

Cleaning without chemicals at Monash Health

Case study: Conversation Series #2

Overview

Monash Health recently transformed environmental cleaning by introducing chemical-free cleaning. This cleaning has been applied across the entire health service, which has more than 40 sites, and Monash Health received the Premier's Sustainability Award – Health Category (2015) for this innovative project.

Staff from the department's Sustainability Unit spoke to Elizabeth Gillespie from the Monash Health Infection Control & Epidemiology Unit.

Can you tell us about the chemical-free cleaning approach?

The novel cleaning methodology incorporates microfibre and steam and is based on the findings of a pilot study conducted at Monash Health in 2011.¹ This was undertaken in a 32-bed acute ward and a 60-bed aged care ward. While the initial trial took place in 2011 the rollout across Monash Health took several years to complete. The cleaning involves the use of dampened reusable ultramicrofibre cloths for daily cleaning and a combination of steam and microfibre cloths and mops for discharge cleaning by environmental cleaning staff. Cleaning of medical equipment is undertaken by healthcare workers and involves the use of dampened disposable ultramicrofibre cloths.² No chemicals are used.

Were there any issues of infection control, and if so, how did you address them?

The cleaning methodology was initiated by the infection control team at Monash Health. In late 2010 the number of patients with multidrug-resistant organisms coming into the health service from the community was increasing. The time required to complete the traditional cleaning regime was problematic, with frequent delays. A review of cleaning methods was required to keep pace with the increased cleaning demand.³

Before commencing the pilot, the infection control team, together with the senior scientist for microbiology, undertook clinical testing. The aim was to assess the capacity of microfibre and steam technology to remove significant pathogens such as vancomycin-resistant *Enterococcus* (VRE) and *Clostridium difficile*. An evidence-based cleaning assessment method was also developed using a fluorescent lotion applied to 10 high touch points.⁴ This provided evidence for cleaning efficacy and a method for assessment.



Monash Health – Moorabbin operating suite staff

What have been the benefits?

The project has resulted in a broad range of benefits across cost, occupational health and safety, environmental and quality areas.

These benefits have included:

- reduced environmental impacts, for example, elimination of chemicals and reduction of water use for cleaning by 90 per cent
- reduced occupational health and safety risk, for example, risk of slips and falls reduced as floors are not left wet, reduced risk of chemical irritation as no chemicals are used, and reduced risk of back injury as heavy buckets of water have been eliminated
- human health benefits, for example, reduced physical effort as the use of steam eliminates the need for scrubbing and scouring surfaces (this means that cleaning can be completed more rapidly and staff do not become as tired during their shift)
- improved quality of cleaning, for example, every discharge clean is at the highest level whether or not a patient is known to be infected or colonised with a significant microorganism⁵
- cost savings, for example, in the order of \$50,000 per annum of saving with the elimination of chemicals and ~\$200,000 per annum of savings with the elimination of the need for dry cleaning of window drapes used at Monash Health (with the use of steam and microfibre, window drapes can be cleaned while still hanging at the window).
- improved efficiency, for example, the same discharge clean is performed for every patient, with cleaning staff using only microfibre and steam so dry cleaning and alternative chemicals for different patient groups are no longer needed. The time taken to clean a room after a patient is discharged is 40 minutes. Previously a high-level discharge clean may have taken up to 160 minutes.

What improvements to the quality of cleaning have you seen?

Every patient, regardless of their perceived risk, now has their room cleaned at the highest level with microfibre and steam.^{6,7} Our initial testing and our ongoing evidence has demonstrated that microfibre and steam cleaning removes harmful pathogens such as *Clostridium difficile*, multidrug-resistant bacteria such as VRE and CRE and viruses such as norovirus from environmental surfaces. This means the cleaned environment is rapidly able to be prepared for the next patient.

Can you tell us more about the occupational health and safety benefits?

The human health benefits are around the ease with which the cleaning can be undertaken. Scrubbing is no longer required because steam lifts scuff marks and stains easily; the steam effectively cleans corners of drawers and wardrobes and rapidly cleans difficult areas such as the joins of cotsides, bedrails and wheels. Adhesive tape is easily lifted with steam and then removed with microfibre. Since we started using this technology there have been no chemical-related incidents reported among our cleaning staff, no lifting injuries and no slips or falls as a result of wet floors following cleaning.⁷ In 2010, prior to the project beginning, these injuries cost Monash Health close to \$100,000 per annum in WorkCover claims.

What have been the key elements to this projects success?

The project highlighted the need for an evidence-based method of assessing cleaning, and this resulted in the development and implementation of the fluorescent marker system.⁴

Waste disposal is minimised and cloths and mops are recycled (for mattress inserts) at the time of replacement.

All new buildings at Monash Health incorporate the new technology from the planning stage. Using the technology means that 90 per cent less water (than in previous practice) is used to clean all Monash Health sites.

The purchase of chemicals and their disposal via the waterways has been eliminated. The volume of hypochlorite and detergent eliminated per annum was 709 litres and 6,154 litres respectively.

How did you engage and gain staff support?

Engaging staff and gaining their support involved developing flyers for cleaning staff to inform them about the trial and its staged implementation across the health service.

A specific flyer was developed for nursing and other clinical staff.

The Monash Health newsletter provided information on the success of the project. Information sessions were conducted at each site for infection control liaison staff, the infectious diseases team, the Healthcare Associated Infection Prevention and Control committee and at the Chief Executive forums.

Focus groups were held with cleaning staff following the clinical trial. The feedback from the participating staff was overwhelmingly positive. One cleaner had suffered with callouses on her hands for many years. After the introduction of the new technology, her callouses were gone.

Other cleaning staff reported that they were no longer exhausted at the end of their shift because using steam eliminated the need for them to scrub vigorously to remove scuff marks and stains.



Cleaning staff at Monash Health

Did you engage any other groups?

At the aged care facility where the trial was initially conducted, information sessions were required for family and visitors of residents. Family members were concerned that they could not smell the scent of chemicals when they entered the facility. Once the benefits of the new technology were communicated to family members, it was accepted with enthusiasm.

How has the project been adopted more broadly beyond the initial pilot?

Cleaning without chemicals has now been implemented in clinical areas across Monash Health, including Jessie McPherson Private Hospital, intensive care units, operating suites and at more than 40 satellite sites that are cleaned by an external provider.

Presentations have also been conducted at international and interstate forums. Site visits for other health services have demonstrated how the initiative has been implemented and how the system works. Seminars have been provided for infection control and cleaning staff outside Monash Health.

Do you have any advice for other health services wishing to implement this?

Our advice for other health services would be:

- Explain the science behind the methodology to the cleaning and clinical staff.
- Ensure that the infection prevention governance committee are well informed and support the initiative.
- Develop a trial and agree on the monitoring measures.
- Develop a business case to proceed beyond the trial.
- Implement a staged approach so that adjustments can be made to meet the requirements of specific sites within the health service.

Further information

For further information visit the [Monash Health](http://www.monashhealth.org.au) website <www.monashhealth.org.au>.

References

- Gillespie E, Wilson J, Lovegrove A, Scott C, Abernethy M, Kotsanas D, Stuart R, 'Environment cleaning without chemicals in clinical settings'. *Am J Infect Control* 2013; 41:461-3
- Gillespie E, Scott C, Wilson J, Stuart R, 'Pilot study to measure cleaning effectiveness in health care' *Am J Infect Control* 2012;40:477-8
- Abernethy M, Gillespie E, Snook K, Stuart R, 'Microfibre and steam for environmental cleaning during an outbreak' *AJIC* February 2013; 41:1134-5
- Gillespie E, Williams N, Sloane T, Wright L, Kotsanas D, Stuart R, 'Using microfiber and steam technology to improve cleaning outcomes in an intensive care unit' *AJIC* 2015;43(2):177-9
- Gillespie E, Lovegrove A, Kotsanas D, 'Health care workers use disposable microfiber cloths for cleaning clinical equipment' *AJIC* 2015;43(3):308-9
- Gillespie E, Wright P, Snook K, Ryan S, Vandergraaf S, Abernethy M, Lovegrove A, 'The role of ultraviolet marker assessments in demonstrating cleaning efficacy' *AJIC* 2015;43(12):1347-9
- Gillespie E, Brown R, Treagus D, James A, Jackson C, 'Improving operating room cleaning results with microfiber and steam technology'. *AJIC* 2015; 44(1):120-2

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