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Good hand hygiene is good medicine

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Key points

- It is estimated that 200,000 healthcare-associated infections occur annually in Australia.
- Hand hygiene is considered the single most important intervention to prevent healthcare-associated infection.
- The National Hand Hygiene Initiative aims to reduce healthcare-associated infection by implementing the '5 Moments for Hand Hygiene' approach for effective hand hygiene practices across all healthcare facilities.
- The hand hygiene compliance rates of medical staff in acute care facilities have improved significantly since the inception of the National Hand Hygiene Initiative.

The '5 Moments for Hand Hygiene' – the critical times when hand hygiene should be performed – provide healthcare workers with a basic guide on when hand hygiene must be performed. This and the convenient placement of alcohol-based hand rubs will enable effective hand hygiene practices.

The hands of healthcare workers are the most common vehicle for the transmission of healthcare-associated pathogens within the healthcare environment.[1] If hand hygiene practices are poor, microbial colonisation of hands and direct transmission of organisms to patients may easily occur.

There is convincing evidence that improved hand hygiene can reduce healthcare-associated infection rates. More than 20 hospital-based studies of the impact of hand hygiene on the risk of healthcare-associated infection were published between 1977 and 2009, including two Australian studies.[1-3] Despite some limitations, almost all reports showed an association between improved hand hygiene practices and reduced infection and cross-transmission rates. However, healthcare-associated infections are not just a problem in hospitals: they can occur in any healthcare setting, including office-based practices such as general practice clinics and dental clinics.[4]

HOW BIG IS THE PROBLEM?

With an estimated 200,000 cases of healthcare-associated infections occurring annually in Australia, this type of infection has been nominated as a priority area by the Australian Commission on Safety and Quality in Health Care.[5]

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Although many factors contribute to the development of healthcare-associated infections, hand hygiene is considered to be the 'single most important intervention to prevent it'.[6]

THE NATIONAL HAND HYGIENE INITIATIVE

The Australian Commission on Safety and Quality in Health Care engaged Hand Hygiene Australia to implement the National Hand Hygiene Initiative in 2008. The key aims of this initiative, which is based on a World Health Organization (WHO) campaign, is to develop a national cultural change program that will:

- develop a standardised education system to improve knowledge of hand hygiene and infection control
- make hand hygiene and infection prevention 'core business' for all healthcare institutions and the wider community
- achieve sustained improvements in hand hygiene compliance rates among all healthcare workers
- reduce the rate of healthcare-associated infections.

The WHO have developed the 'My 5 Moments for Hand Hygiene' approach for implementation of its hand hygiene recommendations at the point of care, and this approach has been adapted for use in the National Hand Hygiene Initiative.[7] The recommendations given in this article are covered in more detail in Hand Hygiene Australia's *5 Moments for Hand Hygiene Manual*.[8] This manual and the *WHO Guidelines on Hand Hygiene in Health Care* are among the guidelines on which the NHMRC publication *Australian Guidelines for the Prevention and Control of Infection in Healthcare* is based.[4,7,8]

WHAT IS HAND HYGIENE?

Hand hygiene is a process that reduces the number of micro-organisms on hands. Hand hygiene is a general term applying to the use on the hands of either:

- a liquid soap/detergent (nonantimicrobial or antimicrobial) and water, or
- a waterless antimicrobial agent, such as an alcohol-based formulation.

Gloves are an adjunct to and not a substitute for hand hygiene (see the box on this page).

WHICH HAND HYGIENE PRODUCT TO USE

Both Hand Hygiene Australia and the WHO recommend the use of soap and water when hands are visibly dirty or soiled with blood or other body fluids, and the use of alcohol-based hand rubs (ABHRs) when hands are not visibly soiled.

Use of an ABHR is considered to be the gold standard for hand hygiene in most clinical situations (Figure 1).[6,7] This recommendation is based on the evidence of better microbial efficacy, less time required to achieve the desired effect, point-of-patient-care accessibility and a better skin tolerance profile.[7] Other waterless antimicrobial agents are not as effective as alcohol-based products and there are no clinical trials showing decreased healthcare-associated infections with their use.

GLOVES ARE NOT A SUBSTITUTE FOR HAND HYGIENE

Gloves have become an integral part of health care, particularly since the awareness of blood-borne infections and the implementation of standard precautions. However, inappropriate use of gloves can become a barrier to good hand hygiene.

Gloves are not a substitute for hand hygiene, and hand hygiene should always be performed before and after glove use. In general practice, gloves should only be worn if there is a possibility of exposure to blood and/or body fluids or contaminated materials.

Recommendation 7 in the *Australian Guidelines for the Prevention and Control of Infection in Healthcare* states the following:[4]

'Wearing of gloves

Gloves must be worn as a single-use item for:

- each invasive procedure;
- contact with sterile sites and nonintact skin or mucous membranes;
- any activity that has been assessed as carrying a risk of exposure to blood, body substances, secretions and excretions.

Gloves must be changed between patients and after every episode of individual patient care.'

The inclusion of emollients in the recommended ABHRs and the fact that hands do not need drying with harsh paper towels after use means that the use of ABHRs for hand hygiene can have a protective effect against skin irritation.[9]

ALCOHOL-BASED HAND RUBS

Selection of ABHRs

ABHRs contain either ethanol or isopropanol, and are available as liquid, foam and gel formulations. No product is recommended over another, and choice of product is a personal preference.

When selecting an ABHR, Hand Hygiene Australia recommends that the product:

- meets the EN1500 testing standard for bactericidal effect (the European standard and recommended by the WHO, this is a test against a reference solution of 60% v/v isopropanol)
- has TGA approval as a hand hygiene product.

These recommendations are only for alcohol-based products; Hand Hygiene Australia does not provide any recommendations for nonalcohol-based products.

Other factors should also be considered when selecting a product, such as:

- dermal tolerance
- aesthetic preferences, such as fragrance, colour, texture and ease of use
- practical considerations, such as availability, convenience and functioning of dispenser, and ability to prevent contamination
- cost issues.

Further information about product selection is available on the Hand Hygiene Australia website (www.hha.org.au/About/ABHRS/product-selection/product-selection.aspx).

Limitations of ABHRs

Bacterial spores

Although alcohol is effective against the vegetative forms of spore-forming bacteria, it has virtually no activity against bacterial spores.

Figure 1. GPs should be vigilant about hand hygiene in all patient encounters.

When caring for patients with *Clostridium difficile*-associated disease, use of ABHRs can be continued together with appropriate use of gloves to minimise spore contamination. However, if hands become soiled or gloves have not been used, then hands must be washed with soap and water. The 2010 Australasian Society for Infectious Disease/ Australian Infection Control Association position statement on infection control guidelines for patients with *C. difficile* infection in healthcare settings recommends the primary use of ABHR in accordance with the WHO's 'My 5 Moments for Hand Hygiene'.[4,10]

Nonenveloped (nonlipophilic) viruses

Alcohol has poor activity against some nonenveloped viruses, including rotavirus, norovirus, poliovirus and hepatitis A virus. However, there is conflicting evidence suggesting that ABHR is more effective than soap in reducing virus titres on finger pads.[7,11,12] Thus, in norovirus outbreaks it is usually best to reinforce the use of ABHR and gloves.

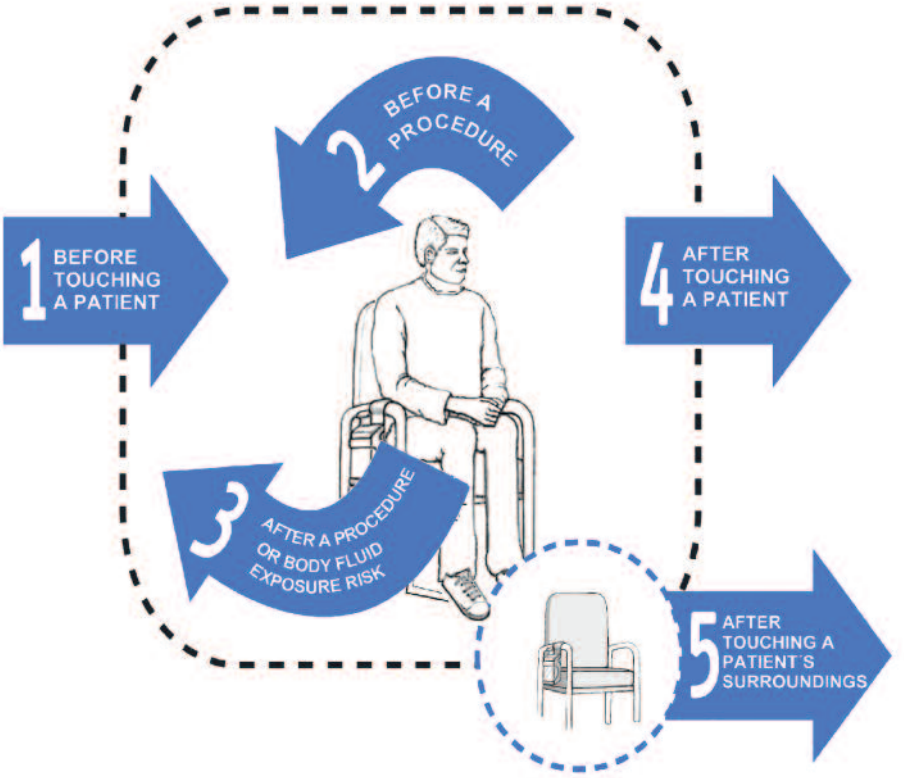
'5 MOMENTS FOR HAND HYGIENE'

The '5 Moments for Hand Hygiene' approach provides evidence-based guidelines for when hand hygiene is required by healthcare workers and thereby helps prevent the spread of infections. The approach recommends health workers clean their hands in the following situations:

- before touching a patient
- before a procedure
- after a procedure or body fluid exposure risk
- after touching a patient
- after touching a patient's surroundings.

The '5 Moments for Hand Hygiene' approach can be applied in any healthcare setting. The box on page 32 gives examples of the moments for general practice. Further information and examples of the moments can be found on the Hand Hygiene Australia website.

5 MOMENTS FOR HAND HYGIENE IN GENERAL PRACTICE



SOURCE: HAND HYGIENE AUSTRALIA.

Moment	Definition	Specific application in general practice
1	Before touching a patient	Perform hand hygiene as patient enters consulting room
2	Before a procedure	Perform hand hygiene immediately before: • taking blood • giving an injection • any activity where there may be contact with nonintact skin or mucous membranes • before putting on gloves
3	After a procedure or body fluid exposure risk	Perform hand hygiene immediately after: • a procedure, once waste is disposed and gloves removed • after any potential contact with body fluids, e.g. after handling a specimen jar
4	After touching a patient	Perform hand hygiene at the conclusion of the consultation as the patient leaves the room
5	After touching a patient's surroundings	Perform hand hygiene after touching any of the patient's belongings if the patient has not been touched

As recommended in the *Australian Guidelines for the Prevention and Control of Infection in Healthcare*, healthcare workers in all settings should follow the '5 Moments for Hand Hygiene' approach.[4]

NATIONAL HAND HYGIENE DATA

As part of its implementation of the National Hand Hygiene Initiative, Hand Hygiene Australia collects hand hygiene compliance data from acute care facilities. More than 560 hospitals across Australia have submitted data. These data represent about 90 to 95% of acute public hospital beds and 50% of acute private beds. National data are posted on the Hand Hygiene Australia website, and jurisdictional data are published by the Australian Commission on Safety and Quality in Health Care.[13]

Data from Hand Hygiene Australia's most recent audit of acute healthcare facilities demonstrates the overall compliance rate of healthcare workers is 72.6%, as shown in Figure 2.

The hand hygiene compliance rates of medical staff in acute care facilities have improved significantly since the inception of the National Hand Hygiene Initiative, as shown in Figure 3. It is expected that these rates will continue to improve as more medical staff become familiar with the '5 Moments for Hand Hygiene'.

It is interesting to note that healthcare workers are better at performing hand hygiene after they have done a procedure (Moment 3) and after they have touched a patient (Moment 4) than they are before they touch a patient (Moment 1) or before a procedure (Moment 2), as shown in Figure 4.

It is important for healthcare workers to recognise that Moments 1 and 2 are designed to protect the patient and are as equally important as Moments 3 and 4. Simple ways to improve compliance with Moments 1 and 2 are to always perform hand hygiene in front of the patient at the start of the consultation and immediately before any procedure.

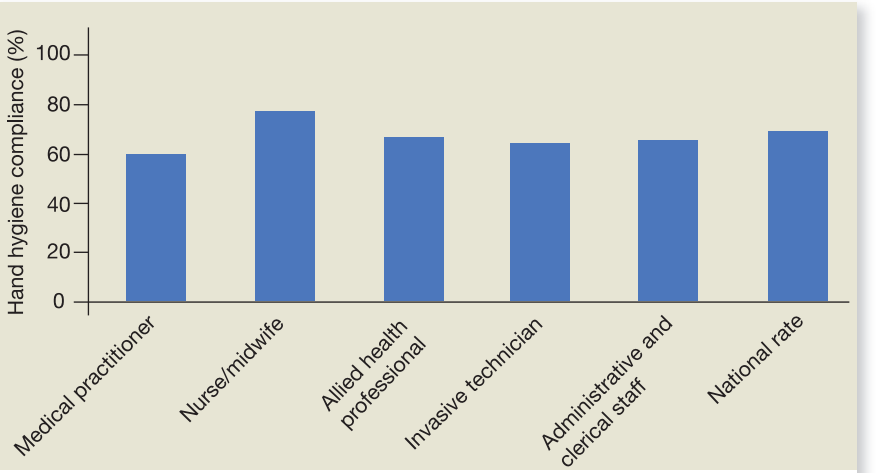


Figure 2. Hand hygiene compliance rates by healthcare worker, October 2011.
Source: Hand Hygiene Australia website.

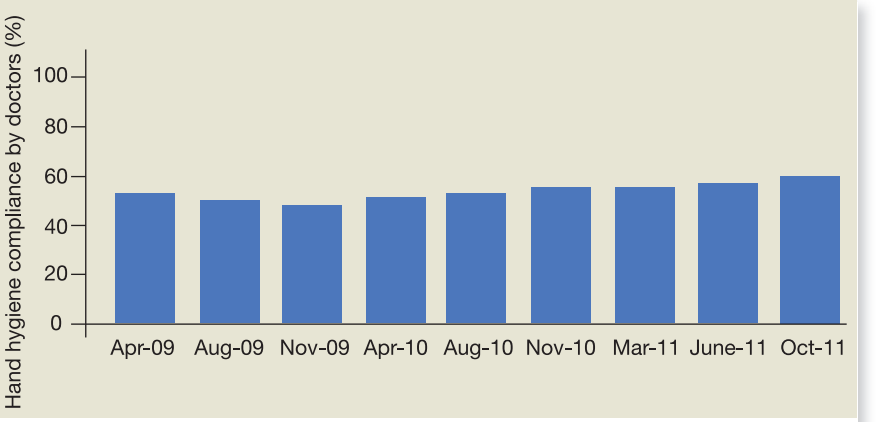


Figure 3. Hand hygiene compliance rates of doctors in acute care facilities.
Source: Hand Hygiene Australia website.

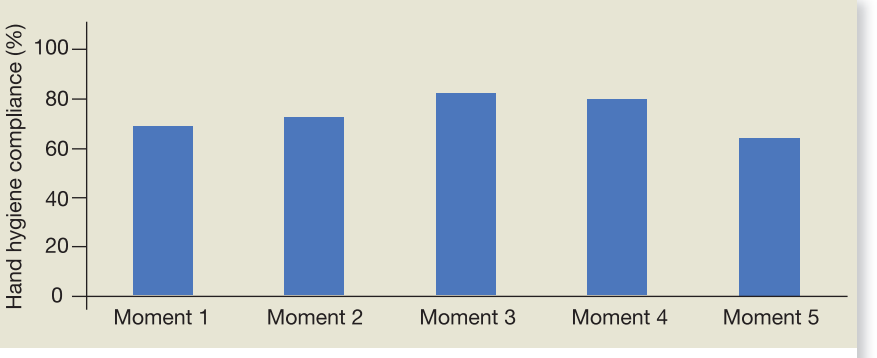


Figure 4. Hand hygiene compliance rates by Moment, October 2011.
Source: Hand Hygiene Australia website.

RESOURCES AVAILABLE FROM HAND HYGIENE AUSTRALIA

Many resources for healthcare workers and for the community are available on the Hand Hygiene Australia (HHA) website (www.hha.org.au/ForHealthcareWorkers.aspx), and can be downloaded free of charge. Some examples are listed below.

In the Manual section

- *Hand Hygiene Australia Manual*
- Skin Assessment Form
- Blood Collection Practice Guidelines
- OH&S Risk Assessment Form for use of alcohol-based hand rubs

In the Auditing section

- Auditing tools

In the Education section

- Educational Powerpoint presentations, including 5 Moments Explained video

In the Promotion section

- Hand Hygiene Information Brochure
- Aussie 5 Moments Screen Saver
- HHA/WHO posters – 5 Moments for Hand Hygiene for various situations
- WHO posters – How to Hand Wash and How to Hand Rub

In the FAQs about section

- Frequently Asked Questions

In the E-bulletin Current section

Keep in touch with the latest bulletins from Hand Hygiene Australia

WAYS TO IMPROVE HAND HYGIENE PRACTICES IN GENERAL PRACTICE

1. Follow the '5 Moments for Hand Hygiene'

Ensure all staff are familiar with the '5 Moments for Hand Hygiene' approach to effective hand hygiene and the *Australian Guidelines for the Prevention and Control of Infection in Healthcare*.[4] Place reminders (posters) about the '5 Moments for Hand Hygiene' around the workplace. For more information and useful resources, including fact sheets, brochures, posters, screen savers and presentations, visit the Hand Hygiene Australia website (www.hha.org.au).

2. Use alcohol-based hand rub

Alcohol-based hand rub (ABHR) should be encouraged as the primary means of hand hygiene in all healthcare settings unless hands are visibly soiled, in which case soap and water should be used.[4] Having ABHR at the point of care is pivotal in the Hand Hygiene Australia program. ABHR should be placed in accessible locations in all treatment rooms, as well as in high traffic areas, such as front reception, waiting rooms and communal areas. Appropriate placement is particularly important in general practice surgeries as patients may present with undiagnosed infectious diseases such as influenza, other viral respiratory tract infections and gastroenteritis.

Encouraging and educating staff and patients to use ABHR on entering the clinic and promoting infection control issues such as cough etiquette can help stop the spread of infections.

3. Limit jewellery and keep nails natural

Excessive jewellery inhibits the ability to perform hand hygiene correctly. Wearing rings increases the carriage rate of bacteria on the hands of healthcare workers.[11] Artificial nails should not be worn in clinical areas as they are more likely to harbour pathogens, especially Gram-negative bacilli and yeasts, than native nails.[15] Chipped nail polish should also be avoided as it is also likely to be able to harbour pathogens.

Performing hand hygiene in front of the patient will instil confidence that good hand hygiene practices are being followed.

HAND HYGIENE AND THE GP

Standard 5.3.3 in the RACGP *Standards for General Practices* (4th edition) states that all members of a practice team should be able to demonstrate how the risk of cross-infection of patients is managed, including procedures for hand hygiene (point D).[14] They should also be able to explain how patients are educated about hand hygiene and prevention of transmission of communicable diseases (point I).

To assist with this education, Hand Hygiene Australia has developed resources for healthcare workers aimed at increasing their knowledge about hand hygiene (available at www.hha.org.au – see the box on this page). These resources include online learning packages (nursing, medical, allied health, general and nonclinical) and ideally all practice staff should complete the appropriate package as an annual competency. Each package takes approximately 10 minutes to complete and users receive a certificate on correct completion. The clinical online learning packages are currently tailored to the inpatient setting, but the key hand hygiene messages are compatible with all clinical areas.

Hand Hygiene Australia is currently working in collaboration with the WHO to develop guidelines for hand hygiene specific to primary healthcare settings. It is anticipated these should be available towards the end of 2012.

Some ways to improve hand hygiene in general practice settings are given in the box on this page.

CONCLUSION

Infection prevention is everybody's business, and hand hygiene is the single most important intervention to prevent healthcare associated infection. As recommended

in the *Australian Guidelines for the Prevention and Control of Infection in Healthcare*, healthcare workers in all settings should follow the '5 Moments for Hand Hygiene'.[4] Since the commencement of the National Hand Hygiene Initiative in 2008, hand hygiene compliance rates across all healthcare workers have improved.

Educating healthcare workers about the '5 Moments for Hand Hygiene' and providing ABHRs in easily accessible locations in the workplace will result in an environment that promotes good hand hygiene. Good hand hygiene is good medicine. MT

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