

Start Clean Victorian Infection Control Strategy 2007–11

Victorian Department of Human Services

Start Clean

Victorian Infection Control
Strategy 2007-11

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Introduction

Infection associated with health care is one of the most common adverse outcomes in health care systems in the developed world.¹ The patients most at risk are the very sick, the very old and very young—those who have benefited substantially from advances in medicine, surgery and health technologies. While not all hospital-acquired infections (HAIs) can be prevented, we *can* ensure that systems are in place to minimise their occurrence.

The Victorian Infection Control Strategy 2007–11 is a comprehensive direction for the prevention, detection and management of HAIs in the short, medium and long term. The strategy is informed by a range of sources, such as:

- the Victorian Quality Council (VQC) Hand Hygiene Project
- the VQC Hand Hygiene Sustainability Forum
- the recommendations of the Multi-Resistant Organism Consensus Conference (held in December 2005)
- the UK Clean Hands Project through the National Patient Safety Agency of the NHS.

Background

Knowledge about the reservoirs, transmission dynamics and control of HAIs remains elusive because of the nature of outbreaks, and the difficulty in randomising many infection control interventions. Much of the literature about the containment of HAIs comes from retrospective, observational studies. Several interventions are usually introduced at the same time in both endemic and the outbreak settings. While these are often associated with a subsequent fall in HAIs, it is impossible to assess the success of the individual interventions. A fall in rates after an intervention may not always be a direct result of that intervention, because rates of endemic disease tend to rise and fall over time.²

The Victorian Government established the Victorian Hospital Acquired Infection Surveillance System (VICNISS) in 2002 to coordinate infection surveillance activities in Victorian public hospitals. The data enables health services to monitor and assess their performance against other hospitals, and against the statewide aggregate. Health services also use the system to monitor new programs or infection control measures, and assess their performance to improve their quality of care.

The Victorian Quality Council (VQC) statewide Hand Hygiene Project has had significant success in reducing methicillin-resistant *Staphylococcus aureus* (MRSA) rates. The project involved the rollout of education about hand hygiene principles to all staff at 76 participating hospitals and the collection of outcome indicators to measure hand hygiene compliance, hand hygiene product use and MRSA clinical isolate rates.

The coordinating centre for this project collected data on all MRSA clinical isolates from the 76 hospitals and from six hospitals participating in a 24-month pilot that preceded the project. The pilot results demonstrated a reduction of MRSA clinical isolates by 719 during the period of the project. In the two years before the implementation of the pilot, there had been no reduction in MRSA clinical isolates. The final analysis suggests that 60 patients may have been prevented from developing MRSA bacteraemia.³

Similar programs in the UK demonstrate that sustainability strategies are the key to the long-term success of these projects. The VQC Hand Hygiene Project has had significant success; however, feedback suggests that the program is not sufficiently mature to expect the gains be sustained, should FTE funding be withdrawn now.

Victorian Infection Control Strategy

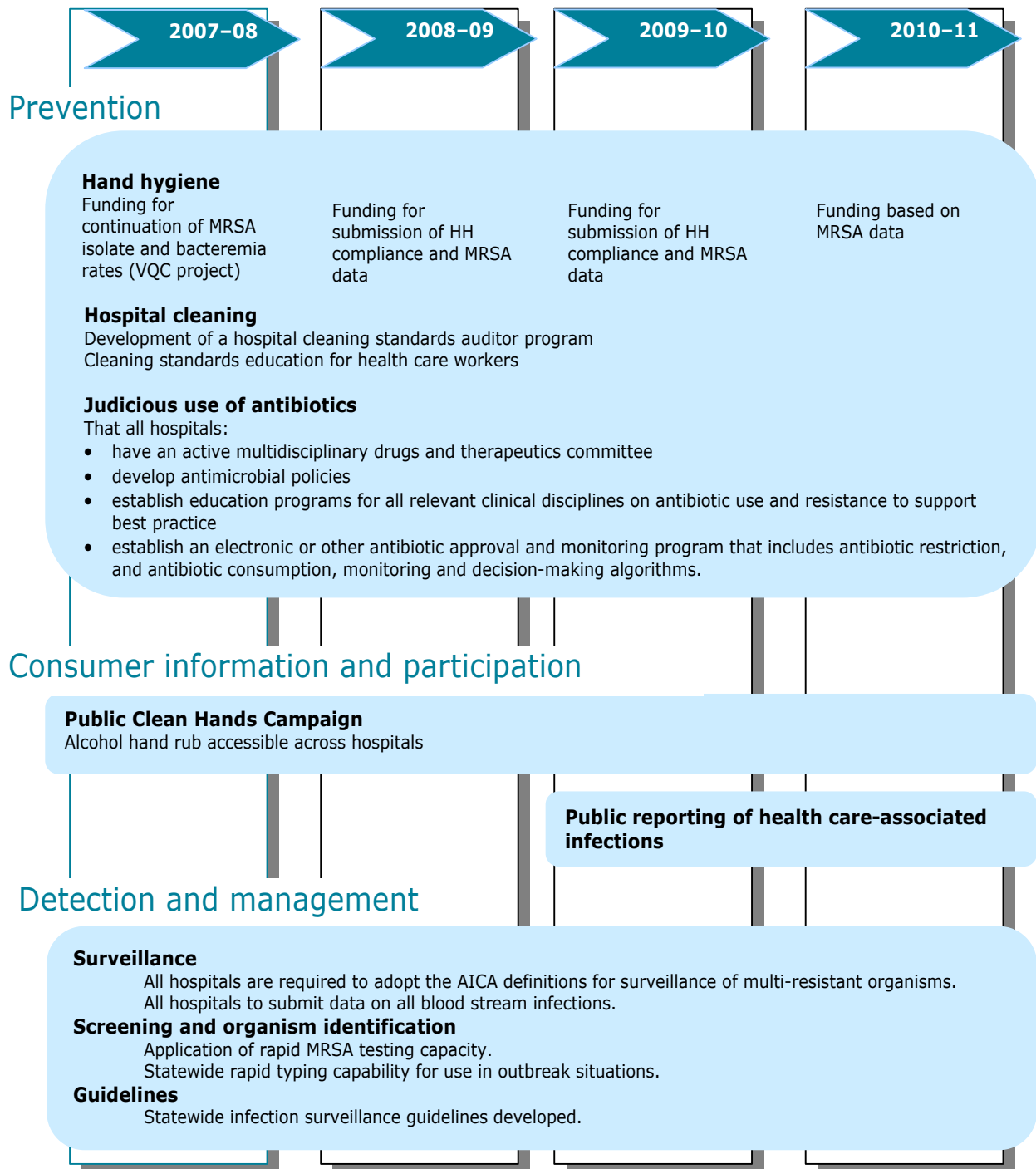
This strategy provides a comprehensive direction for the prevention, detection and management of HAIs in the short, medium and long term. It introduces a 'pay for performance' concept aimed at achieving effective implementation.

Service-focused payments will be provided initially for the collection and submission of agreed datasets, in years 2–3 for improvement in predefined process indicators, and in year 4 in improvement in predefined outcome indicators.

The strategy is supported by \$10 million of funding to facilitate the three key components:

1. prevention
2. consumer information and participation
3. detection and management.

Prevention, consumer information and participation, and detection and management



Prevention

Hand hygiene

The major transmission route for multi-resistant organisms (MROs) in health care facilities is by direct contact via the hands of health care workers, or possibly indirectly, via contaminated equipment used between patients.

Hand hygiene has been an effective infection control measure since 1847, when Ignaz Semmelweis, a Hungarian physician, demonstrated that puerperal fever ('childbed fever') was contagious, and that the number of cases could be drastically reduced if the doctors washed their hands carefully before dealing with a woman in labour.

There has recently been a resurgence in the promotion of hand hygiene as an effective method of preventing transmission of infections. The UK, Europe and the US have developed and promulgated hand hygiene campaigns in their health care systems, with the aim of reducing HAIs.^{4, 5}

The introduction of an alcohol-chlorhexidine hand hygiene solution, together with a detailed culture change program has been identified as improving hand hygiene compliance and reducing nosocomial MRSA, despite high levels of MRSA endemicity.⁶

In 2004 the VQC initiated and funded the Victorian Hand Hygiene Project as a pilot in six Victorian public hospitals to reduce the incidence of HAIs. The project actively promoted the use of alcohol hand rubs for all health care workers, carried out observational studies to monitor hand hygiene compliance, provided feedback to staff and monitored MRSA rates. The VQC project was then successfully rolled out during 2005–06 to all public hospitals in Victoria.

Hand hygiene-compliance strategy for July 2007 to June 2008

Hand hygiene funding will be provided to hospitals in 2007–08 to continue education, collection of hand hygiene compliance and MRSA data requirements.

Austin Health will continue its role in the collection and collation of hand hygiene compliance and MRSA data in 2007–08.

Funding requirements of health services and hospitals include the implementation and maintenance of hand hygiene products in all wards and clinical areas. A target of an overall mean hand hygiene compliance of 55 per cent in all audited areas by June 2008 has been set. Hospital hand hygiene compliance rates will be reported in Quality of Care reports.

Hand rub must be available in all ward areas attached to (or near) each patient bed and at the entrance to wards, lifts and at hospital entrances.

In 2008–10 funding will be provided based on the submission of hand hygiene compliance data to an agreed benchmark. Beyond 2010 a performance-based funding program will be developed based on MRSA isolate and bacteremia rates.

Hospital cleaning

The *Cleaning Standards for Victorian Public Hospitals* were implemented across all public Victorian hospitals in January 2000, and updated in 2005. The Standards apply to all hospitals—whether cleaning is conducted in house or contracted out. They were designed as a benchmark against which in-house services can be assessed, as the basis for specifications if cleaning services are contracted out, and as the framework for auditing of cleaning services by cleaning supervisors, hospital management or the Department of Human Services.

[Development of a hospital cleaning standards auditor program](#)

The Department of Human Services will develop an education program for cleaning standards auditors, with these objectives:

- to provide a sufficient supply of adequately trained cleaning standards auditors
- to enhance inter-auditor reliability and a consistent approach to auditing through the delivery of uniform educational program

- to train cleaning supervisors, infection control practitioners or other appropriately qualified personnel to undertake audits according to the Cleaning Standards within Victorian public hospitals and health services
- to provide a mentoring program, which will support the sustainability of the standards and provide for train-the-trainer opportunities
- to ensure a development framework that continuously involves consultation with the target group and other stakeholders.

Along with the auditor program, a handbook will be developed to provide a body of work to act as a reference tool for authorised cleaning standards auditors and for health services being audited.

Cleaning standards education for health care workers

The provision of cleaning standards education for health care workers (those performing cleaning tasks) is an essential part of providing a safe and healthy working environment in health care facilities. The implementation of appropriate education as prescribed by the *Cleaning Standards* will reduce the potential for worker, patient and visitor exposure to infectious diseases. The development of cleaning standards education aims to:

- investigate the availability of suitable, appropriate training for individuals who deliver cleaning services
- ensure the provision of a *Cleaning Standards* education program, which will help sustain the Standards and provide a consistent approach to cleaning outcomes
- ensure that existing courses adequately capture the aims of the Cleaning Standards throughout all relevant units, and in the assessment of skills and knowledge.

Judicious use of antibiotics

The use and over-use of antibiotics is still the major factor contributing to the development of antimicrobial resistance in Australia. ⁷ The selective pressure exerted by the extensive use of very broad spectrum antibiotics increases opportunities for MROs to develop. Cefotaxime and ceftriaxone are now known to be associated with the emergence of VRE and resistant gram-negative bacteria, as well as *Clostridium difficile*-associated diarrhoea, and probably MRSA and resistant pneumococcus. ⁸

Many Australian centres have introduced antibiotic restriction programs which limit the use of certain antibiotics to particular specialist medical units or clinical indications, or for special approval. Two antibiotic approval/restriction systems have been developed and are in use in Victoria. Both have auditing, guidance and restriction capabilities, and both are reported as having a positive impact on the use of antibiotics within their respective development hospitals. Therefore it is recommended that *all* hospitals:

- have an active multidisciplinary drugs and therapeutics committee to provide guidance and regularly monitor usage data on antibiotics within their organisation
- develop antimicrobial policies within the framework of the *Therapeutic guidelines: antibiotic* (or current version)
- establish education programs for all relevant clinical disciplines on antibiotic use and resistance, to support best practice.

All hospitals will be required to introduce an electronic or other antibiotic approval and monitoring program which includes antibiotic restriction, and antibiotic consumption, monitoring and decision making algorithms to assist clinicians.

Consumer information and participation

Public reporting of infections associated with health care

The impact of public reporting of HAIs on the delivery of health care services is unknown. Advocates of mandatory public reporting of HAIs believe that by making such information publicly available, consumers can make better informed choices, and the quality of health care will be improved by a reduction in the number of HAIs.⁹ Some have expressed concern that the reliability of public reporting systems may be compromised by the use of differing methodologies in individual hospitals to collect information on HAIs. The US Health Infection Control Practices Advisory Committee (HICPAC) recommends a well-defined, supported and staged process to ensure the validity of data collection methods and subsequent reporting.

The UK has been bold and, in addition to mandating the reporting of MRSA bacteraemia, requires a year-on-year reduction in MRSA in UK hospitals, with a 50 per cent reduction target in cases over three years. A recent paper in the *British Medical Journal*¹⁰ cautions governments that set such targets, suggesting that measuring changes in rates of infection within hospitals, particularly if rates are low, may be problematic due to chance variability and regression to the mean. A change in rates may not mean a change in underlying risk; hospitals may actually be reducing risk, but are unable to demonstrate this through a reduction in observed cases on a year-on-year basis, particularly where MRSA rates are already low.

To avoid unintended consequences and to facilitate meaningful comparisons, the Department of Human Services will embark on a public reporting program from 2008–09.

Public clean hands campaign

Funding will be allocated by the Department of Human Services in 2007–08 to develop a consumer-targeted clean hands campaign similar to that of the National Patient Safety Agency (UK). The campaign will aim to engage consumers in their own care through the use of a range of educational material designed to increase patient confidence through tackling infections associated with health care.

All hospitals will also be required to provide antiseptic hand rub at the entrances to hospitals, lifts and all wards, in order to encourage visitors to participate in the prevention of the transmission of infection to patients.

Detection and management

Surveillance

The role of surveillance in combating and managing antimicrobial resistance is recognised as an important component of the World Health Organization (WHO) Global Strategy for Containment of Antimicrobial Resistance.^{11, 12} For the purposes of this document, 'surveillance' is defined as:

The ongoing and systematic collection, analysis, and interpretation of outcome-specific data essential to the planning, implementation and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to the control and prevention of human disease and injury.¹³

Active surveillance for MRSA, for example, combined with the use of contact precautions where MRSA is identified, has been demonstrated to be cost-effective in both the endemic situation¹⁴ and the outbreak situation.¹⁵ By preventing infections, health care dollars are made available (freed up) for other health care activities.

High quality information on HAIs and antimicrobial-resistant organisms is essential to tracking progress, investigating underlying causes and instituting prevention and control measures throughout the health care continuum.

All hospitals are required to adopt the Australian Council for Safety and Quality in Health Care-endorsed AICA definitions for surveillance of MROs, including MRSA, VRE, ESBLs and MRA.

A system will be developed in 2007–08 requiring all hospitals to submit data on all bloodstream infections. When the system is functional, the data will be used as a key performance indicator with the MRSA isolate rates for the Hand Hygiene Program.

Screening and organism identification

Screening may be an integral component of good infection control practice; however, criteria, extent, duration and type of screening depend on individual circumstances and requirements. The role of screening in patient care depends on the situation, the specific organism and whether that organism is causing or could cause a problem. Before any screening program can commence, its clear purpose should be identified, endorsed and undertaken in consultation with the infection control team. The impact of screening programs on laboratory resources should also be considered.¹⁴

Debate abounds on whether the screening of all patients at high risk of acquiring MRSA is necessary or practical in all health care settings. The costs of screening cultures, the logistics of increased numbers of patients requiring single rooms and contact precautions, and the lack of controlled trials demonstrating the efficacy of screening all need to be considered. However, if these measures are effective in preventing infections with MROs, there may be considerable benefits for patients.

Recent studies show that rapid diagnosis of MRSA colonisation from screening swabs using polymerase chain reaction-based (PCR) technology can reduce the time taken for detection of a carrier from days to hours. This is an important advance for the appropriate use of resources for the isolation and cohorting of patients.

Further genetic testing of organisms is required to determine whether isolates are identical, and whether they result from the same source. This is particularly important for hospital epidemiology and infection control measures. Access to technology that can rapidly identify organisms will assist infection control strategies to reduce the opportunities for cross-infection to other patients in the health service.

Over the next four years, \$3.4 million has been allocated to expand the capacity of hospitals to implement systems to rapidly diagnose MRSA and other significant organisms.

Guidelines

The Victorian Department of Human Services, with the assistance of the Victorian Advisory Committee on Infection Control, will develop and publish guidelines on the management of patients with multi-resistant organisms. The required surveillance activities, screening requirements when patients are admitted, transferred or cared for in high risk areas and pre-elective surgery will be included. These guidelines will be developed and published in 2007–08.

Appendix 1 The recommendations of the multi-resistant organism consensus conference held on 8 December 2005

Prevention

- 1.1 That all hospitals have an active multidisciplinary Drugs and Therapeutics Committee and an executive reporting system, to provide guidance and regularly monitor usage data within their organisation.
- 1.2 That all hospitals develop antimicrobial policies consistent with the current Therapeutic guidelines: antibiotic.
- 1.3 That all hospitals establish education programs for all relevant clinical disciplines on antibiotic use and resistance, to support best practice.
- 1.4 That all hospitals introduce an antibiotic approval and monitoring system (electronic or paper based) that ensures appropriate antibiotic use, monitors antibiotic consumption, and provides decision-making algorithms to assist clinicians.
- 1.5 That all hospitals establish processes and strategic links to ensure access to expert pharmacy and infectious diseases advice on antimicrobials.
- 1.6 That education materials on antibiotics and antibiotic resistance be developed and made accessible to consumers.

Surveillance

2 That all hospitals adopt and expand the Australian Council for Safety and Quality in Health Care endorsed AICA definitions for surveillance of multi-resistant organisms in Victorian hospitals to include hVISA, VISA, community-acquired MRSA, defined multi-resistant Gram-negative bacteria and *Clostridium difficile* as well as notifications of newly emerging resistance.

Data collection

- 3.1 That all hospitals be required to submit data on all blood stream infections.
- 3.2 A system/mechanism be established that allows data collection to monitor existing and emerging MROs from all hospitals.

Reporting

4.1 That data will be reported to a central body that has responsibility for collation, analysis and reporting back to individual hospitals and a publicly accessible forum.

Hand hygiene

5.1 That all Victorian hospitals implement and measure the effectiveness of a hand hygiene program.

MRSA

Patient screening

6.1 That high-risk patients are screened for colonisation, these may include patients:

- in the intensive care unit
- in renal dialysis
- transferred from long-term care facilities or other centres where MRSA may be endemic
- in other areas in the hospital that have high rates or are considered high risk, for example, burns, oncology
- with a history of previous MRSA infection or colonisation.

Preoperative surgical patients

6.2 All patients for whom elective joint replacement or cardiovascular surgery is planned should be screened for MRSA prior to surgery.

6.3 Choice of pre-operative antibiotic prophylaxis is appropriately altered for patients found to be colonised with MRSA.

Patient management

6.4 All patients colonised or infected with MRSA are cared for in single rooms where practicable (or cohorted with other patients with the same MRSA) and:

- standard precautions apply at all times
- contact precautions also apply to patients who may be considered at greater risk of dispersing MRSA, including patients with exfoliating skin conditions,

excessive wound drainage that cannot be contained, or copious uncontrolled sputum.

VRSA/VISA

7.1 That screening be carried out:

- in an outbreak situation
- for all immediate patient contacts.

7.2 That all patients with VRSA, VISA or h-VISA are cared for in a single room (or cohorted with other patients with the same organism) with contact precautions.

VRE

Patient screening

8.1 Screen in outbreak situations only.

8.2 Screen inpatients at high risk, these may include patients:

- in the intensive care unit
- in renal dialysis
- transferred from long-term care facilities or other centres where VRE may be endemic
- in other areas in the hospital that have high rates or are considered high risk, for example, burns, oncology
- with a history of previous VRE infection or colonisation.

Patient management

8.3 All inpatients colonised or infected with VRE are cared for in a single room using contact precautions. If single rooms are not available, cohorting of inpatients who are colonised with VRE can occur provided patients have good hygiene practices, are not incontinent, and do not have diarrhoea.

8.4 All outpatients (including dialysis patients in satellite units) who are faecally continent and have good hygiene practices are to be managed using standard precautions. A single room is not necessary.

Other MROs

9.1 That screening be carried out:

- in an outbreak situation
- for all immediate patient contacts.

9.2 All patients colonised or infected with other MROs are cared for in single room (or cohorted with other patients with the same MRO) using contact precautions where practicable.

Laboratory requirements

Quality control in MRO testing

10.1 That testing methods for MROs be optimised and standardised to improve uniformity of results across Victoria.

Access

10.2 That managing clinical staff and infection control staff have access to timely laboratory testing and typing of bacteria to support patient management.

Typing

10.3 That routine service for centralised standardised characterisation and typing of selected numbers and types of MROs be established, modelled on existing programs for typing bacteria important in food-borne disease and vaccine-preventable disease.

Testing

10.4 That work be undertaken with NATA to standardise for accreditation testing for MROs in infection control, for example, environmental specimens.

Evaluation and research

11 That targeted research and development be supported in the detection and characterisation of MROs and the dissemination and implementation of new capacity to diagnostic laboratories and for developing evidence-based strategies for control of MROs.

Endnotes

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