



In association with:



Innovative Solutions for Infection Control

Hotel Room Assessment for Viral and Pathogenic Transport Between Guests

Prepared August 2020

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1. Abstract

As a test case a hotel room was used as a case study to analyse bacterial contamination pre and post decontamination using a handheld airless sprayer and Hybrisans advanced non-alcohol sanitisers. The presence of bacteria and the way that cross-contamination is achieved was considered as a reasonable model for the transport of pathogenic organisms (including Coronavirus) in a system. Hybrisan Surface + Hands Sanitiser was successful in eradicating bacteria, yeast and mould on the hotel room tested and a decontamination regime is recommended.

2. Introduction

The client is a local vineyard who is keen to ensure that their customers, guests and staff are suitably protected against the potential risk of contracting Coronavirus in all public areas and hotel rooms. We at Hybrisan were asked to implement a testing regime to assess the bacterial cleanliness of a hotel room after check out prior to cleaning. Testing for virus on surfaces is complex and outside the scope of this trial. However, bacterial presence can be considered as a strong indicator of how pathogens can be transmitted via cross-contamination between users.

- A hotel room was chosen for the purpose of this study

Our approach was to determine key high contact touch points and to assess the bacterial load present at these points pre and post decontamination using Hybrisans polymeric Biocides and a handheld airless sprayer as a delivery mechanism.

3. Aims

The aims of this assessment were to:

- Determine high contact regions between guests and areas of a hotel room
- Use surface dip-slides to assess bacterial load at the high contact points Pre-Decontamination.
- Use airless sprayers to treat all high contact point with a view to decontamination and to repeat surface dip-slides to recover any remaining bacterial load.
- Incubate dip-slides and assess variation in bacterial contamination Pre and Post decontamination.
- Evaluate the data collected from the slides to determine levels of decontamination.

4. Methodology

In this case bacteria were used as an indicator for pathogenic cross-contamination as viral detection on a surface was beyond the scope of the analysis.

The procedure used for data collection and analysis was conducted as follows

1. Visual assessment of the hotel room to indicate high touch points. Touch points presented in appendix.
2. Surface dip-slides used to recover bacterial load pre treatment
3. A handheld airless sprayer was used to dispense Hybrisan's polymeric biocidal surface treatment.
4. Surface dip-slides used to recover any remaining bacterial load post treatment.

Dip-slides used: BTM2 Surface Dipslides – Nutrient TTC + Malt Extract for the recovery of bacteria, yeasts, moulds and fungi.

All dip-slides were then removed from the test site and incubated in the laboratory at Hybrisan's facility. The slides were then incubated at 30 degrees C for 120 hours to facilitate bacteria, yeast and mould growth.

5. Results and Discussion

5.1. Hotel Room

<i>Sample Point</i>	Bacterial Load (CFU/cm²)*		Yeast Load (CFU/cm²)		Mould Load	
	Pre	Post	Pre	Post	Pre	Post
1	40	2.5	12	2.5	None	None
2	40	2.5	12	0.4	None	None
3	12	2.5	12	0.4	None	None
4	250	2.5	250	2.5	None	None
5	250	15	100	15	None	None
6	250	0.4	100	<0.1 ¹	None	None
7	2.5	<0.1	0.4	<0.1	None	None
8	2.5	<0.1	0.4	<0.1	None	None

¹ Limit of sensitivity – where there was no growth on the dipslide the minimum reportable CFU/cm² was 0.1 therefore these were reported as <0.1

9	25	0.4	20	0.4	None	None
10	10	<0.1	10	<0.1	None	None

*Colony Forming Units/cm²

Analysis of the data collated in the above table showed that:

- There was a significant number of bacteria recovered from the hotel room.
- There was low bacteria load and low yeast load recovered from sample point 3 (cupboard handle), sample point 7 (room door handle), sample point 8 (balcony door handle) and sample point 10 (coffee table).
- There were slightly higher levels of bacteria and yeast recovered from sample point 1 (bathroom door handle), sample point 2 (plug points) and sample point 9 (blanket).
- There were high levels of bacteria and yeast recovered from sample point 4 (toilet seat), sample point 5 (tap) and sample point 6 (refreshment drawer).

The room was decontaminated with Hybrisan Surface + Hands through a handheld battery operated Graco airless sprayer.

There was minimal bacteria and yeast recovered after decontamination. This indicated up to a 99.8% reduction of load.

6. Recommendations

6.1. General Recommendations

1. The room should be cleaned regularly, this includes all porous and non-porous services to ensure there is no dirt, grime or dust settlement.
2. High contact points should receive extra attention, particularly in the bathroom and around the refreshment area.

6.2. Decontamination Recommendations

1. The room should be effectively decontaminated using a handheld airless sprayer. This can be conducted after cleaning the room daily.
2. The use of Hybrisan Hand + Surface Sanitiser should be encouraged for all guests to ensure residual protection is not deteriorated by incompatible products such as alcohol sanitisers.

7. Conclusions


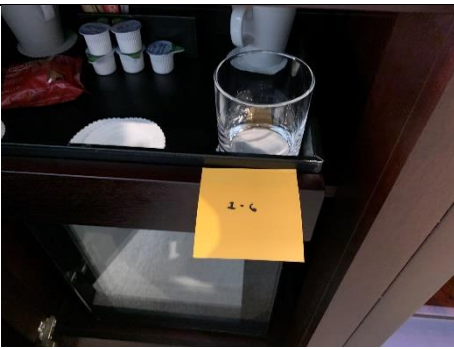


The test case exhibited bacteria contamination on pre-treated surfaces and showed significant reduction in contamination post treatment. However, the dip-slides used in this analysis have limited sensitivity for a complete understanding of the problem due to the low sensitivity in detection. It is expected with a more thorough analysis higher reductions could be reported. The handheld airless sprayer was suitable for rapid decontamination and would be improved if done after cleaning has taken place ensuring the room has maximum protection between cleans.

By using a complete range of products ongoing residual protection can be maintained without deterioration due to product incompatibility. The Hybrisan range of sanitisers ensure that protection is passed between all hands and surfaces offering ongoing protection against pathogenic organisms whilst its multi material compatibility ensures surfaces are not damaged or compromised.

8. Appendix 1 – Sample Areas

8.1. Hotel Room

Sample Point	Picture
1 – Bathroom Door Handle	
2 – Plug Sockets	
3 – Cupboard Door Handle	
4 – Toilet Seat	

5 – Tap	
6 – Refreshment Drawer	
7 – Room Door Handle	
8 – Balcony Door Handle	

9 – Blanket	
10 – Coffee Table	