundings before leaving the patient zone this is recorded as a Moment 4.</td>
</tr>
<tr>
<td>Moment 5</td>
<td>HH Moment 5 is recorded when the HCW leaves the patient zone after touching the patient’s immediate surroundings and the patient has not been touched. • When multiple items in the patient surroundings are touched, only one Moment 5 is recorded.</td>
</tr>
</tbody>
</table>

Notes

Before/After Moments

Generally for every ‘before’ Moment there should be an ‘after’ Moment recorded, unless the auditor does not witness the action. • Moment 1 is generally followed either a Moment 3 or Moment 4 • Moment 2 is generally followed by Moment 3 • Moment 5 is a stand-alone Moment as there is no patient contact. • There are a few situations when two “afters” may be recorded sequentially, however you will never have a M1 and a M2 in a row.

Action missed if not observed

The HCW must be observed to perform HH as they approach the patient. If HH is not observed it should be recorded as a “missed” action (i.e., HH not performed).

Only audit what you observe

No “before” Moment can be recorded if auditing commences after a HCW is already touching a patient, or in the process of performing a procedure. No “after” Moment can be recorded unless the Moment is observed.

Curtains

Patient bed curtains are outside the patient zone and are frequently contaminated. Touching the curtains is equivalent to leaving the patient zone. HH should be performed between touching the curtains and touching the patient, and vice versa.

Double Moments

Two moments for HH can occur simultaneously e.g., when moving directly from one patient to another without touching anything in between. In this situation, a single HH action covers the two moments for HH, as Moments 4 and 1 coincide. When moving from touching a patient to performing a procedure on that same patient Moments 4 and Moment 2 coincide. When auditing in either situation, both Moments should be recorded as individual Moments on the data collection form.

When not to record a Moment

HHC is audited by HCW compliance with the 5 Moments, it is not audited by HCW performing a HH action. HH actions not corresponding to a recognised Moment are not recorded, e.g., when a HCW walks into a patient’s room, does HH and walks out without touching anything. In this case no Moment had occurred, despite HH taking place, so no Moment can be recorded.
6.4 Double Moments

Often two moments for HH will coincide. Typically, this occurs when moving directly from one patient to another without touching anything in between. In this situation a single hand hygiene action will cover two moments for HH, as Moments 4 and 1 coincide:

For example moving from touching one patient to another patient:
- HH is performed after touching patient A = M4
- HCW goes to the next patient area and touches patient B on the shoulder = M1
- The one HH action after touching a patient counts as the HH for before touching a patient also.

Another example of double moments is when moving from touching a patient to performing a procedure on that same patient;
- After touching the patient, HH performed = M4
- HCW changes the IV fluid bag on the same patient = M2 (double Moment)
- The one HH action after touching the patient counts as the HH before the procedure “double Moment”.

When auditing in either situation, both Moments are recorded as separate Moments on the audit tool.

If the HH action (rub/wash) is missed in either of the above situations the Moments are still recorded the same, however both the actions will be entered as “missed”.

6.5 When NOT to record a Moment

HHC is audited by Moments; it is not audited by HH action.

It is important to understand that HH actions not corresponding to an opportunity (or reason for HH) and therefore “additional” and not required should not be audited by the observer. For example, HCW walks into a patient’s room, does HH then walks out without touching anything – No Moment is recorded.
6.6 Overcoming bias in auditing

Observer bias is introduced by inter-observer variation in the observation. The HHA training schedule of validation of auditors has been created to minimise this bias.

Selection bias is introduced by selecting HCWs, care settings, and observation times with specific HH behaviour. In practical terms, this bias can be minimised by randomly choosing locations (from your set reporting wards) and times of the day to audit.

When HCWs know HHC is being measured, they often initially attempt to behave correctly. This is known as the “Hawthorne Effect” (81). Recent evidence suggests that the Hawthorn effect may only increase compliance in areas that already have good compliance rates, but there will be no noticed effect on wards starting with low compliance (82). Indicating that people who know when HH should occur can improve their practice under auditing conditions, however people who don't know the correct “HH Moment” to perform cannot improve their performance without further education.

However, with repeated observations, HCWs generally grow accustomed to the observer and are less affected by their presence (83), particularly if they know the auditor and are comfortable being observed.

6.7 Preparation for collection of HHC data

To ensure valid and reliable data collection, only people trained and validated by the HHA auditor training program are able to submit data to HHA.

6.7.1 Equipment required to conduct a hand hygiene audit

The following equipment is required to conduct an audit:

- Mobile device with internet access to HHA HHC App
  
  http://hhcapp.hha.org.au/mobile/

OR

- Copies of HHA Audit forms (see Appendix 1)
- HHA coding sheet (see Appendix 2)
- HHA audit ward summary sheet (see Appendix 10)
6.7.2 HCW codes required for auditing

<table>
<thead>
<tr>
<th>HCW Code</th>
<th>Type of HCW</th>
<th>Extended Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Nurse</td>
<td>All nurses – RN, Div 1, Div 2/EN, Midwives, Agency staff, Domiciliary nurses, Psychiatric</td>
</tr>
<tr>
<td>DR</td>
<td>Medical Doctor</td>
<td>All doctors – Consultants, Registrars, Residents, Interns, Visiting Consultants, GPs, Dentists</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Care staff</td>
<td>PSA, AIN, PCW, wardsmen, orderly, warders, ward/nursing assistants</td>
</tr>
<tr>
<td>AH</td>
<td>Allied Health</td>
<td>Physiotherapists, Occupational therapists, Dieticians, Speech Pathologists, Radiographers, Pharmacists, P&amp;O, Allied Health Assistants, Podiatrists, Music/Play therapists, Audiologists, Plaster technicians, ECG technician</td>
</tr>
<tr>
<td>D</td>
<td>Domestic staff</td>
<td>Staff engaged in the provision of food and cleaning services, maintenance people</td>
</tr>
<tr>
<td>AC</td>
<td>Administrative and Clerical staff</td>
<td>Ward clerks</td>
</tr>
<tr>
<td>BL</td>
<td>Invasive technician</td>
<td>Phlebotomists, Dialysis technicians</td>
</tr>
<tr>
<td>SN, SAH, SDR, SPC</td>
<td>Students</td>
<td>Students of N, AH, DR, PC</td>
</tr>
<tr>
<td>O</td>
<td>Other</td>
<td>Persons not categorised elsewhere</td>
</tr>
</tbody>
</table>

6.7.3 Adding personalised HCW codes

HHCAApp enhancements in 2012 allow organisation administrators to add their own HCW codes into the HHCAApp system. These codes will need to fit under one of the HCW Parent codes (see Section 6.7.2 above). For example, data could be collected specifically on surgical registrars by adding “Surgical Registrar” under the parent code of DR. This allows for facilities to run local reports for specific groups of HCWs.

Please see the HHCAApp Instructions for Use http://hha.org.au/HHComplianceSystem.aspx for detailed instructions on how to add personalised HCW codes.
6.8 Conducting a HHA HHC audit

This section details the steps required to conduct a HHC audit:

6.8.1 Timing of audits

Three HHA HHC audits need to be conducted each year (see section 7.2). It is recommended that auditing is commenced 6 – 8 weeks prior to the due date for data submission. This allows time for feedback / reporting of results, education, or any other interventions to improve HHC to be implemented in the 8 weeks prior to the next audit cycle.

Some facilities are required to report HHC results on a monthly basis, and are therefore required to audit on an ongoing basis throughout the year. If this is the case it is still important to feedback results and to implement new interventions at regular times throughout the year.

6.8.2 Time to complete a HHC audit

To achieve valid results, HHC should be assessed on a defined minimum number of HH observations (Moments). The time taken to complete the required number of observations will vary depending on the level of clinical activity in the observed area, the experience of the auditor, and the time of day the audit is conducted.

The data collection schedule will be influenced by the number of acute beds in each facility (see section 7.2.1), the number of trained staff available to undertake HH observations, and the option taken for the selection of wards (See Section 5.7). HHC rates should be reflective of a cross-section of the facility’s HCWs, rather than just repeated or prolonged observations on a small number of HCWs.

6.8.3 Preparation of the wards

Unit Managers should be notified prior to commencing compliance auditing. Wards / departments should be asked to ensure ABHR products are in all the appropriate places before auditing commences. If there are barriers to HH, e.g. no available ABHR, soap or paper towels this should be recorded in the notes section of the audit tool, then reported to the shift or unit manager prior to leaving the area.
6.8.4 Conducting a HHC audit

- **Arrive at target ward / department and introduce yourself to the shift manager and inform them of your role**
- **Always perform HH upon entering a ward to audit. It is very important to lead by example**
- **HH auditors are encouraged to be open and honest about what they are doing, and show the audit tool and how the data collected is de-identified. This may be for staff, patients or visitors**
- **There needs to be at least one patient and one HCW present in a room to start auditing. If neither are present, move to another room**
- **Auditors need to position themselves to view the patient bed, sink, and ABHR area; however they must remain out of the workflow area of the observed staff. The presence or absence of a convenient location from which to observe patient beds and HH facilities may impact on which patient bays are selected for observation**
- **When a patient’s bed curtains are drawn, permission should be sought from the relevant HCW and patient to allow auditors to continue to view activities in the area. Although there may be some occasions when this is not appropriate, these are rare. Observing HCW activities behind closed curtains in the ICU is often necessary**
- **HHC should be assessed on all categories of HCWs who enter observed ward bays. Try not to observe the same HCW for the entire audit session**
- **The number of HCWs observed at one time depends on their level of activity and the competency of the auditor. More than one HCW can be observed simultaneously, provided their HH **Moments** can be accurately observed and recorded. If this is not possible, then the compliance of additional HCWs should not be recorded until the index HCW has left the bay, or has ceased activity. It is better to record fewer moments accurately than many Moments inaccurately.**
- **A HH Moment is only documented when the field observer can accurately observe the HCW and the Moment that has been completed. If an auditor is unsure whether the observed HCW performed HH, then such Moments should not be recorded. The only exception is when a HCW is observed to enter a room and go directly to the patient.**
- **A Moment finishes when a HCW:**
  - Moves from one patient to another
  - Leaves the room on completion of patient care
  - Touches the curtain partition in a multi-patient room
  - HCW moves from touching a patient to doing a procedure or vice versa
- **A Moment can finish in another area outside a patient room if patient care is not yet completed e.g. transporting a bedpan to the pan room**
- **The HHC audit session has no specific time frame, it can be conducted for as long or as little time as the auditor has allocated**
- **At the conclusion of an audit session the following needs to be completed:**
  - Thank the shift manager and highlight any problems that need addressing immediately e.g. No HH product available

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**The 5 Moments for Hand Hygiene**
There can be circumstances where it is not appropriate to conduct a HH observation session; these include:

- Emergency situations where HH is secondary to patient safety (e.g. when any hospital ‘code’ is called)
- End of life care
- If the patient, or patient’s family object
- During private discussions between HCWs and patient/ patient’s family.

### 6.9 How to use the HH audit tool

The HHA HHC audits should only be conducted by trained and validated staff. Data collection can be via paper or mobile device. However, HHA strongly recommend the use of mobile devices for data collection as this removes duplication of data entry.

#### 6.9.1 Data collection via a mobile device

If using a mobile device, user instructions can be found on the HHA website [http://hha.org.au/HHComplianceSystem.aspx](http://hha.org.au/HHComplianceSystem.aspx)

Then you can access the mobile data entry site on your mobile phone/tablet via [http://hhcapp.hha.org.au/mobile/](http://hhcapp.hha.org.au/mobile/)

There are multiple data validation codes within the mobile data entry system that will ensure that the required information is entered correctly.

To enable practice using a mobile device, without harming your data set, use the following practice login:

**Auditor Username:** Ignaz

**Password:** Ignaz1
6.9.2 Paper based data collection

For each session fill in the demographic details on arrival at target ward

- Health Service = Hospital or Network name
- Session number = The audit number for that particular ward which is then transferred to the HH ward summary sheet (see Appendix 10)
  - The first audit on a specific ward will be session no.1
  - The second audit on the same ward will be session no.2
  - The first audit on a different ward will be session no. 1 on that ward
- Start and Finish times are for your own personal statistics to enable you to calculate the amount of time it takes to conduct each audit. This information can then be reported to your senior management to assist with staffing requirements.

For each Moment observed the following should be recorded on the audit form:

- HCW – needs to be filled in every time a Moment is observed
- Moment – fill in the Moment observed.
  - Only one Moment should be filled in per box. If multiple Moments are observed a new box needs to be filled in for each moment (see Appendix 3)
- Action – needs to be filled in for every Moment observed
  - If no HH action is observed then it is recorded as a missed action
  - If the HCW performs HH then proceeds to touch their face/nose/mouth or touches items in the healthcare environment prior to touching the patient then this should be recorded as a missed HH action
  - If a HCW is observed to do HH incorrectly (e.g. one handed, minimal volume ABHR or no soap) this should be recorded as a missed action
- Gloves – are only recorded if the HCW puts gloves on in a Before Moment (1 or 2), takes gloves off in an after Moment (3, 4, or 5), or continues from one Moment to another with the same pair of gloves
  - Even if gloves are worn for patient care HH still needs to be performed and recorded before and after glove use
  - If no gloves are worn then the “gloves” box is left blank.

6.10 Patient safety and privacy during HH audits

Any ‘unsafe’ practices that are observed during HH auditing should be addressed immediately or reported to the appropriate manager for follow-up; otherwise compliance rates should be reported after an audit has been fully completed (58).

Observation does not justify infringing the principle of patient privacy. Auditors should show discretion regarding where they place themselves and their movements whilst conducting audits (60). It is recommended that patients be informed on admission that HH audits are regularly conducted as a quality improvement activity. Patients or their family may request they not be involved in an audit.
6.11 Hand hygiene and healthcare workflows

No HCW deliberately chooses not to perform HH as is required for patient, staff and environmental safety. Non-compliance with HH according to the 5 Moments may be as a result of the HCW’s environment or workflow. If a HCW doesn’t have the right equipment, or HH product easily available they will be unable to perform HH as required.

HHA have mapped out two common clinical activities where HHC is often suboptimal. This process mapping identifies workflows to maximise HHC by making it easier for staff to comply with the 5 Moments for Hand Hygiene.

HHA examples include:

**Blood Collection**

Practice Guidelines  

Audit Guidelines  

**Dialysis**

Practice Guidelines  

Audit Guidelines  

When auditing HHC it is worthwhile to note if there are particular activities of patient care where HH is regularly suboptimal. To address this ask the relevant staff to assist you to map out the required task (see above examples), and to design a solution themselves to make HH by the 5 Moments easier to comply with. Involving staff in this process promotes a sense of ownership of HH and HH improvement.
Chapter 7

Data Entry and Submission, Validation and Reporting

7.1 Aim

To enable correct data entry, data submission to HHA, and accurate reporting of HHC results.

To ensure all data collected is validated as a correct representation of HHC.
7.2 Requirements for national data submission

National HHC audits should be undertaken at **three set times a year**, with data submitted according to the recommended schedule on the home page of the HHA website [www.hha.org.au](http://www.hha.org.au).

Each organisation needs to ensure that the data they submit is correct. Failure to verify data may result in HHC data not being accepted into the HHA National data set.

**7.2.1 Acute hospital data submission**

Both public and private acute hospitals are required to choose their method of ward selection (See section 5.7.1), collect the required number of moments as per Table 7.2.1 below, then submit their data to the NHHI three times a year. For a separate document outlining the requirements for acute hospitals please see [http://hha.org.au/wardselection.aspx](http://hha.org.au/wardselection.aspx)

**Table 7.2.1 Required Moments Acute Hospitals**

<table>
<thead>
<tr>
<th>Number of acute inpatient beds</th>
<th>Minimum Required number of ICU’s per audit</th>
<th>Minimum Required number of HRW per audit*</th>
<th>Minimum Required number of other wards per HH audit (Option A)</th>
<th>Total number of Wards (Option A)</th>
<th>Minimum Required number of HH moments per ward</th>
<th>Minimum Total number HH moments per audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 400</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>350</td>
<td>2450</td>
</tr>
<tr>
<td>301 - 400</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>350</td>
<td>2100</td>
</tr>
<tr>
<td>201 - 300</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>350</td>
<td>1750</td>
</tr>
<tr>
<td>151 - 200</td>
<td>1 or 1</td>
<td></td>
<td>3</td>
<td>4</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td>101 - 150</td>
<td>1 or 1</td>
<td></td>
<td>2</td>
<td>3</td>
<td>200</td>
<td>600</td>
</tr>
<tr>
<td>51 - 100</td>
<td>1 or 1</td>
<td></td>
<td>1</td>
<td>2</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>25 - 50</td>
<td>1 or 1</td>
<td></td>
<td>or 1 (if no ICU or HRWs)</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>&lt; 25**</td>
<td>1 or 1</td>
<td></td>
<td>or 1 (if no ICU or HRWs)</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

* If there is more than one ICU in a hospital, auditing in other ICU’s can be included as auditing in the High Risk Wards.

** Auditing in Hospitals < 25 beds is dependent on jurisdiction.
Table 7.2.1.1 – Current Jurisdictional requirements for hospital < 25 acute inpatient beds

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Auditing required in hospitals &lt; 25 acute inpatient beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>YES</td>
</tr>
<tr>
<td>NSW</td>
<td>YES</td>
</tr>
<tr>
<td>NT</td>
<td>YES</td>
</tr>
<tr>
<td>QLD</td>
<td>Refer to Jurisdictional representative</td>
</tr>
<tr>
<td>SA</td>
<td>Refer to Jurisdictional representative</td>
</tr>
<tr>
<td>TAS</td>
<td>YES</td>
</tr>
<tr>
<td>VIC</td>
<td>YES</td>
</tr>
<tr>
<td>WA</td>
<td>Refer to Jurisdictional representative</td>
</tr>
</tbody>
</table>

7.2.2 Day hospital data submission
Day hospitals are required to collect the required number of moments as per Table 7.2.2.2 below, then submit their data to the NHII three times a year. For a separate document outlining the requirements for day hospitals please see http://hha.org.au/LatestNationalData/guidelines-for-data-submission---day-hospitals.aspx

Table 7.2.2.1 Day hospital size categories

<table>
<thead>
<tr>
<th>Peer Group</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>Stand alone facility performing &gt;5,000 procedures per annum</td>
</tr>
<tr>
<td>Medium</td>
<td>Stand alone facility performing 2,000 - 5,000 procedures per annum</td>
</tr>
<tr>
<td>Small</td>
<td>Stand alone facility performing &lt;2,000 procedures per annum</td>
</tr>
</tbody>
</table>

Table 7.2.2.2 Required Moments Day Hospitals

<table>
<thead>
<tr>
<th>Day Hospital Size</th>
<th>Required number of HH audits per year</th>
<th>Required number of HH observations per facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>3</td>
<td>350</td>
</tr>
<tr>
<td>Medium</td>
<td>3</td>
<td>200</td>
</tr>
<tr>
<td>Small</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>
7.2.3 Standalone/Satellite Dialysis data submission

Standalone/satellite dialysis centres are required to collect the required number of moments as per Table 7.2.3 below, then submit their data to the NHHI three times a year. For a separate document outlining the requirements for standalone/satellite dialysis centres please see http://hha.org.au/LatestNationalData/guidelines-for-data-submission---dialysis.aspx

Table 7.2.3.1 Standalone/Satellite Dialysis size categories

<table>
<thead>
<tr>
<th>Peer Group</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>Facility performing &gt;5,000 procedures per annum</td>
</tr>
<tr>
<td>Small</td>
<td>Facility performing &lt;5,000 procedures per annum</td>
</tr>
</tbody>
</table>

Table 7.2.3.2 Required Moments Standalone/Satellite Dialysis Centres

<table>
<thead>
<tr>
<th>Dialysis Centre Size</th>
<th>Required number of HH audits per year</th>
<th>Required number of HH observations per facility per audit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>3</td>
<td>200</td>
</tr>
<tr>
<td>Small</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>

7.3 Rationale for number of Moments to be collected

Inevitably compliance data will be used for comparison, be it at a ward, hospital, jurisdictional or national level. When data is used for comparison, it is important to note that a higher number of Moments audited will generate a more reliable compliance rate.

For example, if a ward is audited for 50 Moments generating a compliance rate of 50%, the exact binomial 95% Confidence Interval (95% CI) will be 36% to 64%. This means the real compliance rate could be anywhere between 36% and 64%.

If another ward audits 350 Moments and generates a compliance rate of 50%, the 95% CI is 45% to 55%. So we are more confident the real rate is close to 50%.

HHA recommend 95% confidence intervals are included when reporting compliance rates. See Chart 7.3.1 below for a further demonstration on the effect on confidence intervals when the numbers of moments are increased.
7.4 Data entry and management

All HHC data should be recorded for each of the 5 Moments either via a mobile device that syncs data directly into the HHA HHCAp database, or on the standard HHA paper data collection form (see Appendix 1) and later manually entered.

All new healthcare facilities joining the NHHI need to contact HHA to be set up in the HHCAp database and to be given login access. A pre-requisite to being given access to HHCAp is having a trained auditor at the facility able to manage data collection and reporting.

7.4.1 Add audit to your facility

At the start of each audit period the Organisation Administrator needs to add the current national audit to their facility to enable auditors to add sessions/moments. Please see http://hha.org.au/UserFiles/file/HHCAp/NewHHCAp-AddNationalAudit.pdf

If this is not done when an auditor logs on to:

A mobile device and clicks on Add session they will get the following message:
   “This organisation has no active audits, you cannot create a session....”

The computer and clicks Add session they will get the following message:
   “No available audits could be found to which sessions can be added. Please contact your organisation administrator to add an active national or local audit from the audits page.”
7.4.2 Tips for accurate data collection and entry

On a mobile device each new auditing session should be started on the Sessions page by pressing the Add Session button.

For paper based data collection each session on each ward should be recorded on a new data collection form.

7.4.3 At the conclusion of the ward visit:

For mobile data collection:
- Ensure you press the Done button, and press OK to the message asking if you have finished with this session.

For paper based data collection:
- Check that all demographic fields on each HHA 5 Moments audit sheet are correct and legible
- Check that there is a HCW / Moment / Action (+/- Gloves) in each box, if one item is missing that Moment needs to be crossed out as it is incomplete and it cannot be used
- Add up total number of Moments, and the total number of correct Moments (rub or wash) collected and write the total on the bottom right corner of audit sheet (see Appendix 1)
- Fill in HHA ward summary sheet for each session on each ward ensuring that all fields are filled in (see Appendix 10).

7.4.4 Data entry

For all data entry instructions see HHCApp written instructions for auditors: http://hha.org.au/HHComplianceSystem.aspx
This includes instructions for both mobile and paper based data collection.

For mobile data entry:
Once you have collected your data on the ward
- Ensure you are in an area where you have access to the internet
- Press the Sync button on your device
- Press OK to the message asking if you want to synchronise all sessions with the server

For paper based data entry
- Each session on the wards should be entered as a new session in the HHA HHCApp
- Enter data from paper audit sheets as per fields on HHA HHCApp for each session
- Check total number of moments for each session entered into HHCApp equals numbers recorded on summary sheet.
7.5 Data validation

Each individual who is responsible for the submission of HHC data to the NHHI should validate their healthcare facility data prior to submission to eliminate errors. The following should be used as a guide to assist recognition of data errors, whether it is data input, auditor, or other errors.

7.5.1 Correct number of moments

The first data validation check is to ensure that the right number of moments have been collected for your facility. Please refer to one of the sections 7.2.1, 7.2.2, or 7.2.3 relevant to your facility type, to find the required number of moments for submission per organisation.

If you work at an acute hospital you may need to collect a specific number of moments for each ward, depending on your choice of ward selection (see Section 5.7.1).

7.5.1.1 For those with auditor access only

Organisation Overall Moments
Login to HHCApi via the login page on www.hha.org.au (rather than the mobile data entry site)

In the search filters - select:
- Audit Type – “National”
- Audit Period - The current audit period
- Organisation – The facility name
  - This is only applicable if you are an auditor at multiple facilities
- Click search

The heading bar below the search filters will show “Total moments in this selection”. This is the number of moments your facility has collected. Does it match your required number of moments overall?

Department Overall Moments
To check that you have met this requirement, follow the above points and in addition in the search filters select:

- Department – The required department
  - If you audit multiple departments then select each department in turn
- Click search

The heading bar below the search filters will show “Total moments in this selection”. This is the number of moments collected for the ward selected. Does it match your required number of moments per ward?
If the required number of moments have not been met
Check that data hasn’t been entered for a “local” audit period (instead of a “National” audit) by doing the above search with Audit Type - Local selected
- If there is data here that should be a part of the National audit then:
  - Click on the specific session
  - In the Session Details section - Change the audit filter to “National”

Check that data hasn’t been entered against the wrong department by doing the above data check for all of the departments at a facility
- If there is data entered against a department that wasn’t part of the facility data collection this audit period then:
  - Click on the specific session
  - In the Session Details section - Change the department filter to “the required department”

If data you believe has been collected is not found please contact HHA via hha@austin.org.au

7.5.1.2 For those with Organisation Administrator access
Login via HHCAapp (rather than the mobile data entry site)
From the home screen, under the Reports heading banner
- Click on “Compliance rate by department”
In the search filters - select:
- National Audit Period - The current audit period
- Organisation – The required facility
  - This is only applicable if you are an organisation administrator at multiple facilities
- Click search

This report details the overall facility “Total Moments”, and below that each department “Total Moments”. Does it match your required number of moments overall? Does it match your required number of moments per ward?

If a department/ward is not visible in the report it is due to no data being entered for that department/ward for the data period searched.
If the required number of moments have not been met
Check that data hasn’t been entered for a “local” audit period (instead of a “National” audit)

From the home screen, under the Reports heading banner
• Click on “Compliance rate by department”

In the search filters - select:
• Local Audit Period – select all available in turn
• Organisation – The required facility
  • This is only applicable if you are an organisation administrator at multiple facilities
• Click search
  • If there is data here that should be a part of the National audit then:
    ▪ Click on Sessions from the top horizontal menu
    ▪ In the search filters select Audit type - Local
    ▪ Click on the specific session
    ▪ In the Session Details section - Change the audit filter to “current National audit name”
    ▪ Click Save

Check that data hasn’t been entered against the wrong department by running the Compliance rate by department report as at the start of 7.5.1.2. If there is data entered against a department that wasn’t part of the facility data collection this audit period then:
• Click on Sessions in the top horizontal menu
• Click on the department name where the data has been entered inaccurately
• In the Session Details section - Change the department filter to “the required department”
• Click Save

If data you believe has been collected is not found please contact HHA via hha@austin.org.au
7.5.1.3 For those with Region or Organisation Group Administrator access

Login via HHCApp (rather than the mobile data entry site)
From the home screen, under the Reports heading banner
• Click on “Compliance rate by Organisation from Region”
In the search filters - select:
• National Audit Period - The current audit period
• Click search

This report details the overall group “Total Moments”, and below that each organisation “Total Moments”. Are all members of your group visible in this report? If a facility in your group is not visible in the report this is due to no data being entered for that facility for the data period searched. Secondly, have all of your organisations submitted their required number of moments?

7.5.2 Compliance rate by individual auditor
This report is not currently available, however in the future organisation administrators will be able to run a report detailing the amount of moments collected by each individual auditor, and the compliance rate for each auditor
• It would be advisable to review auditor technique for those with consistent HHC rates reaching 90-100%, or substantially above/below the overall HHC for your facility

7.5.3 Further data validation checks

7.5.3.1 Compliance Rate by Moment Report
When reviewing the Compliance Rate by Moment report the general spread of moments: a larger amount of M1 and M4 data, approximately 10-15% M2 data, approximately 10-15% M3 data, and a variable amount of M5 data.

Look for any anomalies, for example Moments that have 100% compliance; is this an accurate reflection of your organisation’s practices?

Also review the Moment by HCW data - Do you have administrative/clerical (AC) doing procedures? Which auditor collected this data?

7.5.3.2 Compliance Rate by HCW
When reviewing the Compliance Rate by HCW report, look for any anomalies including: HCW groups that have 100% compliance, is this an accurate reflection of your organisation’s practices?
7.6 Reporting results

Feedback of results to all concerned is fundamental to any data collection process. Feedback is an essential part of every quality cycle, and feedback of improved audit results assists in maintaining local support and enthusiasm for the hand hygiene program. More importantly feedback of poor compliance rates that remain unchanged requires intervention to avoid a complacent workforce. (1).

**How to generate reports from the HHCA**

HHC should be reported in a defined manner:

- Overall HHC
- Overall HHC according to:
  - Each of the 5 Moments
  - HCW type.

The HHA database allows easy calculation of all these rates (at both a ward and hospital level), and reporting of HHC according to the above criteria.

For step by step instructions on how to generate reports from the HHA HHCA please refer to the HHA website [http://hha.org.au/HHComplianceSystem.aspx](http://hha.org.au/HHComplianceSystem.aspx)

Reports for organisations can be produced at any time from HHC App. The HH organisation administrator can choose to report by national audit period, local audit period, or by a specific date range e.g. Monthly.

7.7 State / Territory reporting of HHC

HHC rates for each jurisdiction are released by the relevant health departments in each state/territory. Please contact your HHA jurisdictional coordinator for further details.

7.8 National reporting of Hand Hygiene Compliance

Overall rates of HHC (including 95% confidence intervals) will be reported nationally three times per year. All data submitted is analysed by HHA and reported to the ACSQHC, and fed back to each jurisdiction. Jurisdictions then provide this data to Australian Institute of Health and Welfare for publication on the MyHospital website [www.myhospitals.gov.au](http://www.myhospitals.gov.au).
Chapter 8

Sustaining a Hand Hygiene Program

8.1 Aim

To maintain and continuously improve a Hand Hygiene Program
8.2 Key features of long-term sustainability include the following:

8.2.1 Hospital-wide rollout

For this program to be successful the enthusiastic and continued support of your facility Executive is essential. HCW acceptance and ownership of the NHHI program assists sustainability.

Ongoing tasks of HH project team:
1. Initiate reporting of HHC results as a regular infection control (IC) or quality report to the chief executive officer (CEO) / health facility board
2. Extend program to wards that have not been audited for the national program
   - Ensure healthcare facility ownership by progressing the HH education and auditing program to all wards/departments. HHA require a standard number of wards per facility to report HHC to the national program (see Table 7.2). However, for continued improvement and sustainability of the HH program it is imperative that all departments are included in the program.
3. Report results back to wards
   - As per any quality activity, it is important after conducting an audit to feedback the results to the relevant groups e.g. HHC per ward or HCW group. This will encourage ownership of the program at an individual level (see Chapter 7 on how to run data reports)
4. Evaluate HH program performance
   - See Section 8.3

8.2.2 Region / Jurisdiction level involvement

During 2008 the health ministers in all states and territories agreed on the objectives of the NHHI and continue to actively support all healthcare facilities to participate in the program.
Figure 8.2.3 HH Culture-Change (49)

Increase awareness of the importance of HH
- Program Launch
- Promotional initiatives

Monitoring and feedback of HH Compliance, & SAB Rates to provide encouragement

Provide a supportive environment to encourage and promote ABHR use and HH compliance.
- Strong executive and clinical leadership
- Ready access to ABHR
- Access to moisturiser
- Development of policies and procedures

Provide education to enable staff to learn correct HH
8.2.3 HH culture-change and sustainability of the HH program

Once a HH program is firmly established within a healthcare facility it is important to review and continually refresh it. The following section suggests ways to create sustainability within the HH program:

8.2.3.1 Increase the awareness and importance of hand hygiene

It is important to evaluate and relaunch a HH program every 1-2 years to revitalise existing staff enthusiasm and to capture the attention of new staff. A useful tool for HH program evaluation is the WHO Hand Hygiene Self Assessment Framework (http://www.who.int/gpsc/5may/hhsa_framework/en/index.html).

See Section 8.3 for further detail.

The following are questions to ask, or suggestions to follow, to relaunch a HH program:

- Have you written an improvement plan? Did you write this in conjunction with the Self Assessment Framework and your HHC reports?
- Have you looked at your HH program data? Is your HHC increasing over time? Are your SABs decreasing over time?
- From your HH data - What areas need addressing for the relaunch – which HCW group or particular Moment has the lowest compliance? This will help to prioritise education requirements
- Reengage with your major stakeholders about the importance of the HH program e.g. CEO, heads of departments
- Promote awareness of the HH program to all staff via newsletters or payslip messages etc.
- Provide latest evidence based practice updates

When relaunching your program, please remember that the HH program is not just about HH auditing, or completing an online learning package. It is a program of education, monitoring and feedback that results in a behavioural and cultural change across all staff.

8.2.3.2 Provide education

Aim to provide education to all HCW groups annually, with additional education sessions regularly throughout the year to target clinical staff and high risk groups.

Utilise the resources provided by HHA or your jurisdiction:

- Video in-service – The 5 Moments Explained (can be accessed via the HHA website)
- Online learning packages for various HCW groups
- See HHA website for many other educational resources, especially the PowerPoint presentations aimed at specific HCW groups.
8.2.3.3 Provide a supportive environment to encourage and promote ABHR use and HHC

Conduct staff surveys on awareness of the HH program, and ask staff for suggested improvements.
Conduct product availability surveys (See additional audit tools on http://hha.org.au/ForHealthcareWorkers/auditing.aspx)

8.2.3.4 Using the hand hygiene evaluations for culture-change

In a facility where the HH program is being implemented for the first time, data indicating gaps in good practices and knowledge, or a poor perception of the problem, can be used to raise awareness and convince HCWs that there is a need for improvement (76).

This feedback helps to promote local area ownership of HH issues, and should encourage changes to practice where indicated from the feedback. Discussing HHC data at the local level should promote the development of local initiatives to address the specific issues.

Subsequently, after implementation, regular and timely reporting of data is crucial to demonstrate improvement; thereby sustaining the motivation to perform good practices and making continuous individual and institutional efforts (76). See Ch 7 on how to generate HHC Reports.

The HHC reports can be used to compare HCW categories against each other. It could be used as a competition for staff to improve their HHC e.g. Nurses vs. medical staff, students vs. qualified staff etc. They may be used to stimulate competition between wards, or if in a network hospital against hospital. This will encourage ownership of the program by these groups. The HHC reports could be used to target education for those with lower scores, or to give prizes for the best performances.
8.3 WHO Self Assessment Framework

According to the WHO Self Assessment Framework (http://www.who.int/gpsc/5may/hhsa_framework/en/index.html) an ideal HH culture change program should include:

- An easily available and continuous supply of ABHR that meets the recommendations of HHA
- Appropriate availability of sinks, soap, and paper towel
- Mandatory HH training of all HCWs on commencement of employment, with ongoing education throughout the year
- Staff available to conduct HH education throughout the facility
- Validated staff to conduct HHC assessments (where applicable)
- Regular HHC audits (where applicable)
- Regular feedback of HHC audit / program measures, including immediate feedback and data trends over time, to:
  - HCWs
  - Facility leaders
- HH promotional materials throughout the facility
- Establishment of a HH project team that has dedicated time to regularly promote HH
- Clear commitment from the CEO, Director of Nursing, and Medical Director
- Patient engagement programs
- Initiatives to support local continuous improvement e.g. OLPS, HH newsletters etc.

8.3.1 Is your facility a hand hygiene leader?

To be considered a “leader” in Hand Hygiene the WHO have developed an additional section to the Self Assessment Framework, which indicates a very comprehensive HH program that can be held as an example for other facilities to aspire to.

HHA recommend facilities review these leadership criteria as part of their HH program evaluation.
Chapter 9

Hand Hygiene Outcome Measures: Rates of *Staphylococcus aureus* bacteraemia (SAB)

9.1 Aim

To accurately assess the rates of SAB within the Australian healthcare system.
9.2 Definition of SAB

The NHII uses the National Hospital Acquired Infection *Staphylococcus aureus* bacteraemia definition which has been endorsed by the Australian Commission on Safety and Quality in Health Care’s Inter Jurisdictional Committee in 2009 (17).

National definition and calculation of Healthcare Associated Staphylococcus aureus bacteraemia

Patient-episode of S. aureus bacteraemia (SAB):
A patient-episode of bacteraemia is defined as a positive blood culture for Staphylococcus aureus. For surveillance purposes, only the first isolate per patient is counted, unless at least 14 days has passed without a positive blood culture, after which an additional episode is recorded.

A Staphylococcus aureus bacteraemia (SAB) will be considered to be healthcare-associated if:

- the patient’s first SAB blood culture was collected more than 48 hours after hospital admission or less than 48 hours after discharge

OR

- The patient’s first SAB blood culture was collected less than or equal to 48 hours after hospital admission and one or more of the following key clinical criteria was met for the patient-episode of SAB.

Clinical criteria:

- SAB is a complication of the presence of an indwelling medical device (e.g. Intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter)
- SAB occurs within 30 days of a surgical procedure where the SAB is related to the surgical site
- SAB was diagnosed within 48 hours of a related invasive instrumentation or incision
- SAB is associated with neutropenia (Neutrophils: <1 x 10^9/L) contributed to by cytotoxic therapy

If none of these criteria are met, then the episode of SAB is considered to be community-acquired for the purposes of surveillance.

Exclusions
Cases where a known previous positive test has been obtained within the last 14 days are excluded. For example: If a patient has SAB in which 4 sets of blood cultures are positive over the initial 3 days of the patient’s admission only one episode of SAB is recorded. If the same patient had a further set of positive blood cultures on day 5 of the same admission, these would not be counted again, but would be considered part of the initial patient-episode. If the same patient had a further positive blood culture 20 days after admission (i.e. greater than 14 days after their last positive on day 5), then this would be considered a second patient-episode of SAB.

Contamination
A contaminated specimen can produce a false positive in surveillance systems. Contamination of blood cultures is rare in adults (1-2% of culture positive episodes) and more common in children (5-10%).

If, in the evaluation of a potential event: the clinical picture is unsupportive of infection; repeat blood culture(s) is (are) negative; and no antimicrobial treatment is given, the positive blood culture should be regarded as a contamination and not reported in the surveillance data.
9.3 Patient-episode of SAB
How rates will be calculated

The following information will be used to define the monthly rates of *Staphylococcus aureus* bacteraemia (SAB) for each Australian healthcare facility with acute inpatient beds:

**Numerator**
Patient-episodes of SAB (noting the following factors related to each episode):
- Determination of whether the SAB is a healthcare associated infection
- Designation of which healthcare facility the patient was admitted to at the time of the patient-episode of SAB.

**Denominator**
Total patient days (noting the following inclusion):
- Same-day patients.

The recommended denominator for calculating monthly rates of HAI in Australian healthcare facilities is *patient days*. *Patient days* is a national standard, defined in the national health data dictionary and used for national reporting. *Occupied bed days* is a term commonly used by some states to express a similar concept to *patient days*. However, there is no national standard for calculating *occupied bed days*. *Patient days* are calculated by counting the total patient days of those patients *separated* during the specified period, including those admitted before the specified period. Patient days of those patients admitted during the specified period that did not separate until the following reference period are not counted.

For example, Patient A is admitted on January 20 and discharged on February 20. Patient A generates 0 patient days in the hospital's January record, and 31 patient days for February (11 from the January period of the separation, and 20 in February).

The yearly variance between calculations of *patient days* and *occupied bed days* is minimal (less than 1%); however the monthly variation can be quite significant for smaller hospitals. Contract patient days are included in the count of total patient days. If it is a requirement to distinguish contract patient days from other patient days, they can be calculated by using the rules contained in the data element: total contract patient days.

9.4 Healthcare associated SAB rates

These will be calculated for each healthcare facility and State/Territory per month as follows:

**Numerator**
Patient episodes of Healthcare associated SAB x 10,000

**Denominator**
Patient days at the healthcare facility
Chapter 10

Other Useful Interventions

10.1 Aim

Other infection prevention interventions are available to complement the successful implementation, and sustainability of a HH culture change program.
10.2 Additional audit tools to complement the HH program

In the HHA HHC tool neither the duration of the HH action, nor other quality aspects of HH such as the quantity of product used, technique of HH, donning/doffing of gloves, type of gloves used, length of fingernails, or presence of jewellery are assessed. Once the HH program has been well established in your facility these are items you may wish to address whilst conducting the HHC audit, but they will not be reportable to HHA.

HHA has a number of extra audit tools available for each healthcare facility on the HHA website; also see Appendix 7.

10.3 Cleaning shared patient equipment

All HCWs should be familiar with their hospital’s “Cleaning, Disinfection and Sterilisation” policy and the Australian Guidelines for the Prevention and Control of Infection in Healthcare (2).

Any instrument or piece of equipment that is to be reused requires reprocessing, cleaning, disinfection and/or sterilisation. The minimum level of reprocessing required for reusable instruments and equipment depends on the individual situation (i.e. the body site and the nature by which the instrument will be used) (2).

Many common items that are shared between patients are classified as “Non-critical” items, i.e. items which come into contact with intact skin but not mucous membranes (2).

Non-critical items include sphygmomanometers, blood pressure cuffs, patient slides, stethoscopes, commodes, intravenous pumps and ventilators, trolleys, keyboards, ward telephones, gait aids etc. (2).

Non critical items require cleaning in line with manufacturer recommendations and facility protocols. Thorough cleaning with a detergent is sufficient for most non-critical items after each individual use, although either intermediate or low-level disinfection may be appropriate in specific circumstances (2).

Ward staff should be educated on how to clean common items that are shared between patients, and which product to use. Appropriate cleaning product must also be easily accessible e.g. at point of use, on BP machine trolleys etc.

Standardised auditing of cleaning practices can be difficult. Nevertheless, promoting the cleaning of shared patient equipment and the use of detergent impregnated wipes can dramatically reduce the risk of cross-transmission of pathogens (12).
10.4 Bare below the elbows

Some Hand Hygiene Culture Change Programs advocate a ‘Bare below the Elbows’ policy for all HCWs. Whilst there is currently limited evidence to promote this as a formal recommendation, WHO recommend that long sleeves be avoided. Long sleeves have been found to be contaminated with pathogens, and can impede appropriate HH (1).

10.5 Hand hygiene in shared patient areas

There are many shared patient areas within healthcare facilities e.g. waiting rooms, or group based therapy. Staff within these areas may move between patients regularly.

If a HCW has contact with patients within a shared area then the principles of the 5 Moments for Hand Hygiene remain.

Patients should also be instructed to perform HH on entering and leaving a shared area.

Personal ABHR packs for staff may be more appropriate in these areas.

If patients are sharing equipment appropriate cleaning protocols should be followed. However, this may not be practicable where equipment is passed between patients quickly e.g. Passing a ball in an exercise class. Ensure that all shared equipment is cleaned between sessions/groups.
The following terms are referred to throughout this manual:

**Alcohol based hand rub (ABHR)**
An alcohol-containing preparation designed for application to the hands in order to reduce the number of viable organisms with maximum efficacy and speed.

**Alcohol wipes**
An alcohol-containing wipe used to clean non-soiled shared patient equipment in between each patient use e.g. BP cuffs.

**Aseptic non-touch technique (ANTT) (84)**
Is a framework for aseptic practice – the principles are intended for use in a range of settings from the operating theatre to the community. In practice ANTT is a technique used to prevent contamination of key parts and key sites by microorganisms that could cause infection. In ANTT, asepsis is ensured by identifying and then protecting key parts and key sites by hand hygiene, non-touch technique, using new sterilised equipment and/or cleaning existing key parts to a standard that renders them aseptic prior to use.

**Bacteraemia**
The presence of bacteria in the blood.

**Body Fluids**
Any substance secreted by the body with the exception of sweat. These include: Blood, Lochia, Saliva, Secretions from mucous membranes, Pus, Gastric and respiratory secretions, Semen, Tears, Wax, Breast milk, Colostrum, Urine, Faeces, Meconium, Vomitus, Pleural fluid, Cerebrospinal fluid, Ascites fluid, Biliary fluid, Bone Marrow, Pus, Organic body samples – e.g. Biopsy samples, organ and cell samples.

**Body Fluid Exposure Risk**
Any situation where contact with body fluids may occur. Such contact may pose a contamination risk to either HCW or the environment.

**Contact**
The touching of any patient, their immediate surroundings or performing any procedure.
Decontaminate hands
Application of either an antimicrobial soap/solution and water or an alcohol-based hand rub product, to the surface of the hands. This process reduces microbial counts on hands.

Detergent Wipes
A detergent-containing wipe used for cleaning lightly soiled shared patient equipment in between each patient use.

Emollient / Humectant
Ingredient(s) added to hand hygiene products to moisturise and protect the skin from frequent product use.

Glove use
Glove use by HCWs is recommended for two main reasons: to prevent microorganisms which may be infecting, commensally carried, or transiently present on HCW’s hands from being transferred to patients and from one patient to another; and to reduce the risk of HCWs acquiring infections from patients.

Hand Care
Actions to reduce the risk of skin damage or irritation. For example, using a moisturiser regularly throughout the day.

Hand Hygiene (HH)
A process that reduces the number of microorganisms on hands. Hand hygiene is a general term applying to the use of soap/solution (non-antimicrobial or antimicrobial) and water or a waterless antimicrobial agent to the surface of the hands (e.g. alcohol-based hand rub).

Hand Hygiene Action
A Hand Hygiene Action can be undertaken either by rubbing with an ABHR, or hand washing with soap and water.

Hand Hygiene Compliance (HHC)
Is a measurement of appropriate HH. It is defined when HH is considered necessary and is classified according to one of the “5 Moments”.

If the action is performed when there is no indication and it has no impact in terms of preventing microbial transmission, then it is not considered to be an act of HHC.

The number of Moments constitutes the denominator for assessing HHC. The actual HH actions undertaken are compared to the number of Moments observed to calculate the rate of HHC.

HH non-compliance is defined when there is an indication for HH (i.e. a “Moment”) and yet no HH was undertaken.
Hand Hygiene inter-observer reliability
A measure of the agreement or consistency of ratings between two or more HH observers after observing the HHC on a series of subjects.

Hand Hygiene Moments
Moments are based on those defined by the WHO Guidelines on Hand Hygiene (1). Some minor modifications have been made for Australian healthcare conditions. A Moment is when there is a perceived or actual risk of pathogen transmission from one surface to another via the hands. HCWs’ hands will come in contact with many different types of surfaces while undertaking a succession of tasks.

The 5 Moments for HH are:

Moment 1: Before touching a patient
Moment 2: Before a procedure
Moment 3: After a procedure or body fluid exposure risk
Moment 4: After touching a patient
Moment 5: After touching a patient’s surroundings

Hand Hygiene Opportunity
Is a WHO term. In Australia, this term is no longer commonly used; instead the term ‘Moment’ is used.

Hand Hygiene Product
Any product used for the purpose of HH, including soap and water

Hand washing
The application of non-antimicrobial soap and water to the surface of the hands.

Healthcare-Associated Infections (HAI)
Infections that originate from, or are related to, a healthcare setting or the delivery of healthcare.

Healthcare Surroundings
Refers to all regions outside of the Patient zone. This includes the curtains, partitions and doors between separate patient areas.

Healthcare Worker (HCW)
Any employee of a healthcare institution who has patient care responsibilities and / or contact with a patient, or a patient’s surroundings (see Contact).
Hospital-associated infections
An infection that was not present or incubating prior to the patient being admitted to the hospital, but occurred > 48 hours after admittance to the hospital. Hospital associated infections’s are also termed nosocomial infections.

Immunocompromised
Having an immune system that has been impaired by disease or treatment

Inter-rater (or Observer) Reliability
A measure of agreement or consistency of ratings by two or more observers on a series of subjects.

Intra-rater Reliability
A measure of agreement or consistency of two or more ratings by a single observer on a series of subjects.

Invasive Medical Device
Any piece of equipment that enters a patient’s skin or body cavity. This encompasses the entire device (e.g. IV line, IV pump and IV pole).

Methicillin-resistant Staphylococcus aureus (MRSA)
*Staphylococcus aureus* that is resistant to methicillin/flucloxacillin. Commonly referred to as "golden staph".

Methicillin-susceptible Staphylococcus aureus
*Staphylococcus aureus* that is susceptible to methicillin/flucloxacillin.

Occupational Health and Safety (OH&S)
Is an area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational safety and health programs is to foster a safe work environment.

Occupied Bed Days (OBDs)
Is the sum of the number of occupied beds for each day of the specified period.

Outcome Measure
A feature used to describe the effects of care on the health status of patients and populations (e.g. infection rate).
**Patient**
Refers to any part of the patient, their clothes, or any medical device that is connected to the patient.

**Patient contact or direct patient contact**
This involves touching the patient, and their immediate surroundings or performing any procedure on the patient.

**Patient Immediate Surroundings**
The Patient Surroundings is the space temporarily dedicated to an individual patient for that patient’s stay. This includes furniture, medical equipment, medical charts, and personal belongings that are touched by the patient and HCWs while caring for that patient.

**Patient Zone**
Includes the Patient and the Patient Immediate Surroundings.

**Point of Care**
The place where three elements come together: the patient, the HCW, and the care or treatment involving contact with the patient or his/her surroundings. A hand hygiene product should be easily accessible and as close as possible – within arm’s reach of where patient care or treatment is taking place. Point of care products should be accessible without having to leave the patient zone.

**Procedure**
Is an act of care for a patient where there is a risk of direct introduction of a pathogen into the patient’s body.

**Process Measure**
An index of the degree to which a service or procedure is performed correctly and appropriately, e.g. timing of surgical antibiotic prophylaxis, measuring how many times staff wash their hands.

**Recommendation**
A guideline; sample suggestion; to advise.

**Reliability**
The extent to which a measurement is consistent and free from error.

**SAB**
*Staphylococcus aureus* bacteraemia
Separations
A separation from a healthcare facility occurs anytime a patient leaves due to discharge, death, or transfer.

Standard Aseptic Technique (2)
Clinical procedures managed with Standard ANTT will characteristically be technically simple, short in duration (approximately less than 20 minutes), and involve relatively few and small key sites and key parts. Standard AT requires a main general aseptic field and non-sterile gloves. The use of critical micro aseptic fields and a non-touch technique is essential to protect key parts and key sites.

Sterile task
A task performed in such a way as to avoid microbial contamination or inoculation.

Structured observation
A method to quantify HCW behaviour using a format that is structured in a manner that is likely to avoid bias and improve consistency. Structured observations provide information on what people actually do, rather than on what they say they do or did. They also provide information on the associated activities and behaviours that precede and follow HHC.

Surgical Aseptic Technique (2)
Surgical AT is demanded when procedures are technically complex, involve extended periods of time, large open key sites or large or numerous key parts. To counter these risks, a main critical aseptic field and sterile gloves are required and often full barrier precautions. Surgical AT should still utilise critical micro aseptic fields and non-touch technique where practical to do so.

Surgical Hand Hygiene/ surgical hand preparation
Antiseptic handwash or antiseptic handrub performed preoperatively by the surgical team to eliminate transient flora and reduce resident skin flora. Such antiseptics often have persistent antimicrobial activity.

ABHRs for surgical procedures are not addressed within the scope of the HHA agenda. Please refer to the WHO Guidelines on Hand Hygiene in Health Care (1) for further information.

Validity
Refers to the accuracy of a measure. It is the extent to which a measuring instrument actually measures what it is supposed to measure.

WHO
The World Health Organisation
References


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Appendices

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2. HHC Form Coding Sheet
3. Sample of a Completed HHC Assessment Form
4. HHCApp Instructions for Use
5. HHA OH&S Risk Assessment
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7. Ward / Department Product Auditing Form
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