health

Report to the Minister for Health from the Expert Panel on Hand Hygiene

State Government Victoria

Department of Health

Report to the Minister for Health from the Expert Panel on Hand Hygiene

If you would like to receive this publication in an accessible format please phone 03 9096 9038 using the National Relay Service 13 36 77 if required.

© Copyright, State of Victoria, Department of Health, 2013

This publication is copyright, no part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Chair's foreword

Establishment of the Expert Panel on Hand Hygiene is a key step to drive better performance and enhance a positive approach to hand hygiene in Victorian public health services.

There are many examples of high levels of compliance that we can learn from. Such success has not been realised through a single strategy but through a range of complementary strategies. To replicate these successes there must be a broad expectation and acceptance that appropriate hand hygiene is the business of every healthcare worker.

The Expert Panel has developed recommendations for the Minister for Health that are organised in two themes. The first theme is improving the robustness of hand hygiene audit in Victoria. The second theme is enhancing management and consumer engagement systems to improve hand hygiene compliance.

These recommendations will position Victoria to take a leadership role in hand hygiene and be an exemplar performer in the national context.

Victoria should continue to participate in and support the National Hand Hygiene Initiative as the base platform for understanding compliance. However the focus needs to move from auditing and monitoring to action for change.

The Department of Health will ensure data is reliable and calibrated across the Victorian healthcare system. Reporting on our compliance with hand hygiene will be transparent and well communicated to the sector and the public.

Accountability structures for hand hygiene will remain strong at all levels, and we will improve the way we engage with consumers on hand hygiene. Models of action for behaviour will be tested and made available for broader adoption across the health sector.

I would like to thank the members of the Expert Panel who contributed their time and expertise, and the Victorian public health services that participated in a survey on hand hygiene compliance data.

The members of the Expert Panel thank the Minister for the opportunity to guide the future direction of hand hygiene in Victoria. We hope the advice and recommendations in this report provide a platform to drive improvement into the future.

Professor David Ashbridge
Chief Executive Officer, Barwon Health and
Chair, Expert Panel on Hand Hygiene

Acknowledgements

The Expert Panel would like to acknowledge the generosity of those who kindly gave their time to provide the valuable information required to prepare this report. This includes staff of Victoria's public health services. By category and in alphabetical order:

Members, Expert Panel on Hand Hygiene
Professor David Ashbridge (Chair)
Ms Jennifer Bradford
Dr Sue Evans
Ms Sue Flockhart
Ms Ann Maree Keenan
Ms Jeanette Kinahan
Dr David Love
Dr Martin Lum
Mr Steven McConchie
Ms Belinda Rice (Secretariat)
Ms Stacey Rowe
Dr Gary Speck
Professor Aleksandar Subic

Healthcare professional associations
Australian Medical Association, Victoria
Royal College of Surgeons, Victorian chapter

Victorian public health services
Alexandra District Hospital
Alfred Health
Austin Health
Bairnsdale Regional Health Service
Ballarat Health Services
Barwon Health
Bass Coast Regional Health
Beaufort & Skipton Health Service
Beechworth Health Service
Benalla Health
Bendigo Health
Boort District Health
Calvary Healthcare Bethlehem
Casterton Memorial Hospital
Castlemaine Health
Central Gippsland Health Service
Cobram District Health
Cohuna District Hospital
Colac Area Health
Dental Health Services Victoria
Djerriwarrh Health Services
East Grampians Health Service
East Wimmera Health Service
Eastern Health
Echuca Regional Health
Edenhope and District Memorial Hospital
Gippsland Southern Health Service
Heathcote Health
Hesse Rural Health
Kyabram & District Health Services
Lorne Community Hospital
Mallee Track Health & Community Health Service
Mansfield District Health Services
Melbourne Health
Mercy Public Hospitals Incorporated
Mildura Base Hospital
Monash Health
Moyne Health Services
Northeast Health Wangaratta
Northern Health
Numurkah District Health Service
Omeo District Health
Orbost Regional Health
Peninsula Health
Peter MacCallum Cancer Centre
Portland District Health
Robinvale District Health Services
Rochester & Elmore District Health Service
Rural Northwest Health
Seymour Health
St Vincent's Hospital Melbourne
Stawell Regional Health
Swan Hill District Health
Tallangatta Health Service
Timboon & District Healthcare Service
Terang & Mortlake Health Service
The Royal Children's Hospital
West Gippsland Healthcare Group
Wimmera Health Care Group
Western District Health Service
Western Health
Wimmera Health Care Service
Yarram & District Health Service
Yarrawonga Health

Contents

Chair's foreword i

Acknowledgements ii

Contents i

1. Executive summary 2

2. Recommendations 5

3. Introduction and background 6

4. Purpose, scope and approach 7

5. The contemporary context 9

6. Healthcare worker hand hygiene in Victoria 12

7. Hand hygiene position statements 16

8. System monitoring and public reporting 18

9. Communicating audit results 21

10. Target areas for education and engagement in hand hygiene 28

11. Successful hand hygiene programs are multifaceted 31

12. Conclusion 34

Appendix 1: Terms of reference of the Expert Panel on Hand Hygiene 35

Appendix 2: Key literature, approaches and resources from other jurisdictions in relation to hand hygiene education and consumer engagement 37

Appendix 3: Key literature, approaches and resources from other jurisdictions on multimodal programs 42

Glossary and abbreviations 46

References 47

This page was intentionally left blank.

1. Executive summary

While hand hygiene is only one contributing factor to infection, it is one of the most important strategies to reduce healthcare-associated infection. Victoria was one of the first Australian jurisdictions to deliver a statewide hand hygiene program for healthcare workers in 2006–07 – and we wish to continue to lead innovation in this area.

Victoria has been part of the National Hand Hygiene Initiative (NHHI) since mid-2009. Hand hygiene as a national quality and safety priority is reinforced through the National Safety and Quality Health Service Standards. The standards require all services across Australia, as a minimum, to comply with the NHHI.

In 2013 the Minister for Health, the Hon David Davis MP, established an Expert Panel on Hand Hygiene (Expert Panel). This is timely. It is now six years since the introduction of the hand hygiene program in Victoria, and three years since the start of the national program.

The Expert Panel met three times to consider the application of the NHHI in Victoria and how Victoria can continue to drive improvement in hand hygiene. The diverse membership of the Expert Panel ensured these matters were considered from a very broad perspective.

The Expert Panel drew on a range of information sources, including the contemporary context and successful strategies from other jurisdictions. Victorian public health services participated in an online survey to understand how they currently disseminate and use hand hygiene compliance data. The Expert Panel also sought position statements on hand hygiene from key healthcare professional associations.

The process combined evidence from the data and literature with expert commentary and case studies to prepare a set of recommendations for consideration by the Minister for Health.

Victorian compliance with the World Health Organization's (WHO) *5-Moments hand hygiene* has been consistently above the national benchmark, since reporting against the 70 per cent benchmark commenced in 2011–12. However this overall compliance represents average performance across the sector – those health services performing well and those with room for improvement. Victoria once led the nation, but now our compliance rates are similar to the Australian average.

Victoria aspires to drive compliance beyond the national benchmark. This aligns with a patient's right to receive healthcare that is safe and of a high quality. The Victorian public expects their stay in hospital will not result in further illness. Visible hand hygiene promotes public confidence in healthcare.

There are obvious examples of high levels of compliance that we can learn from. Such success has not been achieved through any single strategy but through a range of complementary strategies. To replicate this success, there must be a broad expectation and acceptance that appropriate hand hygiene is the business of every healthcare worker.

Victoria should continue to participate in and support the NHHI as the base platform for understanding compliance. There are improvement opportunities to ensure data continues to be reliable and calibrated across the Victorian healthcare system. Victoria must also ensure that reporting on hand hygiene compliance is transparent and well communicated to the sector and public.

Victorian public health services are to be congratulated. It is a great achievement that audit, education and infrastructure to support compliance to the *5-Moments* are now well-embedded across the sector. But we must not be complacent and continue to strive for excellence. At the same time Victoria will ensure the focus on audit is balanced against the potential quality and safety outcomes that might be achieved.

Victoria will continue to strengthen accountability structures for hand hygiene at all levels across the healthcare sector. This will include engaging with consumers and testing models of action for behaviour for broader adoption across the health sector.

The recommendations of the Expert Panel are designed to position Victoria at the forefront of hand hygiene in Australia. Different elements of the health system must operate effectively together to achieve the intent of the Expert Panel recommendations.

2. Recommendations

Members of the Expert Panel developed recommendations for consideration by the Minister for Health in the next phase of the Victorian hand hygiene program. These recommendations are complementary to, and build on, the work of the NHHI as well as Victoria's achievements to date.

There are five recommendations under two themes. The Expert Panel has not allocated responsibility for all actions and considers the Minister for Health is best placed to determine implementation options.

Theme 1 – Improving the robustness of hand hygiene audit in Victoria

Recommendation 1

The Victorian health system will develop a more robust hand hygiene auditing system with greater transparency of results between hospitals by:

- Measuring hand hygiene performance at every acute hospital in Victoria using the NHHI methodology (Section 8).
- Including an external data validation step (for example, say one external audit per year) (Section 8).
- Ensuring hand hygiene audit results are made publicly available in Victoria (Section 8).

Recommendation 2

Ensuring key educational and professional groups are aware of and support contemporary hand hygiene principles and practice (Section 7).

Theme 2 – Enhancing management and consumer engagement systems to improve hand hygiene compliance

Recommendation 3

The Department of Health introduce escalation in thresholds of performance into the Victorian Health Service Performance Monitoring Framework to recognise exemplary performance in hand hygiene compliance (Section 8).

Recommendation 4

The Victorian health system strengthens feedback and communication to enable management action by:

- Engaging consumers and the wider community in hand hygiene (Section 10).
- Ensuring health services 'close the loop' by reporting hand hygiene data to the board, at the ward and by healthcare worker group (Section 9).
- Ensuring health services compare hand hygiene compliance over time and have strategies in place to improve performance (Section 6).

Recommendation 5

Health services improve hand hygiene compliance through leadership, accountability, role modelling and consumer engagement (Section 11).

This should include at least two launch sites to develop and assess new approaches and share knowledge across the Victorian health sector (Section 11).

The launch sites, as well as other health services, should incorporate but not be limited to (Section 11):

- Using hand hygiene compliance as a vehicle to enhance the way health services engage with consumers (patients, carers and visitors).
- Creating an expectation of personal responsibility for appropriate hand hygiene practice.
- Developing information sheets and tools for health service executives outlining high-level approaches to drive organisational change in hand hygiene.

3. Introduction and background

In 2006–07 the Hand Hygiene Program was introduced across Victorian public health services. The Victorian program was integrated into the National Hand Hygiene Initiative (NHHI) in mid–2009.

Victorian Hand Hygiene Program[1]

In May 2004 the Victorian Quality Council funded Austin Health to pilot the project with six health services until September 2005. The Hand Hygiene Program was rolled out across Victorian public health services from February 2006 to June 2007.

The program trained and supported participating hospitals to adopt auditing procedures for hand hygiene compliance. It also established regional networks to support infection control teams and quality managers to implement local projects. The aim was to develop a practical model for sustained improvement in hand hygiene practices for Victorian public health services to reduce the risk of healthcare-associated infection.

The approach incorporated the:

- introduction of an alcohol-chlorhexidine hand hygiene product
- education of healthcare workers regarding hand hygiene practices
- ongoing promotion of hand hygiene practices via a range of communication and promotional tools
- active participation and feedback at both individual and organisation levels
- involvement of institutional leaders
- collection and feedback of three outcome indicators
  - hand hygiene product usage in litres per 1,000 bed-days per month
  - rates of nosocomial infection
  - rates of hand hygiene compliance.

National Hand Hygiene Initiative

In 2010 the Victorian program was absorbed into the NHHI. The purpose of the NHHI was to develop a national approach to hand hygiene by delivering:[2]

- Australian hand hygiene guidelines adapted from the Clean Care is Safer Care Program of the WHO – World Alliance for Patient Safety
- national education strategy based on the Australian hand hygiene guidelines
- clearly defined outcome measures for accurate auditing applicable across all healthcare settings
- guidelines and audit tools based on the outcome measures
- education program to support the hand hygiene audit tools
- electronic collection of outcomes data and information transfer to Hand Hygiene Australia.

A cost-effectiveness evaluation of the NHHI is currently being undertaken by the Queensland University of Technology.[3] The broad aim is to evaluate the NHHI to measure how well the program worked, what factors were important to its success, and whether implementing the program was good value for money. The results are not yet publicly available and therefore were not considered by the Expert Panel.

[1] Victorian Quality Council, Hand Hygiene Project, www.health.vic.gov.au/qualitycouncil/activities/handhyg.htm, State Government of Victoria, accessed 24 April 2013.
[2] Australian Commission on Safety and Quality in Health Care (ACSQHC), National Hand Hygiene Initiative, www.safetyandquality.gov.au/our-work/healthcare-associated-infection/hand-hygiene/, Commonwealth Government of Australia, accessed 24 April 2013.
[3] Queensland University of Technology, Hand Hygiene Evaluation Project, https://wiki.qut.edu.au/display/HHE/Hand+Hygiene+Evaluation+Project, accessed 24 April 2013.

4. Purpose, scope and approach

This paper provides the Minister for Health with the recommendations of the Expert Panel which are designed to position Victoria at the forefront of hand hygiene in Australia.

Scope of this report

The Minister for Health, the Hon David Davis MP, convened the Expert Panel to:

- examine the standardised application of the NHHI audit methodology in Victorian public health services
- identify where Victoria can influence greater consistency to enable comparative national reporting
- identify opportunities to drive better performance and enhance a positive culture in Victorian public health services.

The Expert Panel considered these matters from a quality and safety system perspective.

Out of scope

Two aspects were out of scope for this report:

1. The Expert Panel did not review the application of *5-Moments* or two techniques (hand wash and hand rub) to different healthcare settings or situations. There is potential for the Department of Health (the Department) to explore this at a later date with Hand Hygiene Australia and other expert groups to target performance in specific areas. The Expert Panel's recommendations are relevant independent of any specific hand hygiene method or technique.
2. The Expert Panel did not review the impact of hand hygiene compliance on healthcare-associated infections in Victoria. An evaluation of the NHHI is underway and results are forthcoming. Findings from this evaluation may inform future action.

The above two areas require specialist investigation into hand hygiene compliance and outcomes. There are still significant in-roads which can be made from a broader quality and safety system perspective to continue to drive increases in hand hygiene compliance.

Approach

Establishment of the Expert Panel

In February 2013, the Minister for Health established the Expert Panel. Appendix 1 outlines the terms of reference and membership. The Expert Panel was chaired by a Chief Executive Officer of a Victorian public health service. The Department provided the secretariat.

The Expert Panel comprised representatives from Victorian public and private health services, a consumer, the Department, VICNISS Coordinating Centre, Health Innovation and Reform Council (HIRC), medical colleges, senior nursing executives and universities. Members contributed their extensive clinical and infection control expertise as well as capability in audit methodology, epidemiology, consumer perspectives and a thorough understanding of the health sector.

Members of the Expert Panel met three times, in March, May and July 2013. The first meeting explored the project scope and key elements of successful hand hygiene programs. The second meeting confirmed the project scope, method and approach, synthesised and discussed content identified to date and provided guidance on the next steps. At the final meeting the members provided comprehensive feedback on the working draft of the report and recommendations.

Completed actions

Mixed methodologies were used to gather information from a range of sources. This information was then combined to identify alignment with the NHHI and to highlight opportunities for improvement in hand hygiene compliance in Victoria.

A number of key areas were reviewed, including:

1. Trends in hand hygiene compliance and the consumer experience of healthcare worker hand hygiene in Victoria (Section 6), investigated through:
    - thematic analysis of national and Victorian aggregate hand hygiene compliance data
    - high-level description of healthcare-associated infection outcome data
    - analysis of the two questions relating to hand hygiene in the Victorian Patient Satisfaction Monitor (VPSM) to understand the patients' experience of healthcare worker hand hygiene.
2. Sourcing position statements on hand hygiene from key healthcare education and professional organisations (Section 7).
3. Review of current arrangements for system monitoring and public reporting of hand hygiene compliance data (Section 8).
4. Survey of Victorian public health services on hand hygiene data dissemination and use to understand the current strategies of Victorian public health services (Section 9).
5. Search of grey and published literature, complemented by case studies, to explore what we can learn from others (Sections 10 and 11):
    - patient and healthcare worker empowerment in hand hygiene (Appendix 2)
    - multimodal hand hygiene programs (Appendix 3).

Additional discussions and stakeholder engagement

1. Hand Hygiene Australia was not represented on the Expert Panel because implementation of the NHHI was considered from the Victorian perspective. In July 2013 the secretariat (the Department) met with Hand Hygiene Australia to discuss the scope of the deliberations and key themes of the recommendations.
2. Victorian public health service chief executive officers (CEOs) were briefed on the draft recommendations at the Department's CEO forum on 14 August 2013.

5. The contemporary context

This section explores what we mean by, and why we care about, healthcare worker hand hygiene. As well as the ability for effective hand hygiene to drive changes in healthcare-associated infection rates and the delineation of roles and responsibilities in hand hygiene interventions.

What do we mean by healthcare worker hand hygiene?

Hand hygiene is a contemporary term that applies to processes aiming to reduce the number of microorganisms on the hands. This includes:[4]

- hand rub – application of a waterless antimicrobial agent (for example, alcohol-based hand rub) to the surface of the hands
- hand wash – use of soap/solution (plain or antimicrobial) and water (if hands are visibly soiled), followed by patting dry with single-use towels.

Hand hygiene should be conducted in accordance with the *5-Moments* developed by the WHO in 2009, and modified by Hand Hygiene Australia for the Australian setting.

A choice of the two techniques, hand rub or hand wash, is essential. There are particular challenges for specific types of organisms such as *Clostridium difficile* and in norovirus outbreaks. Handwashing may be more effective or appropriate in certain healthcare situations, and hand rub in others.

The Expert Panel did not consider technical aspects related to selection of the appropriate technique (hand rub or wash) and application of the *5-Moments* to different healthcare settings and situations for the following reasons:

- A body of international literature underpins the Hand Hygiene Australia manual[5] and the Australian hand hygiene infection control standards.[6] These documents are regularly updated to align with emerging research and clinical best practice.
- Hand Hygiene Australia and coordinating centres in each jurisdiction support health services with the technical aspects associated with implementation of hand hygiene as part of the NHHI.

Why do we care about healthcare worker hand hygiene?

A patient's right to safe and quality care is embedded in the Australian Charter of Health Rights.[7] Visible compliance by healthcare workers with fundamental measures such as hand hygiene demonstrates commitment to quality and safety. It also promotes public confidence in the delivery of healthcare.

The Victorian public has an expectation that their stay in hospital will not result in further illness. Healthcare-associated infections, if contracted by patients, can be the cause of significant morbidity and mortality. Infections also tend to result in extended lengths of stay in hospital to recover. This affects not only the patient but also their families and carers, creating additional burden on the healthcare system.

---

[4] ACSQHC 2012, *Standard 3 Preventing and Controlling Healthcare Associated Infections*, National Safety and Quality Health Service Standards (NSQHS) standards pp. 5 &15, www.safetyandquality.gov.au/our-work/accreditation/nsqhss/safety-and-quality-improvement-guides-and-accreditation-workbooks/, Commonwealth Government of Australia, accessed 24 April 2013.

[5] Hand Hygiene Australia (HHA), Grayson, ML, Russo P, Ryan K, Havers S & Heard K (Editors), *5 moments for hand hygiene manual*, http://hha.org.au/UserFiles/file/Manual/HHAManual_2010-11-23.pdf, accessed 16 April 2013.

[6] National Health and Medical Research Council (NHMRC) 2010, *B1.1 Hand Hygiene*, Australian Guidelines for the Prevention and Control of Infection in Healthcare, www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b1-1-hand-hygiene, Commonwealth Government of Australia, accessed 16 April 2013.

[7] Department of Health, Australian Charter of Healthcare Rights in Victoria, www.health.vic.gov.au/patientcharter/victoria/, State Government of Victoria, accessed 24 April 2013.

The impact of infection on a very personal level is illustrated by:

- former patient Dr Gursharan Chana who presented at the Antibiotic Awareness Week launch, The Royal Melbourne Hospital, Monday 12 November 2012, www.health.vic.gov.au/qum/ams.htm
- 'Glen's Story', produced by The Victorian Infection Control Professionals Association (VICPA), www.hha.org.au/ForHealthcareWorkers/education.aspx

Patients and visitors also have a role in reducing healthcare-associated infections. There is evidence that visitors can transfer infection,[8] but the contribution patients and visitors make to healthcare-associated infection in Victoria is difficult to quantify. There may be opportunities to examine this further through targeted national research.

The ability for hand hygiene to drive changes in infection rates

Not every instance of infection is related to a failure of hand hygiene, and not every failure in hand hygiene results in an infection – but some do.

Worldwide, hand hygiene is considered the single most important control strategy to minimise healthcare-associated infections.[9] Local and international best practice and research demonstrates the ability of effective hand hygiene practice to drive improvements in infection rates.[10]

Staphylococcus aureus bacteraemia (SAB) associated with healthcare is an important measure of the safety of hospital care. SAB is the only indicator collected in a nationally consistent way and it is the one most directly affected by hand hygiene compliance, but it still remains a relatively 'blunt' indicator.

In itself, hand hygiene compliance is simply a process measure. By focusing on implementation and audit, we run the risk losing sight of the outcome. To this end, measurement of the outcomes associated with hand hygiene compliance remains an ongoing area of development at state, national and international level.

Hand hygiene is only one factor contributing to infection. Professor Didier Pittet from WHO indicates that the greatest reduction in healthcare-associated infection occurs with rates of compliance with the *5-Moments* of between 55 and 70 per cent.[11]

It is difficult to determine the contribution of compliance over and above the national benchmark of 70 per cent to incremental reduction in healthcare-associated infection. There may also be a time-lag between increases in hand hygiene compliance and a demonstrated decrease in infection rates.

Anecdotal evidence supported by expert opinion suggests a compliance target of 100 per cent may not be achievable. This is due to the complexity of *5-Moments* and the limitations of observational audit.

Despite the limitations, hand hygiene compliance provides an invaluable source of intelligence and a measurable approach to reducing healthcare-associated infection.

With the above in mind, any Victorian hand hygiene program should ensure that valuable infection control and healthcare worker resources achieve the most effective outcome. Victoria should continue to work closely with Hand Hygiene Australia to achieve this.

National focus on the importance of hand hygiene

The national accreditation scheme reinforces the importance of healthcare worker hand hygiene.

---

[8] See literature in Appendix 2.

[9] ACSQHC, NHHI

[10] See literature in Appendices 2 and 3.

[11] Grayson ML, Russo PL, Cruickshank M, Bear JL, Gee CA, Hughes CF, Johnson PDR, McCann R, McMillan, AJ, Mitchell BG, Selvey CE, Smith RE and Wilkinson IJ 2011, 'Outcomes from the first two years of the Australian National Hand Hygiene Initiative', *MJA*, vol. 195, no. 10, pp. 615-619.

Criterion 3.5 states health services must develop, implement and audit a hand hygiene program that is consistent with the NHHI:[12]

- 3.5.1 Workforce compliance with current national hand hygiene guidelines is regularly audited.
- 3.5.2 Compliance rates from hand hygiene audits are regularly reported to the highest level of governance in the organisation.
- 3.5.3 Action is taken to address non-compliance, or the inability to comply, with the requirements of the current national hand hygiene guidelines.

In the first year of the national accreditation scheme, health services undergoing full and mid-cycle accreditation are assessed against Standard 3. Over time this will drive more robust and consistent service policies and procedures for healthcare worker hand hygiene.

Delineation of roles in hand hygiene

Delivery of effective hand hygiene is a shared responsibility. All elements of the system must work together to achieve successful outcomes (Table 1).

Table 1: Roles and responsibilities in delivery of healthcare worker hand hygiene initiatives

International	WHO	• global campaign to improve hand hygiene among healthcare workers, *SAVE LIVES: Clean Your Hands* • synthesise research and provide tools to support continued action and innovation in healthcare worker hand hygiene
National	Australian Commission on Safety and Quality in Health Care (ACSQHC)	• support a national approach to monitoring, reducing and preventing healthcare-associated infections in hospitals • embed hand hygiene governance and practice consistent with the NHHI in hospitals through the NSQHS standards
	Hand Hygiene Australia	• implement the NHHI and report directly to the ACSQHC • establish a national system of outcome measures to assess the effectiveness of the NHHI
	National Health Performance Authority	• public reporting of hand hygiene compliance data on the MyHospitals website
Victoria	Department of Health	• through the national arrangements, fund VICNISS Coordinating Centre to undertake the Victorian hand hygiene coordination role • establish the minimum hand hygiene performance through the Victorian Health Service Performance Monitoring Framework • provide data to national authorities for public reporting
	VICNISS Coordinating Centre	• Victorian coordination role including collating hand hygiene compliance data from Victorian public health services and supporting local implementation of the NHHI
	Key educational and professional associations	• be aware of and support contemporary hand hygiene principles and practice
	Health services	• as a minimum, implement NHHI in accordance with the National Safety and Quality Health Service Standards
	Healthcare workers	• understand and apply *5-Moments* and contemporary hand hygiene principles and practice
	Consumers	• right to safe and high-quality care within Victorian health services • expect that healthcare workers have very high levels of compliance with appropriate hand hygiene practice • participate in hand hygiene practice and interventions

[12] ACSQHC 2012

6. Healthcare worker hand hygiene in Victoria

This section explores trends in hand hygiene compliance and the consumer experience of healthcare worker hand hygiene in Victoria. It also briefly touches on rates of healthcare-associated infection. The relationship between hand hygiene and outcome data is not discussed in detail because the results of an evaluation of the NHHI will be released soon.

What does the hand hygiene compliance data tell us?

Aggregate national hand hygiene compliance data for each audit period is published on the Hand Hygiene Australia website in four categories: overall compliance, compliance by healthcare worker group, compliance by each of the *5-Moments* and compliance by ward type.[13]

The national data was compared with aggregate statewide data for Victoria over the same period using the same four categories.[14]

Trends in hand hygiene compliance rates in Victorian public health services have been summarised from two perspectives. First, change over time in Victoria by each of the above four categories since the start of the NHHI. Second, how Victorian and national compliance rates compare for the most recent audit period (audit 1 2013).

There are limitations with this approach to the analysis. The national rate is based on data collected from 697 hospitals from both the public and private sectors,[15] there are data fluctuations between audit periods, and data between states may not be directly comparable where different ward selection methods are used.[16]

However in Victoria a common statewide approach to ward selection consistent with the NHHI has been adopted. Despite the limitations, the analysis below provides a good indication of trends.

Collection of hand hygiene data[17]

Hand hygiene data is derived from hospital audits of the 5-*Moments* that are conducted three times per year under the NHHI. The estimated hand hygiene rate is a measure of how often (as a percentage) hand hygiene is correctly performed. It is calculated by dividing the number of observed hand hygiene 'moments' where proper hand hygiene was practised in a specified audit period, by the total number of observed hand hygiene 'moments' in the same audit period, and multiplying by 100.

Overall (aggregate) hand hygiene compliance[18]

The overall compliance represents the average rate of performance across the sector (includes both those who are performing well and those where there is room for improvement).

The Victoria aggregate healthcare worker hand hygiene compliance rate has been consistently above the national benchmark, since reporting against the benchmark of 70 per cent commenced in 2011–12.

In audit 1 2013, the overall healthcare worker hand hygiene compliance rate in Victoria is 76 per cent. This is comparable with the overall national rate of 77 per cent.

---

[13] HHA, Audit Period 1 2013 (March), http://hha.org.au/LatestNationalData.aspx, accessed 7 July 2013.
[14] VICNISS Coordinating Centre, Victorian public health services aggregate data for Audit Period 1 2013 (March), www.vicniss.org.au/HCW/HandHygiene.aspx, accessed 7 July 2013.
[15] HHA, Audit Period 1 2013 (March), http://hha.org.au/LatestNationalData.aspx, accessed 7 July 2013.
[16] National Health Performance Authority (NHPA), *Hand hygiene: about the data*, www.myhospitals.gov.au/safety-and-quality#hh, Commonwealth Government of Australia, accessed 7 July 2013.
[17] ibid.
[18] Hand Hygiene Australia, Audit Period 1 2013 (March); VICNISS Coordinating Centre, Victorian public health services aggregate data for Audit Period 1 2013 (March).

Victoria has achieved small incremental increases each audit period, with improvement ranging from 0.6 to 1.3 per cent, or an increase of around one per cent between consecutive audit periods.

In Victoria, inappropriate glove use often undermines efforts to sustain correct hand hygiene. This is mirrored in the results at the national level.

Since the start of the NHHI, Victoria has not demonstrated the same level of improvement as other Australian jurisdictions. However, Victoria joined the NHHI with a well-established program and with a baseline already above the national benchmark.

Compliance by healthcare worker type[19]

Hand hygiene compliance data is analysed in each audit period by 11 healthcare worker types. Nurse/midwife and medical practitioners are the two largest healthcare worker types and are considered below.

The nurses/midwifes group consistently demonstrates high compliance rates at both the Victorian and national level. In Victoria this group has achieved small incremental increases in each audit period; mirroring the national trend. In audit 1 2013, the overall nurse/midwife hand hygiene compliance rate in Victoria was 78 per cent – comparable with the overall national rate of 81 per cent.

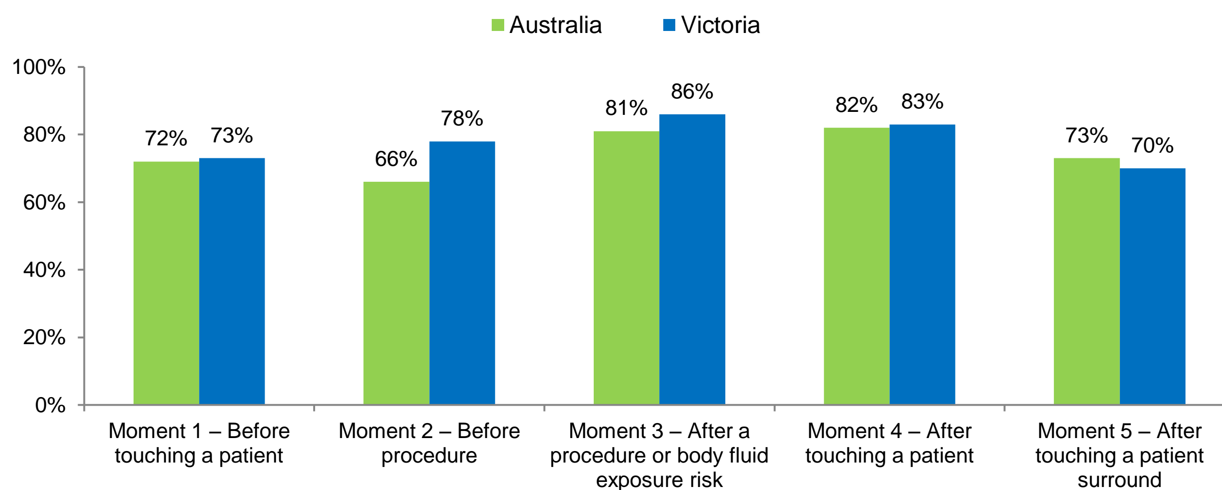
Medical practitioners started *5-Moments* later than the nursing/midwife staff group. This healthcare worker group has seen larger incremental increases per audit period than the nursing group. However, medical practitioners remain below the national benchmark at both the national and state level. In audit 1 2013, the overall medical practitioner rate of hand hygiene compliance in Victoria was 68 per cent – slightly higher than the national overall compliance rate of 63 per cent. There is no further breakdown by medical speciality.

Other staff groups such as allied health workers and student allied health are performing above the benchmark of 70 per cent at the national and Victorian level.

Compliance by each of the *5-Moments*[20]

Moments are based on those defined in the *WHO guidelines on hand hygiene* with some minor modifications by Hand Hygiene Australia for Australian healthcare conditions. Compliance rates vary between each of the *5-Moments* (Figure 1).

Figure 1: Victorian rate compared with the national rate – audit period 1, 2013



[19] ibid.
[20] ibid.

The *5-Moments* aim to:

- protect patients against acquiring infectious agents from healthcare workers (moments 1 and 2)
- help to protect patients from infectious agents entering their bodies during procedures (moment 2)
- protect healthcare workers and the healthcare surrounds from acquiring infectious agents (moments 3, 4 and 5).

Moments 3 and 4 consistently obtain the highest levels of compliance. These two moments occur after exposure to body fluid and after contact with patients, which protect the healthcare worker.

Compliance rates for moments 1 and 2, which protect the patient, are consistently lower than moments 3 and 4. This provides an example where respect for patients' rights for safe and high-quality care could be improved.

Compliance by ward type[21]

Hand hygiene compliance data is analysed each audit period by 15 different ward types. The national audit model recommends areas with the highest perceived risk should be audited each audit period.

The frequently audited ward types tend to achieve greater compliance. For example in audit 1 2013, neonatal intensive care units achieved 83 per cent compliance in Victoria – slightly below the national rate of 86 per cent.

Ward types with more defined work flows also achieved higher compliance, such as renal areas (most likely a high proportion of dialysis units). For example in audit 1 2013, renal areas achieved 78 per cent compliance in Victoria – comparable with the national rate of 83 per cent.

Ward types with greater complexity and urgency of care and fluctuations in patient flow appear to find compliance with the *5-Moments* more challenging. For example, emergency departments' rates at both the national and state level are below the national benchmark of 70 per cent. In audit 1 2013, emergency departments achieved 68 per cent in Victoria – around the national rate of 67 per cent.

Healthcare-associated infection outcome data[22]

The rate of SAB is the main outcome indicator of the effectiveness of hand hygiene (see Section 5, the ability for hand hygiene to drive infection rates).

The aim is to have as few cases of SAB as possible. Patients who develop bloodstream infections such as SAB are more likely to suffer complications that result in a longer hospital stay and an increased cost of hospitalisation. Serious infections may also result in death.

Healthcare-associated SAB infections are monitored by surveillance arrangements in public hospitals. The SAB cases reported include those associated with both admitted and non-admitted hospital care. A national benchmark has been set for public hospitals that no more than 2.0 cases of SAB occur for every 10,000 days of patient care.

In 2010–11, there were 1,873 cases of SAB reported for Australian public hospitals overall. These cases occurred during approximately 17 million days of patient care under SAB surveillance during 2010–11.

All states and territories had rates of SAB below the national benchmark of 2.0 cases per 10,000 patient days, ranging from 0.9 cases per 10,000 patient days in Victoria, South Australia and the Australian Capital Territory to 1.4 in the Northern Territory.

Victoria has achieved results consistently below the national benchmark for SAB.

[21] ibid.
[22] Australian Institute of Health and Welfare (AIHW) 2013, *Hospital performance: hospital-associated infections:* Staphylococcus aureus *bacteraemia (SAB) in Australian public hospitals 2010-11*, Commonwealth Government of Australia, www.aihw.gov.au/haag09-10/hospital-performance-staphylococcus-aureus-bacteraemia, accessed 10 July 2013.

The consumer experience of hand hygiene in health services

Victorian patients have the right to safe and high-quality care.[23] Patients and their carers expect healthcare workers to have very high levels of compliance with appropriate hand hygiene practice. Not all patients may be aware of the exact process required for healthcare worker hand hygiene, but feedback from patients' healthcare experiences provides an independent measure of success.

Example 1: The patient experience of healthcare worker rates of hand hygiene[24]

The Victorian Patient Satisfaction Monitor (VPSM) surveys adult patients' perceptions of their quality of care during their stay in Victorian public hospitals. Participants are randomly selected from eligible adult patients across Victorian public health services.

For the three years 2009–10 to 2011–12 the VPSM collected data on two questions related to healthcare worker hand hygiene. Reported below are the percentage ranges over the three years.

Of those who responded, 80 to 83 per cent agreed that during their stay they were aware of the hospital's hand hygiene cleaning policies or procedures.

Of those who responded, 89 to 91 per cent and 60 to 64 per cent observed hospital staff cleaning their hands between attending patients 'all of the time' and 'some of the time' respectively. This was measured on a four-point scale (never, hardly ever, some of the time and all of the time).

The findings demonstrate that patients are aware of healthcare worker hand hygiene and health services have started to discuss hand hygiene with patients. However, around 35 to 40 per cent of patients did not observe hand hygiene they would consider compliant. International research suggests there is more that could be done.

The ACSQHC is currently leading the process to develop a national set of core patient-experience questions for patients admitted overnight. The dataset does not contain any questions relating to patients' experience of hand hygiene.

The VPSM will cease in 2013. It is being replaced by a new patient survey tool based on the National Health Service (NHS), United Kingdom. The current NHS survey has a question on the availability of hand gels for patients and visitor use. It is not yet clear if there is scope to include locally generated questions in the new survey.

Key finding

Health services should use key trends in their local data, and may compare this with national and Victorian trends, to identify areas for targeted education to increase overall hand hygiene compliance. There is room to work with discrete healthcare worker groups for targeted performance initiatives.

Expert Panel recommendation

Health services should compare hand hygiene compliance over time and have strategies in place to improve performance (Recommendation 4).

[23] Department of Health, *Australian Charter of Healthcare Rights in Victoria*, www.health.vic.gov.au/patientcharter/victoria/safety.htm, State Government of Victoria, accessed 24 April 2013.

[24] Department of Health, Victorian Patient Satisfaction Monitor (VPSM) www.health.vic.gov.au/patsat/, State Government of Victoria, accessed 5 July 2013; Department of Health and UltraFeedback Pty Ltd, *Victorian Patient Satisfaction Monitor, Year 11 annual report, July 2011 to June 2012*, p. 82, State Government of Victoria.

7. Hand hygiene position statements

Healthcare providers have an ethical responsibility to their patients to deliver safe and quality care.

The long-term goal is for all healthcare workers to accept that hand hygiene is everyone's business, implement it as a matter of routine (regardless of observation) and understand that appropriate practice helps prevent healthcare-associated infection. To reach this end, key education and professional associations must support contemporary hand hygiene principles and practice.

Often professional associations have position statements on specific issues to provide guidance to their members. These also help to clarify the organisation's views and expectations.

Position statements on hand hygiene were informally or formally sourced from nursing, medical practitioner and surgeon professional associations.

If the Minister for Health considers it important that each key group has a consistent, specific official position statement on hand hygiene, the most expedient method with professional and educational associations would be to approach them with a pre-formulated position statement for their endorsement.

Australian Medical Association (AMA)

The AMA does not currently have a specific official statement on hand hygiene. AMA Victoria provided a position statement.

AMA Victoria position statement

Doctors and other health professionals must be vigilant about hand washing in hospitals. Particularly in light of past research which has shown that improving hand hygiene among health professionals is the single most effective intervention to reduce the risk of healthcare-associated infection. For this purpose, we support measures which seek to improve hand washing rates in Victorian hospitals including by regular auditing and reporting systems.

Recent Victorian reports have shown that hand hygiene compliance rates among healthcare workers are improving however more must be done in order to meet the benchmark of greater than 70 per cent compliance. To address this issue, it is important for hospitals and specialist training colleges to incorporate information about hand washing into training and accreditation programs. AMA Victoria will continue to raise awareness of the importance of hand washing among doctors and the public.

Nursing educational and professional bodies

The two key nursing professional bodies were informally approached. Neither the Australian College of Nursing nor the Australian Nursing Federation (ANF) have specific official statements on hand hygiene. The Australian College of Nursing is now a national body and is currently being restructured, with regional based rather than state-based representation.

Royal Australasian College of Surgeons (RACS)

The Victorian chapter of the RACS does have a specific position statement on hand hygiene.

RACS Victorian chapter position statement
The College endorses the National Hand Hygiene Initiatives and, in particular, support the World Health Organization's *5-Moments* program and the use of alcohol-based hand rubs.

In a recent development, selection into the Colleges Surgical Education and Training (SET) program is conditional on certification by Hand Hygiene Australia. As a further example, a component of the Australian and New Zealand Surgical Skills Education and Training (ASSET) course marks are awarded for appropriate hand hygiene.

The College recommends all surgeons and trainees play a leadership role in advocating for hand hygiene practices.

Jason Chen, FRACS
Deputy Chair
Victorian Regional Committee

Key finding

There are opportunities to engage with professional groups to develop new clearer and consistent policy on healthcare worker hand hygiene.

Expert Panel recommendation
Ensure key educational and professional groups are aware of and support contemporary hand hygiene principles and practice (Recommendation 2).

8. System monitoring and public reporting

Victoria should continue to participate in and support the NHHI as the base platform for understanding compliance. However, there are opportunities for Victoria to strengthen its approach to auditing and public reporting of data.

Aligning with the NHHI audit methodology

In Victoria, hospitals are grouped into health services that may have one or more acute campuses. As such, hand hygiene auditing requirements have traditionally been based on acute bed numbers per health service, rather than per acute hospital, with data reported and displayed per health service.

Using the NHHI methodology the number of moments should be calculated, reported and displayed on the MyHospitals website for each hospital with overnight acute beds.

Continuing with the Victorian approach means that some of our major acute hospitals will not always report hand hygiene data every audit and may not display data on the MyHospitals website every audit.

A change in reporting from health-service level to hospital level will not affect the majority of health services that have only one acute campus.

Around 11 health services with multiple acute campuses will be impacted. Depending upon how Victoria chooses to transition to any new arrangement, it may require a number of health services to collect data on additional moments for hand hygiene, ranging from 50 to up to 3,550 instances per audit period.

Key finding

The approach in Victoria should be changed from health-service level to hospital-level reporting to align with the NHHI methodology to improve accountability and transparency.

Expert Panel recommendation
Measure hand hygiene performance at every acute hospital using the NHHI methodology (Recommendation 1).

Introducing an external audit step

Hand hygiene observations in Victoria (and likely across Australia) are currently conducted through internal audit. In Victoria, hand hygiene auditors only audit hospitals within their own health service, except for smaller rural health services that use existing infection prevention models with external staff. However, even under these circumstances the auditor may be the same person responsible for other infection control activities within the service.

Auditors submitting data to the NHHI are validated via the Hand Hygiene Australia process. However, there remains potential for discrepancy in auditing between auditors and across health services.

Inclusion of an external validation step would add an element of rigour to hand hygiene auditing and promote greater perceived and actual comparability of the results. This is particularly important since the results now form part of the Victorian health service performance system and national public reporting.

The Expert Panel recommends Victoria introduce an external validation step into the hand hygiene audit process. A model similar to the *Cleaning standards for Victorian health facilities* may be appropriate.[25] In the cleaning standards, two internal audits are complemented by one external audit per year.

[25] Department of Health 2011, *Cleaning standards for Victorian health facilities*, www.health.vic.gov.au/cleaningstandards, State Government of Victoria, accessed 12 August 2013.

Hand Hygiene Australia has proposed a National Learning that will be trialled in health services across Australia with the view of further identifying education and quality improvement opportunities.

Introduction of external validation will require careful consideration as the logistics of organising and sharing staff may make auditing across health services difficult. Health services may be limited by staffing constraints. In the longer-term the Department may need to explore sustainable methods to support low-cost external validation.

Key finding

There are opportunities to ensure hand hygiene compliance data continues to be reliable and calibrated across the Victorian healthcare system.

Expert Panel recommendation
Include an external data validation step (for example, say one external audit per year) (Recommendation 1).

Strengthening system monitoring in Victoria

There are three continuous national audit periods: audit period 1 covers the five months of 1 November to 31 March, audit period 2 covers the three months of 1 April to 30 June and audit period 3 covers the four months of 1 July to 31 October. A longer audit period is allocated over the post-Christmas and New Year period when fewer staff are at work.

<table>
<tr><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th></tr>
<tr><td colspan="4">Audit period 3</td><td colspan="5">Audit period 1</td><td colspan="3">Audit period 2</td></tr>
</table>

Deming's quality improvement cycle comprises four elements: plan, do, check and act. Hand hygiene auditing and benchmarks sit in the 'check' quadrant of the cycle. The Expert Panel's recommendations are designed to move the emphasis so there is balance between 'check' (audit) and other review (plan, do and act) elements of the quality improvement cycle.

The Department monitors hand hygiene compliance in public health services through the Victorian Health Service Performance Monitoring Framework.[26] CEOs and board chairs receive quarterly identified reports on a range of indicators including hand hygiene compliance, which is reported per health service.

In 2008–09 hand hygiene compliance was incorporated as a quality and safety performance measure within the Statements of Priorities (SoPs), which set out government policy priorities, health-service specific priorities and expected performance in key areas.

The benchmark has changed from full compliance with hand hygiene reporting in 2008–09, to a Victorian benchmark of 60 per cent in 2009–10, further increased to 65 per cent for 2010–11 and 2011–12, and reported against the national benchmark of 70 per cent since 2012–13.

In 2013–14 hand hygiene compliance will be included in the SoPs' performance assessment score (PAS). The PAS reflects service levels in access, financial and service domains of performance. The service domain, in which hand hygiene is included, relates to patient safety and quality of care. As the PAS helps inform the level of monitoring applicable to individual health services it provides an important opportunity to drive continuous improvement.

Introducing a target in Victoria higher than the national benchmark would create considerable confusion, particularly as data is publicly reported.

[26] Department of Health, www.health.vic.gov.au/hospital-performance/, State Government of Victoria, accessed 7 July 2013.

The Department has introduced escalation of thresholds into other SoP indicators. The same approach could be adopted for hand hygiene. For example, health services could receive three out of the possible five points for achieving the benchmark of 70 per cent and more points for exceeding the benchmark.

Key finding

Introducing escalation of thresholds into the PAS will help to move the emphasis from 'audit and monitoring' to 'action for change'. It will also provide encouragement for health service boards and executives to drive improvement within their service.

Expert Panel recommendation
The Department introduce escalation in thresholds of performance into the Victorian Health Service Performance Monitoring Framework to recognise exemplary performance in hand hygiene compliance (Recommendation 3).

Publicly reporting hand hygiene data in Victoria

The Victorian Government is committed to transparency by both the Department and Victorian public health services[27] Hand hygiene audit data is displayed publicly in various forums (Table 2).

National aggregate data and Victorian aggregate audit data for each audit period is displayed on the Hand Hygiene Australia website and VICNISS Coordinating Centre website respectively. Public display of aggregate data for each audit period includes overall compliance rate, compliance by healthcare worker type, compliance by each of the *5-Moments* and compliance by ward type.

Since audit 3 2011 hospital performance against the national benchmark of 70 per cent has been publicly displayed on the MyHospitals website. Hand hygiene compliance data is publically reported by hospital, with a minimum reporting threshold of 25 acute inpatient beds. Data is displayed as the overall (aggregate) rate per hospital per audit period.

Table 2: Public display of NHHI compliance data

Organisation	What data is reported	Where the data is reported
Hand Hygiene Australia	Aggregate national data from audit 2, 2009	http://hha.org.au/LatestNationalData.aspx
National Health Service Performance Authority	By hospital from audit 3, 2011	http://www.myhospitals.gov.au/safety-and-quality#hh
VICNISS Coordinating Centre	Aggregate Victorian data from audit 3, 2009	http://www.vicniss.org.au/HCW/HandHygiene.aspx

Health service / hospital-level hand hygiene compliance data is not currently publicly reported in Victoria.

Key finding

There is an opportunity to strengthen public reporting to increase transparency and to drive quality improvement. Display of hospital data would also provide Victorian public health services with an opportunity to identify those who are doing well and to connect and share key lessons across the health sector.

Expert Panel recommendation
Ensure hand hygiene audit results are made publicly available in Victoria (Recommendation 1).

[27] Department of Health May 2011, *Victorian Health Priorities Framework 2012–2022: Metropolitan Health Plan*, www.health.vic.gov.au/healthplan2022/, State Government of Victoria, accessed 5 July 2013.

9. Communicating audit results

Hand Hygiene Australia promotes effective use of audit data for targeted education purposes.[28] Providing only education on the 5-*Moments* will not influence or sustain behaviour change.[29] It is also essential to close the data loop to ensure accountability and quality improvement within health services.

All Victorian public health services have access to their own compliance data through the Hand Hygiene Australia Compliance Application (HHCApp).[30] Through the HHCApp health services can view and extract their own historical data by four themes: overall compliance rate; compliance by the *5-Moments*; compliance by healthcare worker type; and compliance by ward type.

Data in the HHCApp are displayed to health service users for a single audit period by means of pre-prepared reports. Effective trend analysis and dissemination rely in part on the diligence, capacity and skill-set of personnel to extract and prepare the data to meet local reporting requirements.

There is potential for variability between health services on what data is reported to various audiences.

Survey of Victorian public health services

The Expert Panel requested that the secretariat (the Department) undertake a survey to understand how Victorian public health services currently disseminate and use hand hygiene compliance data.

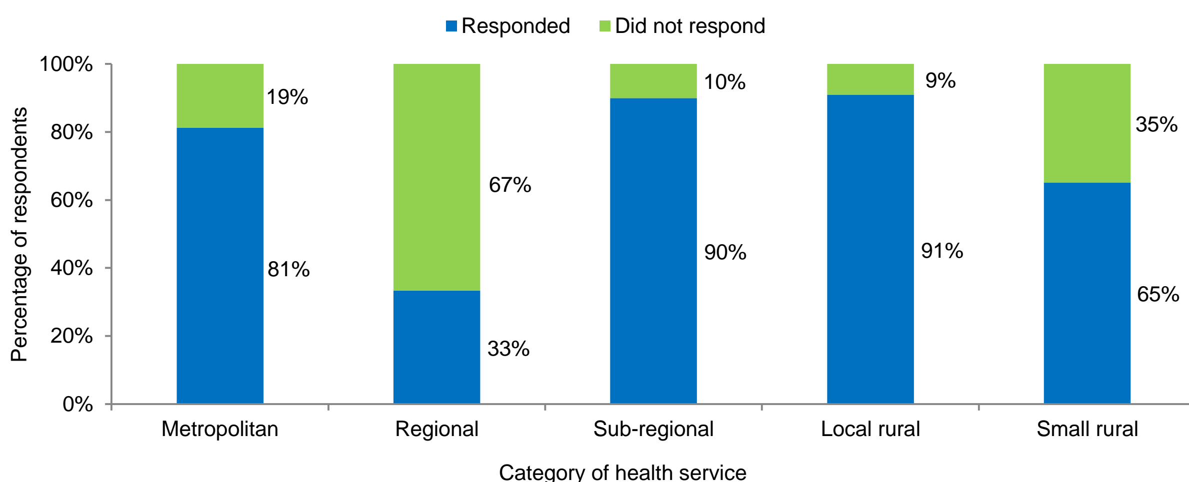
In July 2013 Victorian public health services were invited to participate in an online survey which took 15 to 30 minutes. The survey comprised open and closed questions with the opportunity for respondents to provide clarifying comments.

Survey respondents

Sixty-two health services of 86 (72 per cent) completed the survey. This is a good response rate indicating that Victorian public health services were engaged in the process.

The percentage of respondents by category of health service is shown in Figure 2 and by job description of respondent in Figure 3. It is acknowledged that staff may have multiple roles in rural health services.

Figure 2: Percentage of survey respondents by category of health service

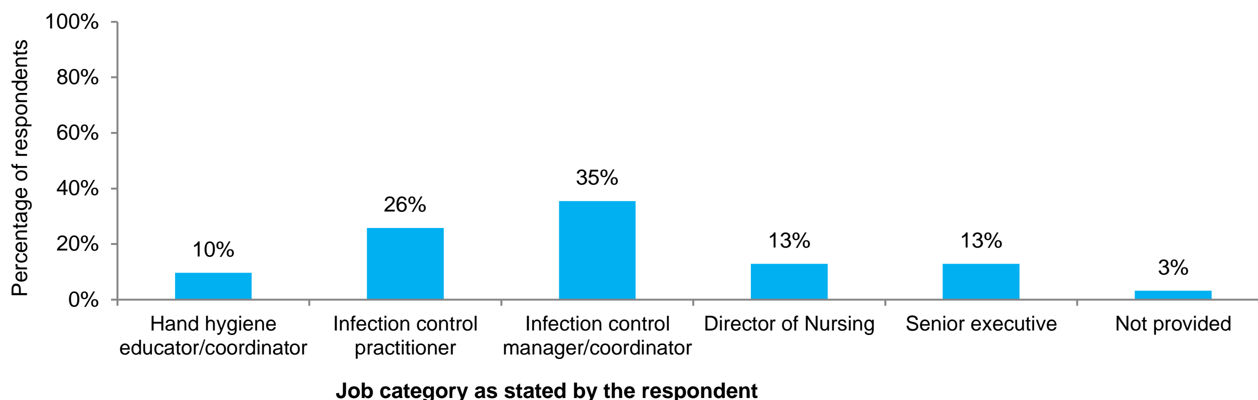


[28] HHA, *5 moments for hand hygiene manual.*

[29] Tromp M, Huis A, de Guchteneire I, van der Meer J, van Achterberg T, Hulscher M and Bleeker-Rovers C 2013, 'The short-term and long-term effectiveness of a multidisciplinary hand hygiene improvement program', *American Journal of Infection Control*, vol. 40, pp. 732-6.

[30] HHA, Hand Hygiene Compliance Application, http://www.hha.org.au/HHComplianceSystem.aspx, accessed 7 July 2013.

Figure 3: Percentage of survey respondents by category of health service



Survey results

There are two internal audiences within health services for hand hygiene data and an important external audience.

The first internal audience includes governance bodies such as committees, executive and boards to close the accountability loop. The second internal audience are staff to close the accountability loop and to allow for targeted education.

The external audience comprises the general public – consumers, carers and visitors to health services. Providing feedback on audit results promotes accountability and maintains the patient's right to safe and quality care.

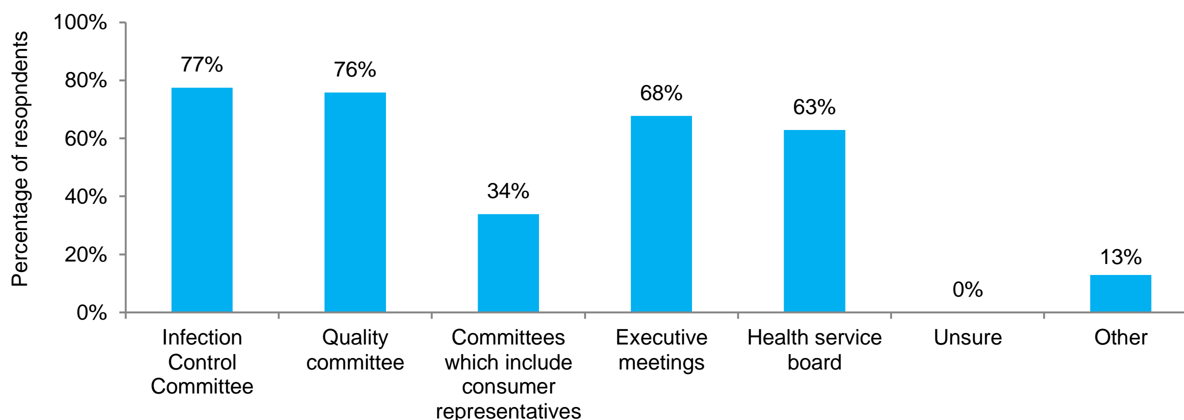
Interpretation of the survey results

Please note: Many questions may add up to more than 100 per cent, as respondents could select multiple responses. In the interests of space, hand hygiene is abbreviated in graphs to HH.

Audience 1 – Provision of hand hygiene audit data to committees, executive and boards[31]

Hand hygiene compliance data may be reviewed by committees or at formal governance meetings (Figure 4). Around one-third of health services reported including consumers on committees where hand hygiene data is shared, for example board quality committees.

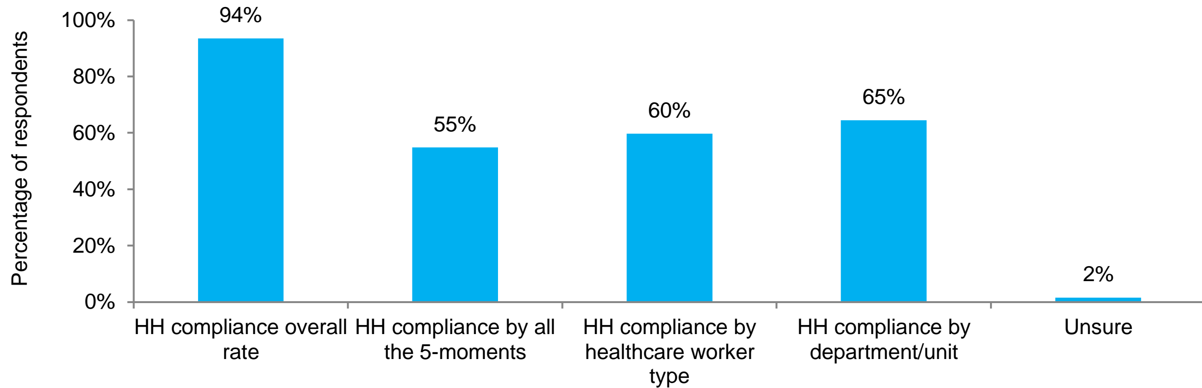
Figure 4: Governance bodies in health services that regularly review hand hygiene data



[31] Department of Health 2013, Survey of Victorian public health services – dissemination and use of hand hygiene compliance data

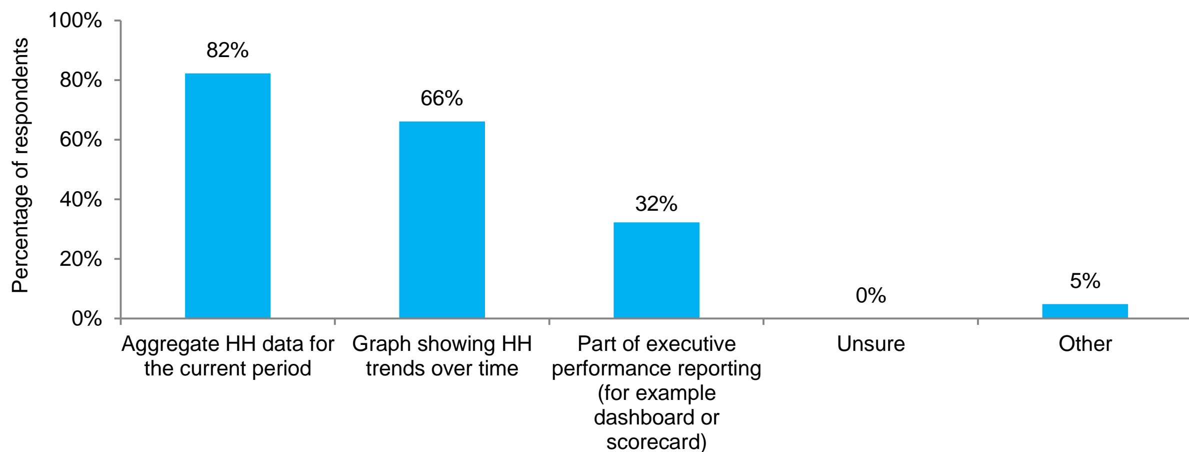
In almost all instances hand hygiene audit data is provided to health service governance bodies in the form of an overall compliance rate, and to a lesser extent by other data categories available to health services through the Hand Hygiene Australia reporting tool (Figure 5).

Figure 5: Format of hand hygiene data reported to health service governance structures



In most instances hand hygiene compliance data is provided to health service governance bodies as an aggregate rate for the current audit period, and to a lesser extent as a graph showing trends over time (Figure 6). Around one-third of health services include compliance data as part of executive reporting.

Figure 6: Hand hygiene compliance data reported to health services governance bodies



Forty per cent of health services always presented hand hygiene compliance data and healthcare-associated infection outcome data together to governance bodies. Small rural health services were more likely to comment that they rarely presented the data together – particularly where the occurrence of SAB infections (outcome indicator) are rare.

Example 2: How different health services link healthcare-associated infection and hand hygiene compliance data

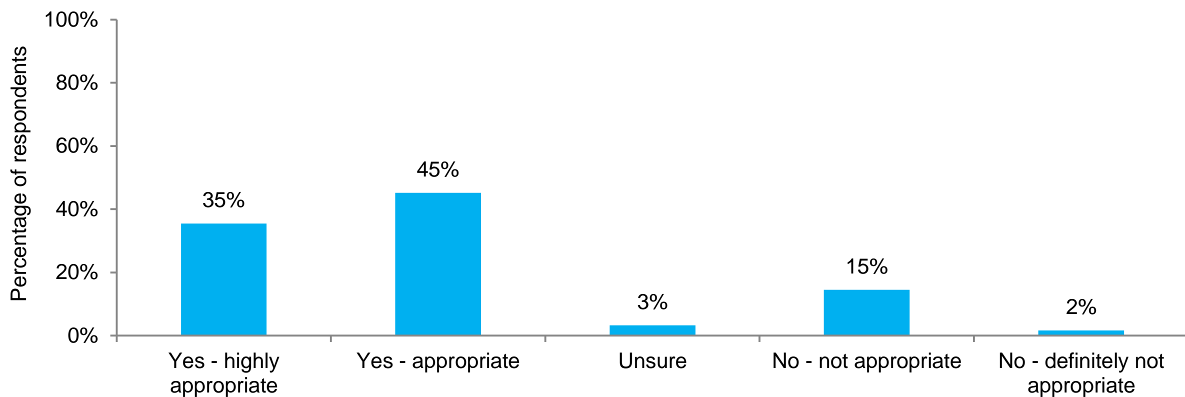
'Linking high levels of compliance within specific units (for example 80 per cent or greater) with a decrease in central–line associated bloodstream infections has provided the clinical leaders with concrete evidence of their improved hand hygiene and associated elimination of these serious infections.' – Health service

'Our service has very few healthcare-associated infections, extremely difficult to compare with hand hygiene compliance data.' – Health service

Audience 2 – Provision of hand hygiene audit data to staff[32]

The majority of health services thought it was appropriate to provide data to all staff (Figure 7).

Figure 7: Whether health services thought providing regular data updates to all staff was appropriate

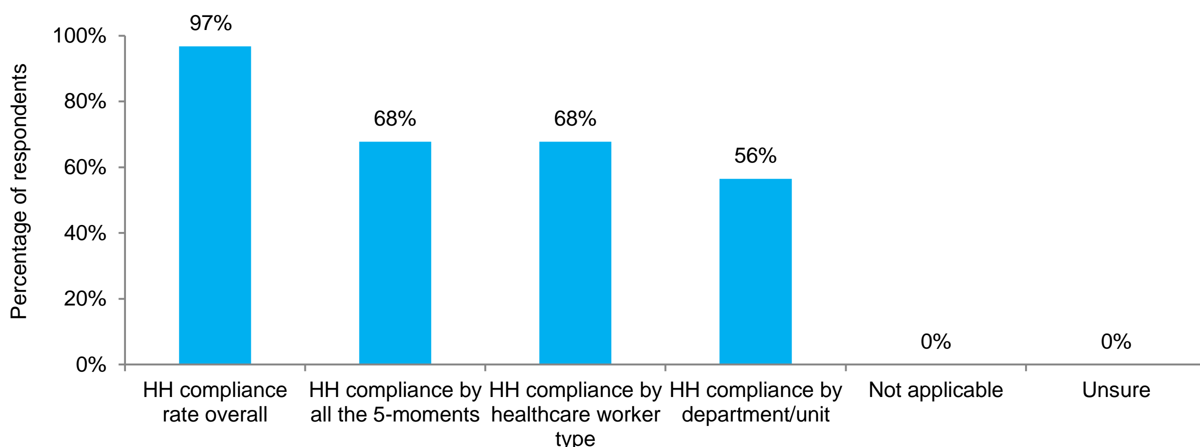


However, around 17 per cent of health services responded that it was not appropriate to provide data to all staff. One health service qualified this response by saying, 'We have answered no as we have not provided data to staff in the past but completion of the survey has promoted provision of compliance rates organisation-wide'. Such comments highlight the importance of working with health services to set clear expectations on dissemination and use of data.

In most instances the data was provided to staff at the end of each audit period (77 per cent); 10 per cent provided data quarterly, with others at other frequencies.

In almost all instances data is provided to staff in the form of an overall compliance rate; to a lesser extent by other data categories available through the Hand Hygiene Australia reporting tool (Figure 8).

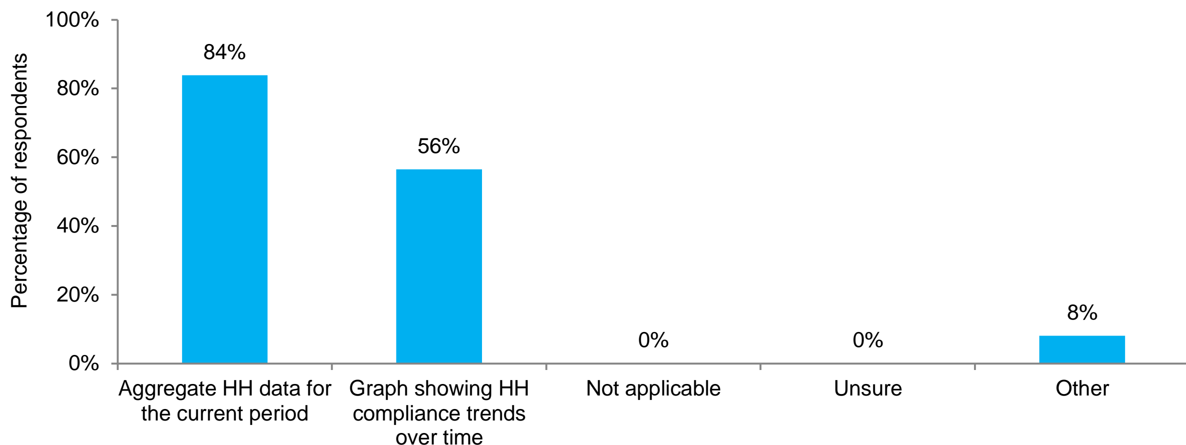
Figure 8: Hand hygiene compliance data provided to staff



In most instances the format of data provided to staff is in the form of aggregate data; and to a lesser extent graphs showing trends over time (Figure 9).

[32] Department of Health 2013, Survey of Victorian public health services – dissemination and use of hand hygiene compliance data

Figure 9: Format of hand hygiene compliance data provided to staff



Some health services commented that communication of data was based on targeted strategies to increase compliance, as well as opportunistic education opportunities during ward rounds.

Example 3: Using the data to increase compliance
'We have targeted education in individual wards to focus on a particular moment that may be a problem. Reports that detail what each moment means are displayed on noticeboards in the ward. The report is included in the compliance report in graph format.' – Health service

Hand hygiene compliance information is shared with staff through a variety of means. The most frequently used methods are formal meetings (77 per cent) and unit/department meetings (76 per cent); followed by notice boards (50 per cent) and email (42 per cent). The intranet (24 per cent) was the least-used communication method. However, it is likely that health services will increase use of the intranet as a tool to support hand hygiene communication.

Example 4: Ensuring staff have access to hand hygiene data and information on initiatives
'Our new intranet launched in June 2013 provides us with an enhanced communication tool to notify all staff of hand hygiene audit results and initiatives to improve hand hygiene.' – Health service

Audience 3 – Feedback to consumers[33]

The Victorian Government is committed to ensuring that consumers have the information they need to make informed decisions about their healthcare.[34] This is supported by the national accreditation scheme, which requires health services to provide the community and consumers with meaningful and relevant information about the organisation's quality and safety performance.[35]

In 2013 Victorian public health services were asked how they currently engage with patients, visitors and the public on hand hygiene. Around 98 per cent of Victorian health services stated they publicly report or display their hand hygiene data (Figure 10). This is predominately in the form of an overall rate (67 per cent) or trend over time (50 per cent). Eight per cent of health services rely on external reporting tools such as the MyHospitals website.

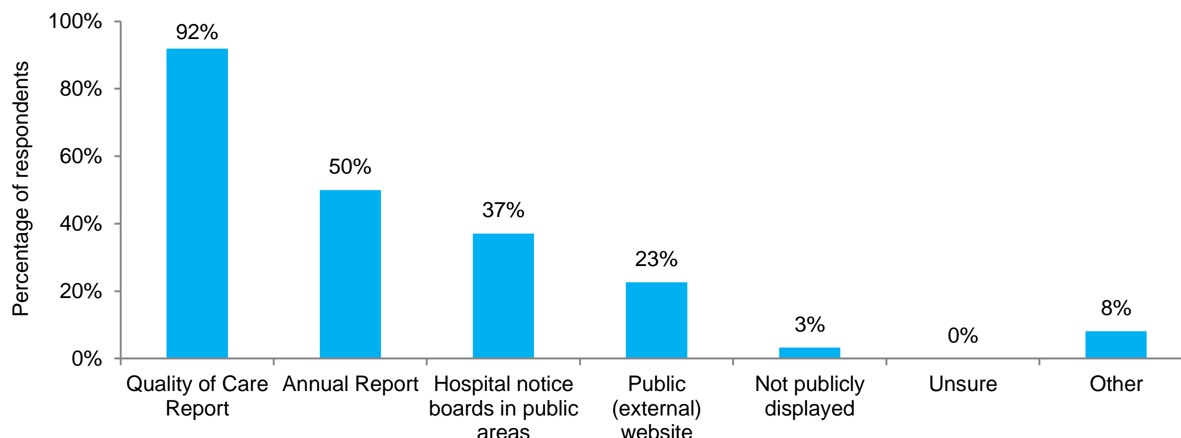
---

[33] ibid.

[34] Department of Health 2011, *Victorian Health Priorities, Framework 2012–2022: Metropolitan Health Plan,* State Government of Victoria, Melbourne, p. v.

[35] ACSQHC 2011, *Standard 2 Partnering with consumers*, NSQHS standards, Criterion 2.7.1, p. 25, www.safetyandquality.gov.au/our-work/accreditation/nsqhss/safety-and-quality-improvement-guides-and-accreditation-workbooks/, Commonwealth Government of Australia, accessed 24 April 2013.

Figure 10: Methods of disseminating or displaying hand hygiene data to the public



A few health services may use other means of reporting to the public such as editorials in regular newsletters or local papers.

Example 5: Disseminating hand hygiene compliance data to the public

'Our hospital has a weekly section in the local paper and hand washing compliance has been reported through that medium.' – Health service

'Our publication *Infection prevention quarterly* always has one hand hygiene article. It is available in the hospital foyer and distributed to subacute and community sites.' – Health service

Health services are at different stages in their level of engagement with consumers on hand hygiene compliance data. Less than a third of Victorian public health services regularly review hand hygiene data via committees that include consumer representatives. Others understand the value of engaging with consumers. Some health services are just starting the conversation with consumers.

Example 6: The conversation with consumers on hand hygiene

'We use the data to strengthen the trust and satisfaction of the community with the facility.' – Health service

'Our result in hand hygiene compliance has been excellent so far. This strengthens support from the community and raises awareness of the importance of hand hygiene.' – Health service

'Our next step will be promoting and disseminating the data to consumers.' – Health service

Data should be published at the local, regional and statewide levels, and it should be presented consistently.

Use of the data[36]

Health services provide hand hygiene data to various audiences as a strategy to support quality and safety improvements. Health services consider they are currently using feedback of data to:

- identify target areas for healthcare worker education (82 per cent)
- promote improvements in hand hygiene compliance rates (85 per cent)
- identify hand hygiene improvement strategies (76 per cent)
- test the success of improvement strategies (53 per cent).

There are various types of quality improvement loops. The survey did not further investigation how and the level at which the test-and-adjust is occurring.

[36] Department of Health 2013, Survey of Victorian public health services – dissemination and use of hand hygiene compliance data

Key finding

Victoria can improve hand hygiene compliance by ensuring accountability structures for hand hygiene are strong at all levels across the healthcare sector.

Recommendation
Ensure health services 'close the loop' by reporting hand hygiene data to the board, at the ward level and by healthcare worker group (Recommendation 4).

10. Target areas for education and engagement in hand hygiene

This section explores how Victoria might increase compliance by examining the three broad target areas for engagement on hand hygiene in hospitals. A review of published literature, approaches, and existing tools from other Australian jurisdictions and overseas was conducted (Appendix 2).

Target 1 – Engaging healthcare workers

The aim of the NHHI is to increase healthcare worker hand hygiene. Hand Hygiene Australia has a range of valuable training materials such as posters and online learning tools to educate healthcare staff in the *5-Moments*. The Royal Australian College of Surgeons has worked with Hand Hygiene Australia to deliver a Hand Hygiene Online Learning package tailored for its members.[37]

Many Victorian public health services now require (or are developing policies that require) all healthcare staff to complete online learning modules at induction or at regular intervals.

Example 7: Ensuring staff are aware of their hand hygiene obligations and educating staff

'Orientation time is a chance to explain to new staff about compliance rates, auditing and mandatory reporting. Making the online learning packages mandatory for all staff has been a positive initiative, particularly in increasing the understanding in the non-nursing departments.[38] – Health service

'Initially we used general education – then annual hand hygiene online education – now targeted education in areas and staff cohorts that have performed below the required level.[39] – Health service

A few health services are now starting to create an environment of engagement and local responsibility.

Example 8: Creating an environment of participation and local responsibility

'Promoting local ownership at the ward/unit level involves having at least one trained auditor on each ward to assist in translating the *5-Moments* to local practices. The introduction of a responsibility and accountability framework gives the healthcare worker permission to remind another healthcare worker to wash their hands following an observed lapse.[40] – Health service

'Getting the local teams to take ownership of their campaigns seems to have a more lasting effect. Having champions who are able to promote hand hygiene from a multidisciplinary approach is also a key element. If the senior leaders (medical and nursing) display good compliance then staff follow. Having our CEO make hand hygiene one of the ten top priorities sends the message it is important.[41] – *Health service*

Other health services are identifying consequences for staff to promote positive hand hygiene behaviour and appropriate consequences for others where their compliance might be improved.

Example 9: Consequence for performance are real, tangible and appropriate

'Reward systems for staff compliance – staff with 100 per cent compliance identified ... include distribution of hand hygiene champion badges.[42] – Health service

---

[37] Hand Hygiene Australia, Royal Australasian College of Surgeons Hand Hygiene Online Learning Package, www.hha.org.au/home/racs.aspx, accessed 7 July 2013.
[38] Department of Health 2013, Survey of Victorian public health services – dissemination and use of hand hygiene compliance data
[39] ibid.
[40] ibid.
[41] ibid.
[42] ibid.

Target 2 – Engaging patients, carers and visitors

Quality and safety initiatives are an important area where consumers can and should participate with health services.

Commencing in 2006, the Department's *Doing it with us not for us* strategy has provided a range of initiatives and tools to support consumer participation in healthcare.[43]

Section 2 of the 2011 NSQHHS outlines the minimum expected requirements for health services when partnering with consumers. Leaders of a health service organisation must implement systems to support partnering with patients, carers and other consumers to improve the safety and quality of care.[44] Health services should consult with consumers on patient information distributed.[45]

How a health service engages with patients, visitors and the public on hand hygiene is enabled or limited by its broader consumer engagement strategy. For this reason different health services are at different levels of sophistication in their engagement with consumers.

In relation to hand hygiene programs consumers may:

- participate with health services in understanding hand hygiene compliance data
- be the target of programs to increase appropriate patient, visitor and carer hand hygiene in hospitals
- participate with health services in the implementation, review and evaluation of hand hygiene compliance initiatives.

Overwhelmingly health services believe they have strategies to engage with consumers on hand hygiene. Ninety-eight per cent of Victorian public health services indicated they have strategies to encourage patients and visitors to wash their hands.[46]

Strategies mainly take the form of alcohol hand rub placed strategically around health services, hand hygiene stations at hospital entrance ways, signage, posters, flyers or brochures. One health service indicated they use other methods such as on-hold telephone messages.

Some health services had targeted consumer campaigns.

Example 10: Campaigns to engage patients, carers and visitors in hand hygiene
'High-visibility campaign 'Infection – don't be the one to pass it on' and 'I care about your health. It's ok to ask if I've cleaned my hands. WAVE CAMPAIGN.[47] – Health service

'It's ok ask, campaign.[48] – Health service

What is not clear is the extent to which the implemented strategies are tested with consumers to ensure they are appropriate and effective. Nor is the level of engagement of consumers in the preparation of materials and initiatives designed for them. How successful these strategies are in engaging consumers is also not known. These questions and others will be important to consider in future work in these areas.

Target 3 – Engaging both healthcare workers and consumers

Programs to encourage interaction between healthcare workers, patients and visitors could include initiatives such as workers wearing badges saying, 'Have you seen me wash my hands today?' For this to be effective patients must be willing to be empowered to engage with healthcare workers – and healthcare workers must be willing to facilitate such empowerment.

[43] Department of Health, *Consumer, carer and community participation and information*, www.health.vic.gov.au/consumer/index.htm, State Government of Victoria, accessed 20 August 2013.
[44] ACSQHC 2011, *Standard 2 Partnering with consumers*, NSQHS standards, p. 22.
[45] ACSQHC 2011, *Standard 2 Partnering with consumers*, NSQHS standards, Criterion 2.4, p. 24.
[46] Department of Health 2013, Survey of Victorian public health services – dissemination and use of hand hygiene compliance data
[47] ibid.
[48] ibid.

Anecdotal evidence suggests Australian healthcare workers and patients may not yet be ready for this leap. Overseas literature suggests while patient and visitors have a positive attitude towards engaging with healthcare workers on hand hygiene; they may not be comfortable doing so.[49]

An expectation-setting phase with all parties may first be needed to establish an environment for change. For example, inclusion of hand hygiene statements in patient admission papers, and verbal clarification during ward rounds. These types of activities may present a practicable and appropriate first step.

Before implementing initiatives in this space, consideration should be given to the power differential between patients and healthcare workers, particularly with higher acuity patients, patients from culturally and linguistically diverse communities and other vulnerable groups.

Key finding

Hand hygiene messaging in hospitals must be specific to the setting. A similar approach has been adopted for hand hygiene in food safety in businesses and in the home.

Hospital-based messaging should be developed using a health promotion approach and aligned with broader community hand hygiene messages and those already developed as part of the NHHI.

Hand Hygiene Australia has tools for healthcare worker hand hygiene. There is room to strengthen messaging that empowers healthcare workers to engage with each other on appropriate hand hygiene.

There is also potential to work with consumer groups on targeted initiatives. Inclusion of consumers in the development of hand hygiene improvement strategies should be explicit and clearly communicated.

Health services, Hand Hygiene Australia and consumers are key partners in development of any new hand hygiene messaging. Any new approaches should be tested and the knowledge shared across the healthcare sector.

Expert Panel recommendation
Engage consumers and the wider community in hand hygiene (Recommendation 4).

[49] McGuckin M & Govednik J 2013, *Patient empowerment and hand hygiene*, 1997–2012, Journal of Hospital Infection, doi: 10.1016/j.jhin.2013.01.014.

11. Successful hand hygiene programs are multifaceted

This section explores how Victoria might increase compliance by examining and building on the successful features other hand hygiene programs. Overseas and Australian case studies highlight how to engage staff to generate organisation-wide leadership, accountability and action on hand hygiene.

Key elements of successful programs

The concept of hand hygiene appears straightforward, but improving hand hygiene practices involves changing attitudes and behaviour among healthcare workers. It also requires direct involvement and engagement with consumers in relation to safety and quality of care. Therefore, increasing healthcare worker hand hygiene compliance requires a change of culture within and across organisations.

Hospitals are complex environments. WHO promotes the use of a multimodal strategy to obtain change in relation to healthcare worker hand hygiene. This means not one single strategy, but a range of complementary strategies are required to achieve change. These multiple strategies are aimed at structural, individual and organisational factors.

Hand Hygiene Australia acknowledges that hand hygiene is a culture-change program. The multimodal strategies promoted by the WHO have been adopted by Hand Hygiene Australia and modified for the Australian environment. *5-Moments* highlights these strategies, which are: [50]

- audit and compliance
- completion by staff of online learning packages
- ongoing education programs using health promotion strategies
- using hand hygiene education data as staff educational tool
- supporting and encouraging staff ownership in hand hygiene
- appointing ward/department based hand hygiene champions
- using staff group specific strategies and role models.

A review of published literature, approaches and existing tools from other Australian jurisdictions and overseas was conducted (Appendix 3). The evidence suggests that there are additional strategies such as partnership with consumer organisations, leadership and accountability, as well as organisation and culture characteristics which influence change. These are areas that Victoria can focus on to strengthen the hand hygiene program.

The Hand Hygiene Australia resources are a valuable source of information for program implementers. However there is an opportunity for Victoria to develop information sheets for health service executives outlining high-level approaches to drive management and organisational accountability in hand hygiene.

Case studies – what can we learn from others

Overseas case study

Evidence from overseas jurisdictions indicates achieving a higher level of compliance is possible. Many of the international examples do not clearly specify how compliance is audited, even if they use the *5-Moments*, so results may not be directly comparable. However, such examples highlight what might be achievable.

[50] http://hha.org.au/UserFiles/file/Manual/HHAManual_2010-11-23.pdf, accessed 16 April 2013.

Scotland has achieved and maintained over 90 per cent compliance to hand hygiene.

Example 11: Best practice – successful hand hygiene implementation strategies, Scotland

Scotland has consistently achieved 90 per cent compliance or greater. In 2005, the Scottish Minister for Health and Community Care participated in the First Global Patient Safety Challenge, Clean Care is Safer Care. In January 2007, Scotland's campaign 'Germs. Wash your hands of them' was launched by Health Protection Scotland and funded until 2011.Campaign activities included:

- educational posters for staff and visitors in acute and community healthcare settings
- public media campaigns including information for children, leaflets for the public and for healthcare staff
- credit card-sized fliers depicting My Five Moments for Hand Hygiene
- research activities
- presentation of national hand hygiene compliance data
- a dedicated enquiry service (including telephone and email inbox enquiry service)
- a campaign website
- Local Health Board Coordinators were employed and trained to undertake the audits – as auditors can report different hand hygiene rates a quality assurance exercise was undertaken, and results indicated good inter-rater reliability for observed hand hygiene behaviour.

Australian case study

Peter MacCallum Cancer Centre kindly provided an example based on its experience in driving improvement in hand hygiene compliance.

Example 12: Hand in hand – engaging staff to generate organisation-wide leadership, accountability and action on hand hygiene

In 2011 hand hygiene compliance rates at the Peter MacCallum Cancer Centre fell below the established benchmark to 58 per cent. This drop occurred despite the wide availability of hand hygiene product in all inpatient and ambulatory clinical areas and staff education programs. The rates, published on the MyHospitals website, sparked media interest.

While Peter Mac achieved the benchmark in its subsequent audit, given the potential detrimental effects of poor hand hygiene to Peter Mac's highly immunocompromised patient population, there was no room for complacency.

To ensure improvement continued and the effort was sustained, it was essential for the *5-Moments* to become part of workplace culture and 'business as usual' practice. While the majority of Peter Mac staff understood the importance of compliance with hand hygiene, their reasons for non-compliance highlighted a lack of understanding of the reason behind each moment and the impact of non-compliance.

Education was strengthened with formal sessions and on-the-spot training provided outside the formal auditing process. Completion of online hand hygiene learning has become mandatory for all staff, with managers responsible for ensuring their staff are compliant; regular reporting is tabled at the Infection Control Advisory Committee meeting, and feedback provided to managers where required.

Audits have been incorporated into each clinical department's quality program and regular feedback, trends and detail of missed 'moments' provided to staff.

To support this program, a considered communication strategy was prepared by the organisation's Communications team focusing on four key areas: 1) engaging and educating key leaders; 2) creating understanding among staff; 3) involving staff and sustaining the effort; and 4) listening to stakeholders.

The key aim of the communication strategy was to shift the issue of hand hygiene to be a whole of organisation responsibility and not only an initiative of the Infection Control team. Role-modelling and

support from senior clinical staff members was viewed as crucial to improving and maintaining good compliance; leaders were equipped with messages and materials that focused on debunking myths and misconceptions.

All communication was positively framed and designed to motivate and invoke the same level of urgency as other clinical practice. The communication effort has focused on bringing staff 'inside the tent', sharing the results and creating a level of ownership and responsibility; appealing to the professionalism and track record of Peter Mac staff in providing a high-standard of care.

A compelling 'story', focused on patient safety, has been central to communication. This messaging has been utilised in signage at hand washing/rub points; the signage was presented simply and professionally to ensure the issue of hand hygiene was viewed as a serious matter.

Much more than a single intervention, this behavioural change has required a multi-faceted approach. The implementation of the above initiatives has led to Peter Mac's hand hygiene compliance now sitting at 85 per cent at Audit 1, 2013 – well above the national target of 70 per cent.

Peter MacCallum Cancer Centre, 2013.

Key finding

The first step is to 'set the expectations' to create an appropriate environment for longer-term action and change. Hand hygiene as a very tangible topic and appropriate to use as a vehicle to improve consumer engagement in health services. It is important that any new approaches are tested and evaluated prior to broader adoption across Victorian public health services.

Expert Panel recommendation

Health services improve hand hygiene compliance through leadership, accountability, role-modelling and consumer engagement.

This should include at least two 'launch sites' to develop and assess new approaches and share knowledge across the Victorian health sector.

The launch sites, as well as other health services should incorporate but not be limited to:

- using hand hygiene compliance as a vehicle to enhance the way health services engage with consumers (patients, carers and visitors).
- creating an expectation of personal responsibility for appropriate hand hygiene practice.
- developing information sheets and tools for health service executives outlining high-level approaches to drive organisational change in hand hygiene.

(Recommendation 5)

12. Conclusion

Victoria was one of the first Australian jurisdictions to deliver a statewide healthcare worker hand hygiene program. It is a great achievement that audit, education and infrastructure to support compliance to the *5-Moments* are now well-embedded in Victorian public health services.

Feedback to healthcare workers on compliance is currently used as a strategy by Victorian public health services to improve compliance. However, there are opportunities to strengthen the feedback loop.

Services are exploring the concepts of consumer engagement in hand hygiene, leadership, accountability and role-modelling. Again, there are opportunities to develop and test new approaches prior to broader adoption across Victorian public health services.

Strategies that are well-embedded across the Victorian public health services

- Auditing healthcare worker compliance to the *5-Moments*
- Healthcare worker education support compliance to the *5-Moments*
- Infrastructure to facilitate appropriate hand hygiene, for example hand rub and wash stations

Strategies that could be strengthened across Victorian public health services

- Health services use hand hygiene data to drive improvements in hand hygiene compliance

The literature suggests that audit, education and feedback on performance are important influencers of compliance but the effects are likely to be small to moderate.[51]

Strategies with variability across the sector which require strengthening

- Consumer participation and engagement in hand hygiene initiatives
- Public reporting of hand hygiene compliance data
- Leadership, accountability, role-modelling and a sense of 'shared responsibility' on hand hygiene
- Testing and evaluation of organisational level initiatives

This would move the focus from 'auditing and monitoring' to 'action for change'.

The literature suggests that these additional elements form part of a mature organisational multifaceted approach to hand hygiene.

The Expert Panel has developed recommendations under two themes for consideration by the Minister for Health:

- Theme 1 – Improving the robustness of hand hygiene audit in Victoria
- Theme 2 – Enhancing management and consumer engagement systems to improve hand hygiene compliance.

Five recommendations under the two themes are detailed in Section 1.

[51] Tromp et al. 2013, p. 733.

Appendix 1: Terms of reference of the Expert Panel on Hand Hygiene

Background

Improving hand hygiene among healthcare workers is currently the most effective intervention to reduce the risk of healthcare-associated infection.

The National Hand Hygiene Initiative (NHHI) of the Australian Commission on Safety and Quality in Health Care (the Commission) was established to develop a national hand hygiene culture-change program to standardise hand hygiene practice in every Australian hospital.

The NHHI objectives are to promote and sustain improvements in hand hygiene compliance rates, to reduce healthcare-associated infection and to measure hospital performance in hand hygiene.

The NHHI constitutes three audit periods spanning 12 months. In 2013 the audit periods are:

- Audit 1 – 1 November 2012 to 31 March 2013
- Audit 2 – 1 April to 30 June 2013
- Audit 3 – 1 July to 31 October 2013.

For more information on the NHHI, manual and audit tools: www.hha.org.au/.

In May 2011 hospital-level hand hygiene compliance data was publically reported on MyHospitals website for the first time. The website is periodically updated following each NHHI audit period. Individual hospital performance is reported against a national benchmark rate of 70 per cent.

For more information on public reporting of hand hygiene data: www.myhospitals.gov.au/safety-and-quality.

Purpose

The Minister for Health, the Hon David Davis MP, is establishing the Expert Panel to examine the standardised application of NHHI audit methodology in Victorian public health services.

Role

The role of the Expert Panel is to:

- review the national audit data methodology and its application in Victorian public hospitals
- agree conclusions from desk top review
- determine standardised application of national audit methodology for Victorian public hospitals
- make recommendations to the Minister for Health with respect to any actions required.

Report

The role of the Expert Panel will conclude with a report to the Minister for Health following the panel's review.

Membership

The membership of the Expert Panel is below (alphabetical order of surname).

Proxy members are not permitted.

Name	Position	Organisation	Role in Expert Panel
Prof David Ashbridge	Chief Executive Officer	Barwon Health	Chair
Ms Jennifer Bradford	Hand Hygiene Coordinator	VICNISS Coordinating Centre, Melbourne Health	Member
Dr Sue Evans	Executive Officer	Centre for Research Excellence in Patient Safety, Monash University	Member
Ms Sue Flockhart	Manager, Infection Prevention & Control Unit	Ballarat Health Services	Member
Ann Maree Keenan	Executive Director Ambulatory and Nursing Services	Austin Health	Member
Jeanette Kinahan	Consumer representative		Member
Dr David Love	Orthopaedic Surgeon	Royal Australasian College of Surgeons (RACS) representative	Member
Dr Martin Lum	Medical Director, Hospital and Health Service Performance	Department of Health	Member
Mr Steven McConchie	Group Director Clinical Audit, Innovation and Reform	Epworth HealthCare	Member
Ms Belinda Rice	Senior Project Officer	Sector Performance, Quality and Rural Health, Department of Health	Secretariat
Ms Stacey Rowe	Epidemiologist	Health Protection, Department of Health	Member
Dr Gary Speck	Orthopaedic Surgeon	Health Innovation Reform Council (HIRC)	Member
Professor Aleksandar Subic	Dean of Engineering and Head of School	Aerospace, Mechanical & Manufacturing Engineering, RMIT	Member

Confidentiality

The Expert Panel must comply with the Privacy Principles as defined in the *Information Privacy Act* 2000 and the *Health Records Act* 2001. The material presented to and discussed at the meetings will require that members need to maintain strict confidentiality. Members will be responsible for ensuring information acquired or created as part of this group is only used for performing duties as a panel member.

Format and timings of the meetings

The panel met three times. Meeting dates and times are below:

- Meeting 1: 10–11.30 am, Thursday 28 March 2013 – Room 18.23
- Meeting 2: 10–12 noon, Tuesday 14 May 2013 – Room 8.01
- Meeting 3: 2–4 pm, Wednesday 24 July 2013 – Room 16.23.

All meetings will be held at the Department of Health, 50 Lonsdale Street, Melbourne. External attendees must collect visitor passes from ground floor security at arrival. Allow up to 10 minutes.

Attendance in person is preferable; however teleconferencing may be used if members are unable to attend meetings in person.

Appendix 2: Key literature, approaches and resources from other jurisdictions in relation to hand hygiene education and consumer engagement

Patient empowerment and healthcare, WHO, 2009 [52]

Definition – A process in which patients understand their role, are given the knowledge and skills by their healthcare provider to perform a task in an environment that recognises community and cultural differences and encourages patient participation.

Patient empowerment = patient participation + patient involvement

Four components:

1. patient understands his/her role
2. patient has sufficient knowledge to engage with healthcare worker
3. patient skills (self-efficacy or self-belief and health literacy)
4. presence of a facilitating environment.

Patients must be willing to be empowered and healthcare workers must be willing to facilitate such empowerment.

Patient/staff empowerment in hand hygiene, WHO, 2009[53]

There are three categories of hand hygiene programs for patient and staff empowerment, included as a broader multimodal approach to hand hygiene:

1. Educational programs:
    - internet, printed matter, oral demonstration or audiovisual i.e. who, why, where and when brochures on hand hygiene
    - messages framed from a health promotion perspective.
2. Reminders and motivational messages:
    - visual reminders, for example small badges or stickers worn by patients and healthcare workers with messages such as “did you wash your hands” or posters
    - messages framed for motivation, empowerment and health promotion.
3. Role-modelling (superiors and colleagues):
    - audible reminders and messages from ‘authority figures’ such a medical director, director of nursing or infection control professional
    - short messages focus on targets, importance of compliance
    - avoid negative senior role models (improper hand hygiene) and promote the positive.

[52] World Health Organization (WHO) 2009, *Part V. Patient involvement in hand hygiene promotion*, WHO Guidelines on Hand Hygiene in Health Care, pp. 190-193, www.who.int/gpsc/5may/background/en/. accessed 24 April 2013

[53] WHO 2009, *Part V. Patient involvement in hand hygiene promotion*, pp. 194-195

Literature review papers 1997–2012 – Abstract – McGuckin et al. 2013[54]

Background: Multimodal hand hygiene programs that include patient empowerment are promoted as a necessary component of hand hygiene compliance. The question remains, do we have enough information to determine if, and under what conditions, patients will be able to play an immediate role in healthcare worker hand hygiene behaviour?

Aim: Review the current literature on patient willingness to be empowered, barriers, programs that include patient empowerment and hand hygiene improvement.

Methods: A Medline (Ovid) search of all English-language papers for 1997–2007 and 2008–2012 was conducted. The review was conducted as part of the WHO Guidelines on Hand hygiene in Health Care, and updated with the 2008–2012 review.

Findings: In principle, patients are willing to be empowered. Actual number of patients that practice empowerment for hand hygiene ranges from 5 to 80 per cent. Performance of patient empowerment can be increased when a patient is given explicit permission by a healthcare worker.

Conclusion: There is ongoing support from patients that they are willing to be empowered. There is a need to develop programs that empower both healthcare workers and patients so that they become more comfortable in their roles.

Literature search, United States – Landers et al. 2012[55]

Abstract – Despite increasing evidence that patients' flora and the hospital environment are the primary source of many infections, little effort has been directed toward involving patients in their own hand hygiene. Most previous work involving patients has included patients as monitors or auditors of hand hygiene practices by their healthcare workers. This article reviews the evidence on the benefits of including patients more directly in hand hygiene initiatives, and uses the framework of patient-centered safety initiatives to provide recommendations of patient hand hygiene protocols. It also addresses key areas for further research, practice guideline development, and implications for training of healthcare workers. Implications for practice relate to:

- timing and technique for patient hand hygiene
- product design and placement considerations for patient hand hygiene
- patient education and training to support patient hand hygiene
- healthcare worker education and training to support patient hand hygiene
- importance of a multimodal strategy.

Literature search, National Patient Safety Authority United Kingdom – Abstract – Pittet et al. 2011[56]

Healthcare-associated infections affect at least 300,000 patients annually in the United Kingdom. The National Patient Safety Authority United Kingdom surveyed the public, inpatients, and healthcare workers, particularly frontline clinical staff and infection control nurses, in five acute care hospitals to determine whether they agreed that a greater level of involvement and engagement with patients would contribute to increased compliance with hand hygiene and reduce healthcare-associated infections.

---

[54] McGuckin M & Govednik J 2013

[55] Landers T, Abusalem S, Coty, M & Bingham J 2012, *Patient-centred hand hygiene: The next step in infection prevention*, American Journal of Hospital Infection, vol. 40, pp. S11–S17

[56] Pittet D, Panesar SS, Wilson K, Longtin Y, Morris T, Allan V, Storr J, Cleary K & Donaldson L 2011, *Involving the patient to ask about hospital hand hygiene: a National Patient Safety Agency feasibility study*, Journal of Hospital Infection, vol. 77, pp. 299–303

Results:

- 57 per cent (302/530) of the public were unlikely to question doctors on the cleanliness of their hands as they assumed that they had already cleaned them.
- 43 per cent (90/210) of inpatients considered that healthcare workers should know to clean their hands and trusted them to do so.
- 20 per cent (42/210) would not want healthcare workers to think that they were questioning their professional ability to do their job correctly.
- Most healthcare workers surveyed (178/254, 71 per cent) said that healthcare-associated infection could be reduced to a greater or lesser degree if patients asked healthcare workers if they had cleaned their hands before touching them.
- Inviting patients to remind healthcare workers about hand hygiene through the provision of individual alcohol-based hand rub containers and actively supporting an 'It's OK to ask' attitude were perceived as the most useful interventions by both patients and healthcare workers.
- Further work is required to refute the myth among healthcare workers that patient involvement undermines the healthcare worker–patient relationship.

SA Health posters – examples

Examples of existing tools – Australia

Hand Hygiene Australia	Community hand hygiene brochures for hospital care, for non-hospital care and child care www.hha.org.au/ForConsumers.aspx Healthcare worker hand hygiene brochures www.hha.org.au/ForHealthcareWorkers.aspx
NSW, Clinical Excellence Commission	*Clean Hands Save Lives* – on-hold messages, posters, patient/visitors resources in various languages www.cec.health.nsw.gov.au/programs/hand-hygiene
SA Health	Hand washing for the general public www.sahealth.sa.gov.au/wps/wcm/connect/Public+Content/SA+Health+Internet/Health+topics/Health+conditions+prevention+and+treatment/Infectious+diseases/Hand+Hygiene Hand hygiene posters for *Clean Hands Save Lives*

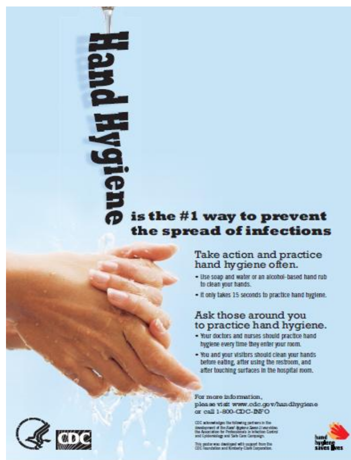
Queensland Health	Germ Buster Program including hand hygiene fact sheet www.health.qld.gov.au/germbusters/hygiene.asp Hand hygiene posters and videos of 5 moments, interactive game www.health.qld.gov.au/chrisp/hand_hygiene/HH_resources.asp
WA Health	Facts about hand hygiene www.health.wa.gov.au/handhygiene/home/facts.cfm Resources for healthcare workers, *'how to'* and '*Clean hands safe hands* posters www.health.wa.gov.au/handhygiene/home/national.cfm

CDC United states – materials for patients – examples

Patient Admission Video

Hand Hygiene Saves Lives

This video, available in English and Spanish, teaches two key points to hospital patients and visitors to help prevent infections: the importance of practicing hand hygiene while in the hospital, and that it is appropriate to ask or remind their healthcare providers to practice hand hygiene as well.



Examples of existing tools – overseas

Canada	Canadian Patient Safety Institute, *Hand hygiene: working with patients and families* – hand hygiene guide and how to speak to your healthcare worker about hand hygiene www.handhygiene.ca/English/Pages/default.aspx Health Canada, The benefits of hand hygiene www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/hands-mains-eng.php
New Zealand	Hand Hygiene New Zealand Patient participation guidelines: Engaging patients in hand hygiene improvement programmes Guidance for district health boards www.handhygiene.org.nz/images/stories/Hand%20Hygiene%20New%20Zealand%20Patient%20Participation%20Guidelines.pdf
Scotland	*Wash your hands of them*, patient leaflets and posters www.washyourhandsofthem.com/the-campaign/phase-2/leaflets.aspx
United Kingdom	Public Health England, Hand washing www.hpa.org.uk/handwashing *Global hand washing day* UK www.globalhandwashingday.org.uk/ Hand washing in primary schools www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Handwashing/handwHandwashinginprimaryschoolsresources/

United States	Centres for Disease Control and Prevention (CDC), *Hand hygiene saves lives* – patient posters, brochures and admission video (teaches importance of practicing hand hygiene and that it appropriate to ask or remind healthcare workers to practice hand hygiene) www.cdc.gov/handhygiene/Resources.html#Patients *Speak up initiatives,* www.jointcommission.org/speakup.aspx Centers for Medicare and Medicaid Services, Partnership for Patients, Patient's family, carers and visitors as 'caregivers' – and approach their involvement in preventing infection from that perspective accordingly, http://partnershipforpatients.cms.gov/p4p_resources/lpresources.html Centers for Medicare and Medicaid Services, WAVE program (Wash hands, Ask questions, Vaccinate, Ensure safety to help prevent healthcare-associated infections), http://partnershipforpatients.cms.gov/p4p_resources/lpresources.html

Existing Department consumer engagement tools

The Department has a range of initiatives and tools which support consumer participation in healthcare:

- Consumer, carer and community participation and information – initiatives to promote and support consumer involvement in decision-making about their own treatment and care, in service development and quality improvement www.health.vic.gov.au/consumer
- Better Health Channel – award winning, health and medical information for consumers (website, Apps for iPad and iPhone) Hand washing page - www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Handwashing_why_it's_important?open

Want to know more – additional literature

- Agency for Healthcare Research and Quality (AHRQ) 2013, *Chapter 32. Promoting Engagement by Patients and Families To Reduce Adverse Events,* Making Health Care Safer II: An updated Critical Analysis of the Evidence for Patient Safety Practices, Evidence Report/Technology Assessment No 211, www.ahrq.gov/research/findings/evidence-based-reports/ptsafetyuptp.html
- Buser GL, Fisher BT, Shea JA & Coffin SE 2012, *Parent willingness to remind health care workers to perform hand hygiene*, American Journal of Infection Control, vol.xxx, pp. 1-5.
- Callan CM 2011, *Patient empowerment and multimodal hand hygiene promotion: A win-win strategy*, American Journal of Medical Quality, vol. 26, pp. 6-7.
- Degli Atti C, Tozzi AE, Gaetano Ciliento1, Pomponi M, Rinaldi S & Raponi M 2011, *Healthcare workers' and parents' perceptions of measures for improving adherence to hand-hygiene*, BMC Public Health, vol. 11, pp. 446.
- Fakhry M, Hanna GB, Anderson L, Holmes A & Nathwani D 2012, *Effectiveness of audible reminder on hand hygiene adherence,* American Journal of Infection Control, vol. 40, pp. 320-3.
- McGuckin M, Storr J, Longtin Y, Allegranzi B & Pittet D 2009, *Patient Empowerment and Multimodal Hand Hygiene Promotion: A Win-Win Strategy*, American Journal of Medical Quality, vol. 26(1), pp. 10-17.
- McGuckin M & Longtin Y, March 2013, Patient Participation in Hand Hygiene Promotion and Improvement – Pros and Cons, Sponsored by the WHO Patient Safety Agency, http://webbertraining.com/files/library/docs/427.pdf, accessed 3 May 2013
- Wu KS, Lee SS, Chen JK, Tsai HC, Li CH, Chao HL, Chou HC, Chen YJ, Ke CM, Huang YH, Sy CL, Tseng YT & Chen YS 2013, Hand hygiene among patients: Attitudes, perceptions, and willingness to participate, American Journal of Infection Control, vol. 41, pp. 327-31.

Appendix 3: Key literature, approaches and resources from other jurisdictions on multimodal programs

Multimodal strategies, WHO, 2009[57]

Components of the WHO multimodal hand hygiene improvement strategy:

- system change – access to necessary hand hygiene infrastructure
- training and education – regular training in the *5-Moments* for hand hygiene and procedures of hand washing and hand rubbing to all healthcare workers
- evaluation and feedback – monitoring hand hygiene compliance, along with attitudes and knowledge among healthcare workers and providing feedback to staff
- reminders in the workplace – prompts about the importance of hand hygiene and appropriate indications and procedures for performing it
- institutional safety climate – awareness raising and making hand hygiene a priority for:
- active participation at both the organisational and healthcare worker level
- awareness of individual and organisational capacity to improve (self-efficacy)
- partnership with patients and patient organisations.

Literature example 1 – teaching hospital United States, 2012[58]

Objective: To improve healthcare worker hand hygiene and reduce healthcare-associated infections via a 3-year interrupted time series with multiple sequential interventions and 1-year post-intervention follow-up.

Interventions: (1) leadership/accountability; (2) measurement/feedback; (3) hand sanitiser availability; (4) education/training; and (5) marketing/communication.

Measurement: Monthly changes in observed hand hygiene compliance (%) and rates of healthcare-associated infections per 1,000 inpatient days.

Results: Hand hygiene compliance increased significantly from 41 to 87 per cent ($p<0.01$), and improved further to 91 per cent ($p<0.01$) the following year. Nurses achieved higher hand hygiene compliance (93 per cent) than physicians (78 per cent). There was a significant, sustained decline in the healthcare-associated infection rate from 4.8 to 3.3 ($p<0.01$) per 1,000 inpatient days.

Conclusions: Our initiative was associated with a large and significant hospital-wide improvement in hand hygiene which was sustained through the following year and a significant, sustained reduction in the incidence of healthcare-associated infections. The observed increased incidence of the tracer condition supports the assertion that hand hygiene improvement contributed to infection reduction. Persistent variation in hand hygiene performance among different groups.

Literature example 2 – university hospital Netherlands, 2012[59]

Methods: This was an observational, prospective, before-and-after study. We measured hand hygiene knowledge and hand hygiene compliance before (baseline), directly after (post strategy), and six months

[57] WHO 2009, *Chapter 21. The WHO Multimodal Hand Hygiene Improvement Strategy*, WHO Guidelines on Hand Hygiene in Health Care, pp. 190-193, www.who.int/gpsc/5may/background/en/, accessed 24 April 2013

[58] Kirkland KB, Horma KA, Lasky RA, Ptak JA, Taylor EA & Splaine ME 2013, *Impact of a hospital-wide hand hygiene initiative on healthcare-associated infections: results of an interrupted time series*, BMJ Quality & Safety, vol. 21, pp. 1019-1026

[59] Tromp M et al 2012.

after the performance of hand hygiene team strategies (follow-up). The study was composed of employed nurses/physicians working in the department of internal medicine of a university hospital. We performed a multifaceted improvement program including hand hygiene education, feedback, reminders, social influence activities including the use of role models, and improvement of hand hygiene facilities.

Results: 92 nurses and physicians were included. Compared with baseline, there was a significant improvement in the overall mean hand hygiene knowledge score at post strategy (from 7.4 to 8.4) and follow-up (from 7.4 to 8.3). The overall hand hygiene compliance was 27 per cent at baseline, 83 per cent at post strategy, and 75 per cent at follow-up. At baseline, the compliance rate was 17 per cent in nurses and 43 per cent in physicians and significantly improved to 63 per cent in nurses and 91 per cent in physicians at follow-up.

Conclusion: Our multifaceted hand hygiene improvement program resulted in a sustained improvement of hand hygiene knowledge and compliance in nurses as well as physicians.

Literature example 3 – bundling of hand hygiene interventions, 2012[60]

The authors propose that a consistent, bundled methodology, implemented at multiple sites would standardise processes and allow comparison of outcomes. The eight key components of a hand hygiene bundle are below with examples:

- establish ongoing monitoring and feedback on infection rate
- establish administrative leadership and support (top down, clear policies and procedures, culture change that directly links hand hygiene with patient safety)
- establish a multidisciplinary design and response team
- provide ongoing education and training for staff, patients, families and visitors (online learning, demonstration displays, pocket cards)
- ensure hand hygiene resources are accessible and facility wide at the point of care
- reinforce hand hygiene behaviour and accountability (positive reinforcement such as recognition programs and negative reinforcement such as personnel action)
- provide reminders throughout the healthcare setting (posters, displays, real-time feedback, role models and audible alerts)
- establish ongoing monitoring and feedback of hand hygiene compliance (results distributed, displayed with regular discussion at staff meetings).

Ontario, Canada: 'Just Clean Your Hands' Program[61]

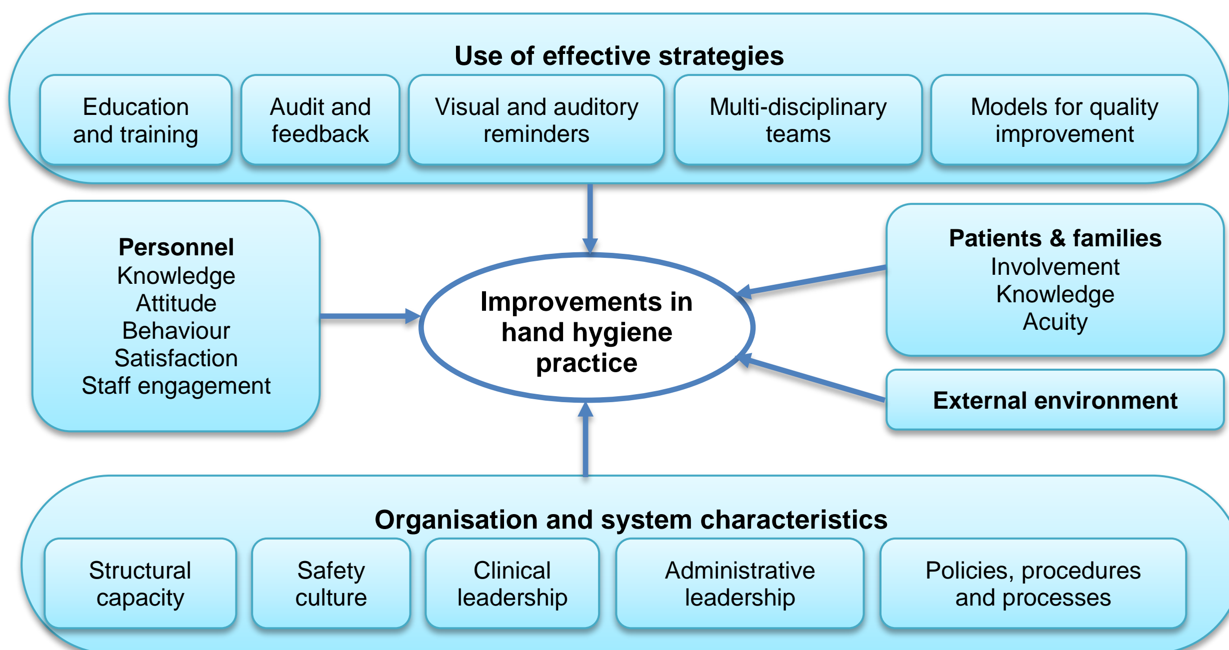
Evidence-based hand hygiene program that builds on the work done by the WHO and the United Kingdom. As a province-wide hand hygiene program, it is available to all acute care settings in Ontario. Like the WHO campaign, the improvement program incorporates:

- a communications toolkit
- ways to demonstrate senior management and administration support
- information on environmental modifications
- champions and role-models
- education of healthcare workers, and observation and feedback.

[60] Pincock T, Bernstein P, Warthman S & Holst E 2012, *Bundling hand hygiene interventions and measurement to decrease healthcare-associated infections*, American Journal of Infection Control, vol. 40, pp. S18-S27.

[61] Ontario Ministry of Health and Long-term Care, www.health.gov.on.ca/en/ms/handhygiene/http://www.justcleanyourhands.ca/, accessed 8 August 2013

Best practice – the Joint Commission United States, factors affecting success[62]



Examples of existing tools – Australia

Hand Hygiene Australia	Resources and tools for health services to implement the NHHI www.hha.org.au/home.aspx
NSW Health	New South Wales hand hygiene program – policy and guidelines and tools to assist, www0.health.nsw.gov.au/quality/hai/tp_hygiene.asp
SA Health	SA Health hand hygiene program – Introduction, guidelines and policy directive, audit tools, auditor guides, additional implementation tools, 5 moments, hand hygiene presentations, hand hygiene activities www.health.sa.gov.au/INFECTIONCONTROL/Default.aspx?tabid=202
Queensland Health	Guidelines, audit tool, education, fact sheets, hand hygiene program roles 'lifesaver' and 'champion role' resources including posters and videos www.health.qld.gov.au/chrisp/hand_hygiene/HH_resources.asp
WA Health	WA Health and hand hygiene – facts about hand hygiene monitoring and reporting including reports on hand hygiene compliance rates and how to interpret the data, audit tools, *5-Moments* and resources for healthcare workers www.health.wa.gov.au/handhygiene/home/national.cfm

Examples of existing tools – overseas

Canada	Canadian Patient Safety Institute, *Canada's hand hygiene challenge* Hand hygiene toolkit, human factors toolkit, patient and family guide, online e-learning www.saferhealthcarenow.ca/EN/shnNewsletter/Pages/CanadasHandHygieneChallenge.aspx Safer Healthcare Now!, *Stop! Clean your hands day*, Monday 6 May 2013 www.handhygiene.ca/English/Events/StopCleanYourHandsDay/Pages/default.aspx?utm_source=HandHygieneCA&utm_medium=Newsviewer&utm_campaign=CleanHandsDay
New Zealand	Health Quality and Safety Commission New Zealand www.handhygiene.org.nz/index.php?option=com_content&view=featured&Itemid=101 The Clean Hands Chronicle including Clean Hands Champion 2013 award

[62] The Joint Commission 2009, *Measuring hand hygiene adherence overcoming the challenges*, p. 109, www.jointcommission.org/assets/1/18/hh_monograph.pdf, United States, accessed 24 April 2013

United Kingdom	National Patient Safety Agency, *cleanyourhands campaign* aims to improve the hand hygiene of healthcare staff at the point of care Multimodal hand hygiene strategy, resources and tools www.npsa.nhs.uk/cleanyourhands/about-us/
United States	Centers for Disease Control and Prevention (CDC), hand hygiene in healthcare settings Guidelines, patient empowerment materials, the latest technological advances in hand hygiene adherence measurement, frequently asked questions, links to educational tools published by the WHO and others www.cdc.gov/handhygiene/
WHO	*SAVE LIVES: Clean Your Hands* - WHO's global annual campaign, guidelines, toolkits, videos, podcasts, webinars, 5 moments brochures www.who.int/gpsc/5may/en/

Want to know more – additional literature

- Aboumatar H, Ristaino P, Davis RO, Thompson CB, Maragakis L, Cosgrove S, Rosenstein B & Perl TM 2012, *Infection Prevention Program Based on the PRECEDE Model: Improving Hand Hygiene Behaviors among Healthcare Personnel*, Infect Control Hosp Epidemiol, vol. 33(2), pp. 144-151.
- Costers M, Viseur B, Catry B & Simon A 2012, *Four multifaceted countrywide campaigns to promote hand hygiene in Belgian hospitals between 2005 and 2011: impact on compliance to hand hygiene*, Eurosurveillance, vol. 17(18), pp. 12-17.
- Doron S, Kifuji K , Hynes BT; Dunlop D, Lemon T, Hansjosten K, Cheng T, Curley B, Snydman DR, Fairchild DG 2011, *A Multifaceted Approach to Education, Observation, and Feedback in a Successful Hand Hygiene Campaign*, The Joint Commission Journal on Quality and Patient Safety, vol. 37(1).
- Fuller C, Michie S, Savage J, McAteer J, Besser S, Charlett A, Hayward A, Cookson BD, Cooper BS, Duckworth G, Jeanes A, Roberts J, Teare L & Stone S 2012, *The Feedback Intervention Trial (FIT) – Improving Hand-Hygiene Compliance in UK Healthcare Workers: A Stepped Wedge Cluster Randomised Controlled Trial*, PlosOne, vol. 7(10), pp. 1-9.
- Huis A, Holleman G, van Achterberg T, Grol R, Schoonhoven L & Hulscher M 2013, *Explaining the effects of two different strategies for promoting hand hygiene in hospital nurses: a process evaluation alongside a randomised control trial*, Implementation Science, vol. 8, pp. 41.
- Huis A, Schoonhoven L, Grol R, Donders R, Hulscher M & van Achterberg T 2013, *Impact of a team and leaders-directed strategy to improve nurses' adherence to hand hygiene guidelines: A cluster randomised trial,* International Journal of Nursing Study, vol. 50, pp. 464-474.
- Rees S, Houlahan B, Safdar N,Sanford-Ring S, Shore T & Schmitz M 2013, *Success of a Multimodal Program to Improve Hand Hygiene Compliance*, J Nurs Care Qual.
- Reichardt C, Koniger D, Bunte-Schonberger K, van der Linden P, Monch N, Schwab F, Behnke M & Gastemeier 2013, *Three years of national hand hygiene campaign in Germany: what are the key conclusions for clinical practice?*, Journal of Hospital Infection, vol. 83(S1), pp. S11-S16.
- Stewardson A & Pittet D 2012, *Anatomy of a successful multimodal hand hygiene campaign*, BMJ Quality and Safety, vol. 21(12), pp. 973-975.

Glossary and abbreviations

Term	Definition
5-Moments	developed by the WHO in 2009 and adapted by Hand Hygiene Australia for the Australian healthcare setting
ACSQHC	Australian Commission on Safety and Quality in Health Care
AMA	Australian Medical Association
the Department	Department of Health, Victoria
Expert Panel	Expert Panel on Hand Hygiene established by the Minister for Health
hand hygiene	a general term for the process that reduces the number of microorganisms on hands and includes the two techniques of hand rub and hand washing
hand rub	application of a waterless antimicrobial agent (for example, alcohol-based hand rub) to the surface of the hands
hand washing	use of soap/solution (plain or antimicrobial) and water (if hands are visibly soiled), followed by patting dry with single-use towels
HH	hand hygiene
HHA	Hand Hygiene Australia
HHCApp	Hand Hygiene Compliance Application, Hand Hygiene Australia
NHHI	National Hand Hygiene Initiative
NHPA	National Health Performance Authority
NSQHS standards or the national accreditation scheme	ACSQHC, National Safety and Quality Health Service Standards
NHMRC	National Health and Medical Research Council
NHS	National Health Survey, United Kingdom
PAS	Performance Assessment Score (in the Statement of Priorities, Department of Health)
RACS	Royal Australasian College of Surgeons
SAB	*Staphylococcus aureus* bacteraemia
SoP	Statement of Priorities, Department of Health
VPSM	Victorian Patient Satisfaction Monitor
WHO	World Health Organization

References

Australian Commission on Safety and Quality in Health Care (ACSQHC), *National Hand Hygiene Initiative*, www.safetyandquality.gov.au/our-work/healthcare-associated-infection/hand-hygiene/, Commonwealth Government of Australia, accessed 24 April 2013.

ACSQHC 2011, *Standard 2 Partnering with consumers*, National Safety and Quality Health Service (NSQHS) standards, www.safetyandquality.gov.au/our-work/accreditation/nsqhss/safety-and-quality-improvement-guides-and-accreditation-workbooks/, Commonwealth Government of Australia, accessed 24 April 2013.

ACSQHC 2012, *Standard 3 Preventing and Controlling Healthcare Associated Infections*, NSQHS standards, www.safetyandquality.gov.au/our-work/accreditation/nsqhss/safety-and-quality-improvement-guides-and-accreditation-workbooks/, Commonwealth Government of Australia, accessed 24 April 2013.

Australian Institute of Health and Welfare (AIHW) 2013, *Hospital performance: hospital-associated infections: Staphylococcus aureus bacteraemia (SAB) in Australian public hospitals 2010-11*, www.aihw.gov.au/haag09-10/hospital-performance-staphylococcus-aureus-bacteraemia, Commonwealth Government of Australia, accessed 10 July 2013.

Department of Health, *Australian Charter of Healthcare Rights in Victoria*, www.health.vic.gov.au/patientcharter/victoria/, State Government of Victoria, accessed 24 April 2013.

Department of Health 2011, *Cleaning Standards for Victorian Health Facilities*, www.health.vic.gov.au/cleaningstandards, State Government of Victoria, accessed 12 August 2013.

Department of Health, *Consumer, carer and community participation and information*, www.health.vic.gov.au/consumer/index.htm, State Government of Victoria, accessed 20 August 2013.

Department of Health 2013, *Survey of Victorian public health services – dissemination and use of hand hygiene compliance data*, State Government of Victoria (not published).

Department of Health, *Victorian Health Services Performance Monitoring Framework*, www.health.vic.gov.au/hospital-performance/, State Government of Victoria, accessed 7 July 2013.

Department of Health May 2011, *Victorian Health Priorities Framework 2012–2022: Metropolitan Health Plan*, www.health.vic.gov.au/healthplan2022/, Victorian government, accessed 5 July 2013.

Department of Health 2011, *Victorian Health Priorities Framework 2012–2022: Rural and Regional Health Plan*, www.health.vic.gov.au/healthplan2022/, State Government of Victoria, accessed 5 July 2013.

Department of Health, *Victorian Patient Satisfaction Monitor (VPSM)*, www.health.vic.gov.au/patsat/, State Government of Victoria, accessed 5 July 2013.

Department of Health and UltraFeedback Pty Ltd, *Victorian Patient Satisfaction Monitor, Year 11 Annual Report, July 2011 to June 2012*, pp. 82, State Government of Victoria.

Grayson ML, Russo PL, Cruickshank M, Bear JL, Gee CA, Hughes CF, Johnson PDR, McCann R, McMillan AJ, Mitchell BG, Selvey CE, Smith RE & Wilkinson IJ 2011, 'Outcomes from the first 2 years of the Australian National Hand Hygiene Initiative'*, MJA*, vol. 195(10), pp. 615-619.

Hand Hygiene Australia (HHA), *Audit Period 1 2013 (March)*, http://hha.org.au/LatestNationalData.aspx, accessed 7 July 2013

HHA, *Hand Hygiene Compliance Application*, http://www.hha.org.au/HHComplianceSystem.aspx, accessed 7 July 2013.

HHA, Grayson, ML, Russo P, Ryan K, Havers S & Heard K (Editors), *5-Moments for hand hygiene manual* Hand Hygiene Australia, http://hha.org.au/UserFiles/file/Manual/HHAManual_2010-11-23.pdf*,* accessed 16 April 2013.

HHA, *Royal Australasian College of Surgeons Hand Hygiene Online Learning Package*, www.hha.org.au/home/racs.aspx, accessed 7 July 2013.

Kirkland KB, Horma KA, Lasky RA, Ptak JA, Taylor EA & Splaine ME 2013, 'Impact of a hospital-wide hand hygiene initiative on healthcare-associated infections: results of an interrupted time series', *BMJ Quality & Safety*, vol. 21, pp. 1019-1026.

Landers T, Abusalem S, Coty, M & Bingham J 2012, 'Patient-centred hand hygiene: The next step in infection prevention', *American Journal of Hospital Infection*, vol. 40, pp. S11–S17.

Magiorakos AP, Leens E, Drouvot V, May-Michelangeli L, Reichardt C, Gastmeier P, Wilson K, Tannahill M, McFarlane E & Simon A 2010, *Pathways to clean hands: highlights of successful hand hygiene implementation in strategies in Europe*, Eurosurveillance, www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19560, accessed 16 April 2013.

McGuckin M & Govednik J 2013, 'Patient empowerment and hand hygiene, 1997–2012', *Journal of Hospital Infection*, doi: 10.1016/j.jhin.2013.01.014.

National Health and Medical Research Council (NHMRC) 2010, *B1.1 Hand Hygiene*, Australian Guidelines for the Prevention and Control of Infection in Healthcare, www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b1-1-hand-hygiene, Commonwealth Government of Australia, accessed 16 April 2013.

National Health Performance Authority (NHPA), *Hand hygiene: about the data*, www.myhospitals.gov.au/safety-and-quality#hh, Commonwealth Government of Austrlaia, accessed 7 July 2013.

Ontario Ministry of Health and Long-term Care, www.health.gov.on.ca/en/ms/handhygiene/http://www.justcleanyourhands.ca/, accessed 8 August 2013.

Pincock T, Bernstein P, Warthman S & Holst E 2012, 'Bundling hand hygiene interventions and measurement to decrease healthcare-associated infections', *American Journal of Infection Control*, vol. 40, pp. S18-S27.

Pittet D, Panesar SS, Wilson K, Longtin Y, Morris T, Allan V, Storr J, Cleary K & Donaldson L 2011, 'Involving the patient to ask about hospital hand hygiene: a National Patient Safety Agency feasibility study', *Journal of Hospital Infection*, vol. 77, pp. 299–303.

Queensland University of Technology, Hand Hygiene Evaluation Project, https://wiki.qut.edu.au/display/HHE/Hand+Hygiene+Evaluation+Project, accessed 24 April 2013.

The Joint Commission 2009, *Measuring hand hygiene adherence overcoming the challenges*, p. 109, www.jointcommission.org/assets/1/18/hh_monograph.pdf, United States, accessed 24 April 2013.

Tromp M, Huis A, de Guchteneire I, van der Meer J, van Achterberg T, Hulscher M & Bleeker-Rovers C 2013, 'The short-term and long-term effectiveness of a multidisciplinary hand hygiene improvement program', *American Journal of Infection Control*, vol. 40, pp. 732-6.

VICNISS Coordinating Centre, Victorian public health services aggregate data for Audit Period 1 2013 (March), www.vicniss.org.au/HCW/HandHygiene.aspx, accessed 7 July 2013.

Victorian Quality Council, *Hand Hygiene Project*, www.health.vic.gov.au/qualitycouncil/activities/handhyg.htm, Victorian government, accessed 24 April 2013.

World Health Organization 2009 (WHO) 2009, 'Chapter 21 The WHO Multimodal Hand Hygiene Improvement Strategy', *WHO Guidelines on Hand Hygiene in Health Care*, pp. 190-193, www.who.int/gpsc/5may/background/en/, accessed 24 April 2013.

WHO 2009, *Part V. Patient involvement in hand hygiene promotion*, WHO Guidelines on Hand Hygiene in Health Care, pp. 190-195, www.who.int/gpsc/5may/background/en/, accessed 24 April 2013

health