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# Hydrogen Peroxide Vapour (HPV) Initiative in Enhancing Environmental Hygiene in Acute Tertiary Setting

*Serena Oh Nian Ci, Environmental Services Department  
Dr Ling Moi Lin, Infection Prevention & Control Department  
Tan Kwee Yuen, Infection Prevention & Control Department  
Gan Boon Her, ISS Facility Services Pte Ltd  
Tan Pei Lian Tracy, ISS Facility Services Pte Ltd*

## Introduction

Healthcare Associated Infections (HAIs) are potential infections that patients might get while receiving treatment in the hospital, and many HAIs are preventable with proper environmental hygiene.

While regular cleaning can reduce the number of bacteria in a patient room, it does not always eliminate them completely and hence posing a risk of infection. Thus there's a need to sought for more efficient method known as Hydrogen Peroxide Vapour (HPV) technology to reduce the microbiological burden and increase in environmental hygiene.



HPV Technology – Bioquell BQ-50

## Aims

To make use of Hydrogen Peroxide Vapour (HPV) technology to enhance the environmental hygiene. An increased in environmental hygiene standard will provide a safer and clean environment for healthcare workers to administer patient care and in patient's recovery.

## Methodology

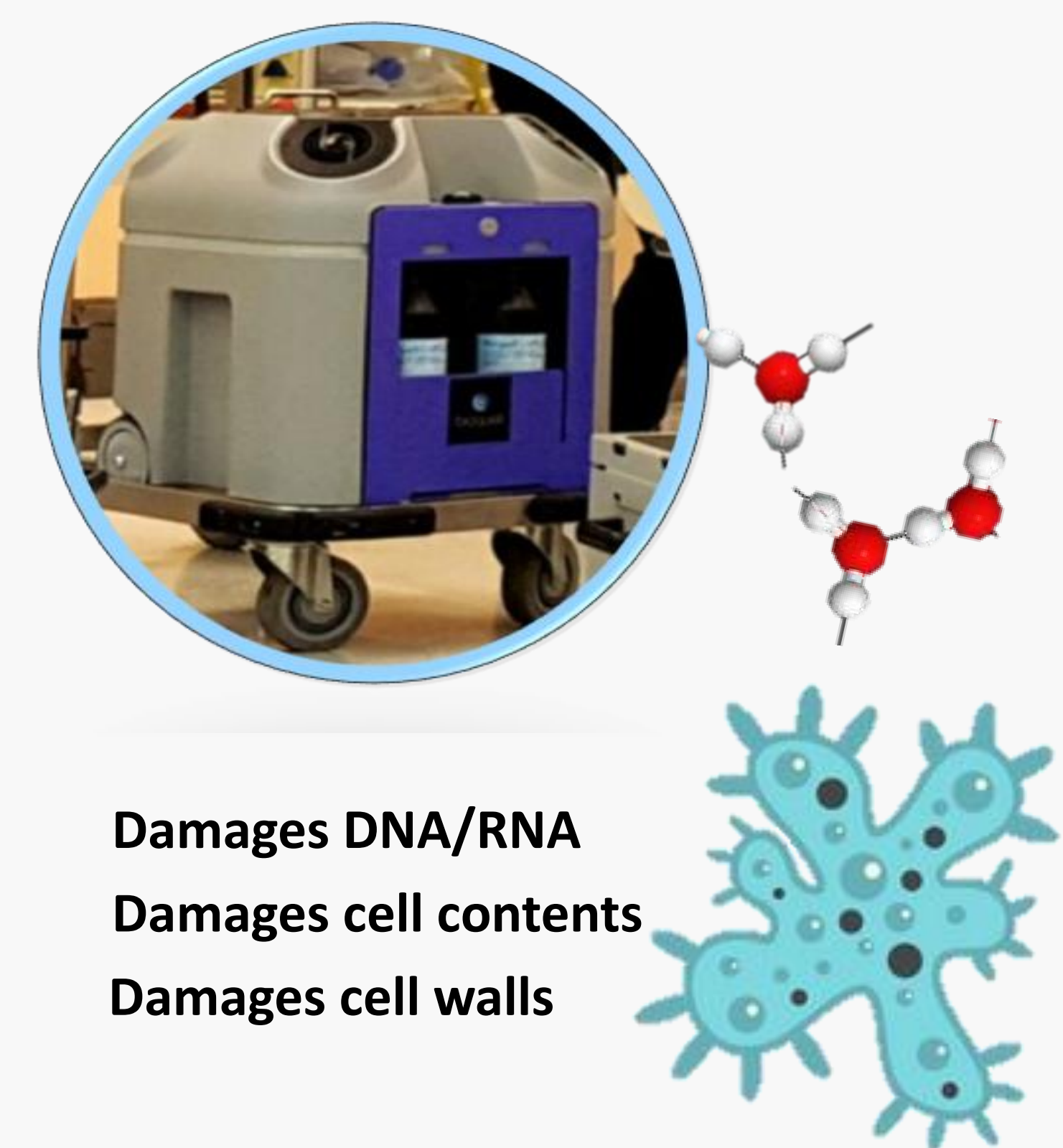
Define	Current manual process is tedious and not as efficient in eliminating HAIs causing pathogens
Measure	Reduction in pathogens count/microbiological burden
Analyse	Eliminate HAIs causing pathogens
Improve	Using Hydrogen Peroxide Vapour (HPV) technology
Control	Supervision Feedback from various stakeholders Training

## HPV Process

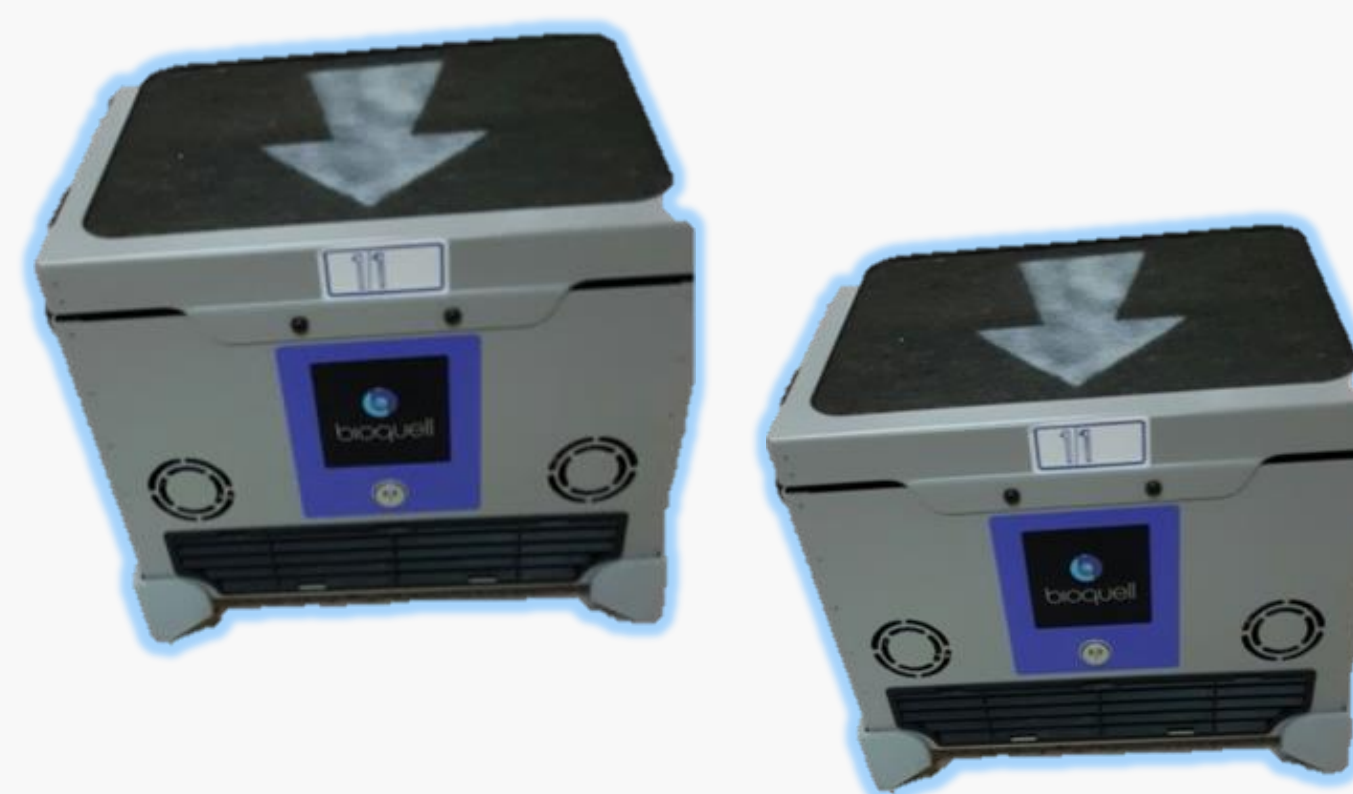


Wheeled HPV machine into a room that has been pre-cleaned. This area is then sealed with sensitive electronic equipment, beds and hospital mattresses safely left in the room.

HPV technology is introduced using powerful fans into the enclosed space. Specially developed technology ensures concentration levels to be brought up to saturation where micro-condensation occurs. This level is essential to provide a 99.9999% assurance of pathogens elimination.



Damages DNA/RNA  
Damages cell contents  
Damages cell walls



After treatment, aerators are used to bring the HPV concentrations back down to safe levels, leaving the room residues-free from the process.



Using dedicated sensors, the room is then approved for re-entry and can be immediately brought back into use.

## Results

Results show that HPV achieved a 6-log reduction<sup>1</sup>, which translates to lowering the number of microorganisms by 1,000,000 fold. It has also shown that HPV is capable of controlling an MRSA outbreak<sup>2</sup>.



Before



After

## Conclusion

It is evident that HPV is effective in enhancing environmental hygiene by eliminating broad spectrum microorganisms. This in turns provide a safer and clean environment for staff to administer patient care and to help in patient's recovery.

1. Fu, TY. et al., The Journal of Hospital Infection (2012), Efficacy, efficiency and safety aspects of hydrogen peroxide vapour and aerosolized hydrogen peroxide room disinfection systems.

2. Otter, Jonathan A. et al., American Journal of Infection Control (2010), Hydrogen peroxide vapor decontamination of an intensive care unit to remove environmental reservoirs of multidrug-resistant gram-negative rods during an outbreak