

## Literature Review

### Literature (Study Information)

Paper reviewed (RSC referenced):

1. H. Friedman, E. Volin and D. Laumann, *Appl. Microbiol.*, 1968, **16**, 223-227.

### Aim

This paper concerns itself with the decontamination of hospital rooms, post-housing patients infected with: staphylococci, streptococci, pseudomonads and salmonellae. The aim was to test the application of a quaternary ammonium disinfectant via a spray-fog technique.

### Results

Figure 1: of the paper shows a marked reduction in 4 microorganisms collected from various surfaces within a room post-housing infected patient. This figure gives a marked reduction in microbes over various rooms after fogging.

Table 2: of the paper shows the prior and post bacterial observations across fogging, 'general housekeeping procedures' and fogging as an adjunct to general housekeeping procedures. I have further extended this table for easier translation into graphical format adding a percent reduction column, please see table 1.

Treatment of Rooms	Number of Rooms	Bacteria Air (counts per ft)			Bacteria Surface (counts per cm <sup>2</sup> )		
		Before	After	% Reduction	Before	After	% Reduction
Housekeeping Only	7	11.6	4.9	58	49.5	23.2	53
Fogging Only	9	13.8	2.1	85	34.7	3.8	89
Adjunct	17	18.3	2.2	88	50.5	1.3	97

Table 1: adapted table 2 displaying post and prior fogging results of air and surfaces.

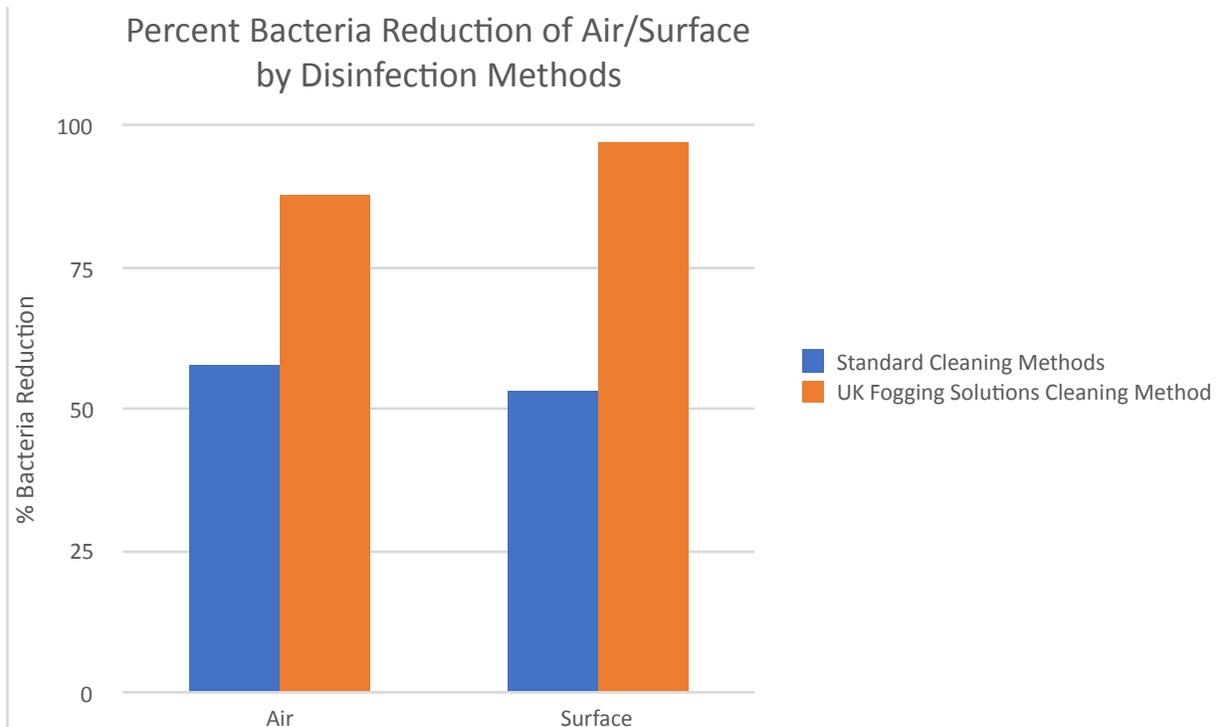


Figure 1: representation of table 1 in graphical format excluding as requested fogging only data.

### Conclusion/Discussion

The paper states that the results are adequate in proving spray-fog disinfection using quaternary ammonium as useful, as an **adjunct** (supplementary) to current techniques.

The report also claims that when using quaternary ammonium disinfectant, no irritation was reported within 1 hour after use, be it local (topical: so on the skin, to the eyes, etc.) or systemic (whole body or at very least multiple organs).

Spray-fogging with quaternary ammonium disinfectant was found to give a larger decrease in detectable bacteria opposed to 'general housekeeping procedures'.

All microbial sampling techniques used were believed to be in agreement meaning accurate microbial levels have been recorded and cross checked. This also confirms that microbes did not transfer between surface and air, leading to false reading.

### Scientific Opinion

In my opinion, for the information you are seeking to gain, this is a suitable paper which you have provided me. All information that has not been picked from the paper and relayed to yourself was still reviewed and is irrelevant and to the best of my knowledge leaving it out will not miss lead yourself or the public you intend to impart it on.

I also; after looking at the data they have provided, am in agreement with the findings of this paper and see no real discrepancy in the interpretation of the results.

With that, the only points to note are the age of the paper; which I would recommend you continue to seek papers from a more recent time, in case of significant finding after the publication of this paper, and the fact that you are using a different chemical to the one reported in the paper thus giving room for a difference in performance and so results you will obtain.

#### **Website Content Recommendation**

UK Fogging Solutions brings to the forefront a combination of technical know-how informed by scientific literature, helping to stay one step ahead in the currently ever-changing world of the microscopic.

Whilst conventional methods of cleaning; at first glance, appear to disinfect every surface, this is not the case, with literature study's proving that a reduction of a mere 58% air and 53% surface microbial activity is more akin to reality.<sup>1</sup>

Application of cleaning materials via a fog format however reaches areas that would usually be overlooked, pushing microbial activity reduction to 88% and 97% respectively.

In order to optimise the cleaning process further, all cleaning materials used are known to conform to BS EN 14476, BS EN 1276 and BS EN 13697 proving to be bactericidal and virucidal killing upto 99.9% of microbes including coronavirus.

In order to display our dedication to providing an efficient service, we also provide on-site ATP (adenosine triphosphate) testing. This allows us to generate a cleanliness report before and after the operation undertaking helping you to get the most out of the process.

#### **Signature**

Arran Embleton

Master of Chemistry (Hons)