



STUDY REPORT

Evaluation of Air Decontamination Technology: NOVAERUS NV-100 Airborne Infection Control Technology

Development Phase:	NHS Service Evaluation
Investigational Products:	Novaerus NV-100 Airborne Infection Control Technology
Sponsor:	Smart Solutions for HCAI <i>TrusTECH</i> [®] Innovation Unit Manchester Royal Infirmary, Manchester M13 9WL Smart Solutions is a national programme run by <i>TrusTECH</i> [®] and supported by the NHS National Innovation Centre on behalf of the Department of Health's HCAI Technology Innovation Programme
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Study Dates:	June to September 2009
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8 RESULTS

8.1 Data Sets Analysed

Over the 16-week period of the evaluation of Novaerus, 2666 samples were analysed for environmental surface TVC and 4732 samples were analysed for environmental surface MRSA. A further 379 samples were analysed for environmental air TVC, 364 samples for MRSA and 384 samples for environmental air fungi.

8.2 Summary of Data

All data for the five variables tested in this study showed a strong positive skew, with most values at the lower end of the scale and few high values. Histograms plots of these data (all CFU values pooled from locations both with the device and external control locations) are shown in Figure 3, Figure 4, Figure 5, Figure 6 and Figure 7. The graphs also show the log-transformation of the environmental surface TVC, environmental air TVC, and environmental air fungi. Environmental surface MRSA and environmental air MRSA - which as a proportion of total counts (TVC) little was detected - were presented as binary outcomes.

Figure 3: Distribution of environmental surface TVC CFU values for Novaerus – A: original scale; B: log scale

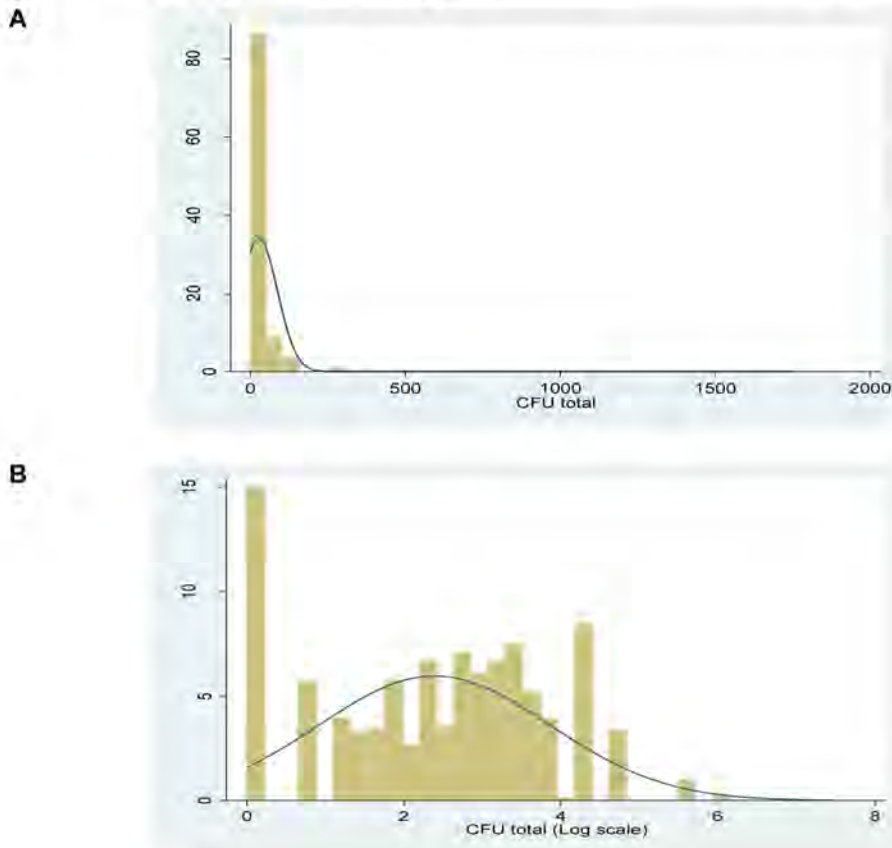


Figure 4: Distribution of environmental surface MRSA for Novaerus (original scale)

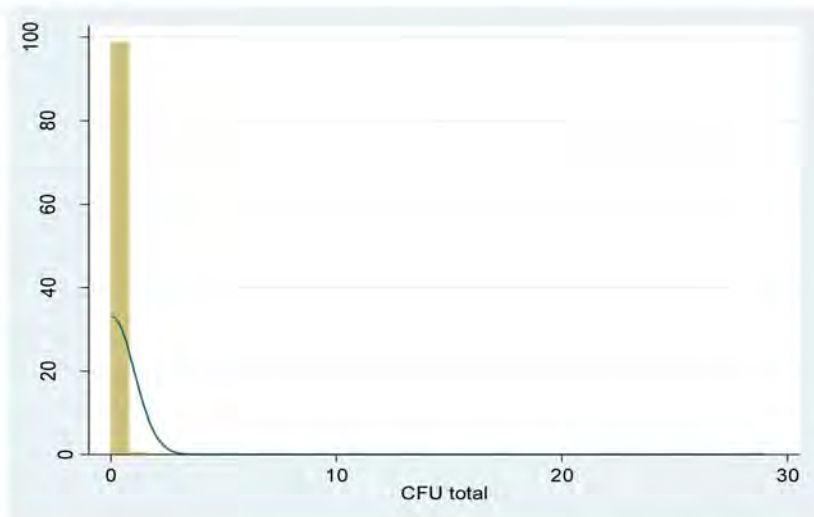


Figure 5: Distribution of environmental air TVC with Novaerus – A: original scale; B: log scale

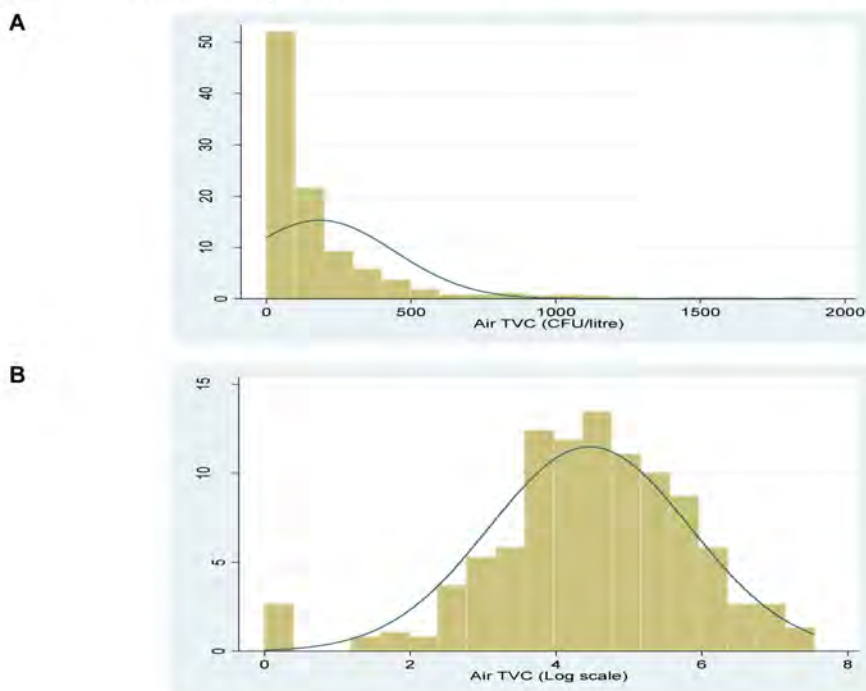


Figure 6: Distribution of environmental air MRSA for Novaerus (original scale)

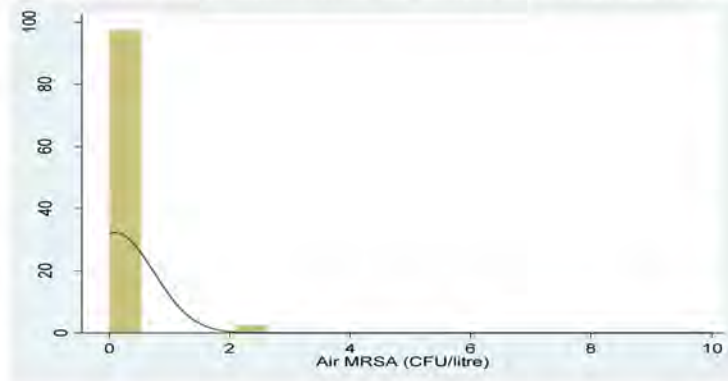
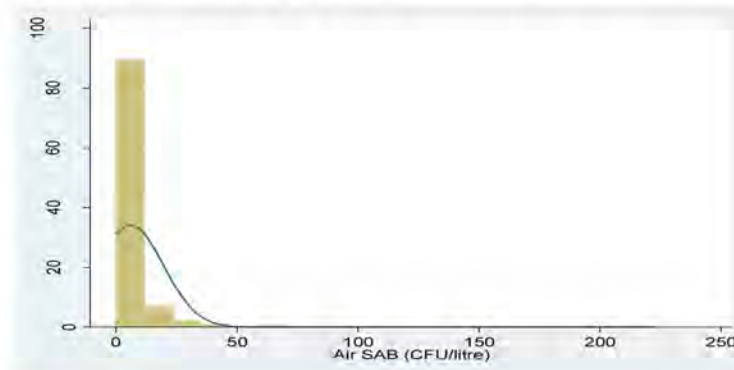
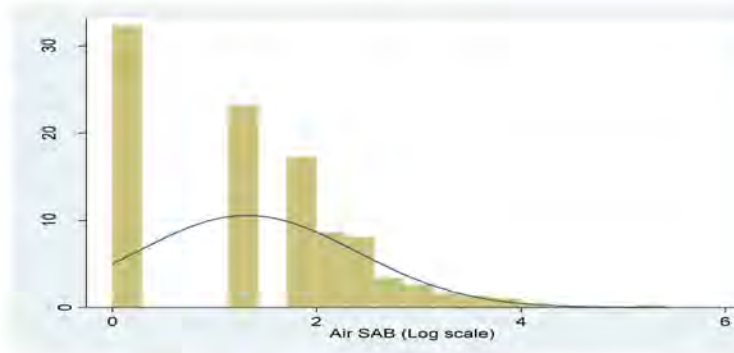


Figure 7: Distribution of SAB counts (environmental air fungi) for Novaerus – A: original scale; B: log scale

A



B



Mean CFU values (original and transformed data – log or binary scale) are summarised for each variable in Table 2, Table 3, Table 4, Table 5 and Table 6. Additionally, a plot of the mean daily TVC over time (on the original scale of measurement) for the device switched on (red) and switched off (blue) is in Figure 8.

Table 2: Summary of environmental surface TVC CFU values for Novaerus

Location	Device	Device Status	Original scale Mean (SD)	Log scale Mean (SD)
Bays	Control	All	36 (133)	2.5 (1.5)
	Novaerus	Device off	38 (64)	2.9 (1.4)
		Device on	31 (77)	2.5 (1.5)
Rooms	Control	All	35 (120)	2.0 (1.7)
	Novaerus	Device off	21 (44)	2.2 (1.4)
		Device on	18 (34)	2.0 (1.4)
Bays& Rooms Combined	Control	All	35 (128)	2.3 (1.6)
	Novaerus	Device off	31 (57)	2.6 (1.4)
		Device on	26 (63)	2.3 (1.5)

Figure 8: Environmental surface mean daily TVC CFU values over time for locations with Novaerus and external controls

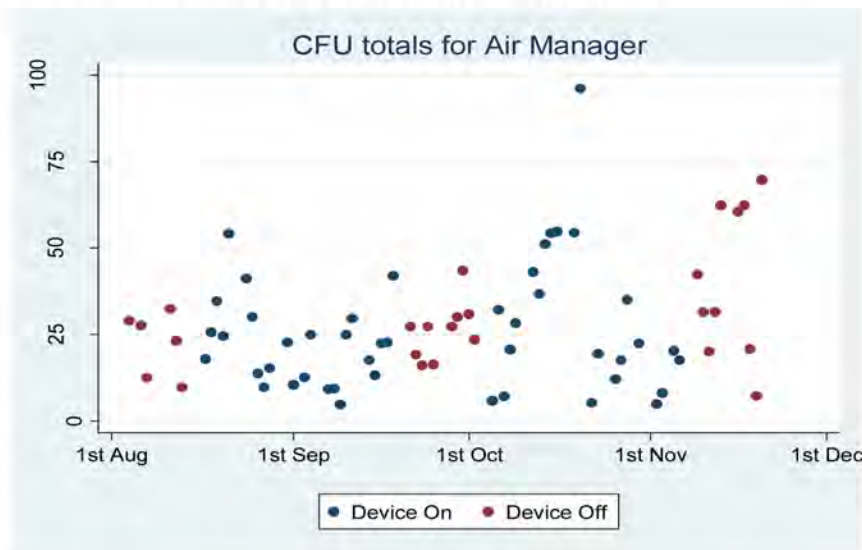


Table 3: Summary of environmental surface MRSA CFU counts for Novaerus

Time	Device	Device Status	Original scale Mean (SD)	Counts >0 Number (%)
24 hours	Control	All	0.01 (0.27)	10 (0.4%)
	Novaerus	Device off	0.04 (0.44)	16 (1.7%)
		Device on	0.01 (0.52)	1 (0.1%)