

Supplementary File 8: Studies reporting interventions without statistically significant reductions in contamination of computer peripherals or had unclear effectiveness outcomes

STUDY	OUTCOME MEASURES	INTERVENTION METHOD	BASELINE CONTAMINATION	POST-INTERVENTION CONTAMINATION	P-VALUES	COMMENTS
CORDEIRO 2015	Total bacterial load	Computer keyboards were cleaned on a daily basis with a brush for removing dust.	6/6 (100%)	All 6/6 contained Non-specified coagulase negative Staphylococcus post cleaning with dust brush.	Not reported	<i>No statistical significance of these changes reported</i>
DANCER 2009	Detection of S. aureus species (MSSA and MRSA), overall aerobic colony counts (ACC)	Enhanced cleaning: an additional cleaner was added to the ward and trained to clean hand-touch sites 1-3x/day Monday to Friday.		Enhanced cleaning was associated with a 32.5% reduction in levels of microbial contamination at hand touch sites (results not specific to keyboards) MRSA was isolated from 1 keyboard during intervention phase.	P < 0.0001: 95% CI 20.2%, 42.9% (for all hand touch sites including keyboards)	<i>Statistically significant reduction in contamination, but results not specific to keyboards</i>
DE GROOD 2012	Total bacterial load	CaviWipes (a quaternary ammonium compound) with isopropanol)	2 studies: 1) Pre/Post with 230 keyboards: 229/230 (99.6%) contaminated with CNS, Micrococcus spp., diptheroids, Bacillus spp. or alpha streptococci and 67% total keyboards positive with solid agar and broth any one cultures (MSSA, MRSA, Enterococcus (non VRE and VRE), GNB, C. diff., Yeast, fungus) 2) Cleankeys keyboards: 10/10 (100%)	1) 35/230 (15.2%) still positive for pathogenic organisms, including 3 with C. diff. 2) 0/10 (0%) positive for pathogenic organisms.	Not reported	<i>No statistical significance of these changes reported</i>
DUMFORD 2009	Detection of C. difficile	Disinfection with bleach	9/32 (28%) keyboards were contaminated with C. diff.	4/25 (16%) keyboards and 0/1 mouse were contaminated with C. diff.	P= 0.18, but this is for all surfaces tested, not only keyboards	<i>Statistically significant reduction in contamination, but results not available for keyboards separately</i>
GRABSCH 2012	Detection of VRE	Hospital wide program including 'Bleach-Clean': replace surface cleaners with sodium hypochlorite solution plus Chloradet detergent; install	1/9 swabs were VRE positive (11%)	Decreased in Period B: 1/78 (1.3%) swabs positive	P = 0.012 for reduction of all environmental contamination, not specific to keyboards	<i>Statistically significant reduction in contamination, but results not available for</i>

STUDY	OUTCOME MEASURES	INTERVENTION METHOD	BASELINE CONTAMINATION	POST-INTERVENTION CONTAMINATION	P-VALUES	COMMENTS
		cleaner dispensing stations, employment of cleaning supervisors and training program for cleaning staff, performance appraisals, modify protocols for managing VRE-colonized patients, thrice annual schedule of "super clean disinfection"				<i>keyboards separately</i>
JUNGNICKE L 2014	Total bacterial load	Isopropanol wipes using the 6-step disinfection process guided by the deBac-app.	2,033 CFU in total were counted on the 5 devices before disinfection during the four week monitoring period: Gram positive: 1,950 CFU Gram negative: 83 CFU	Decreased to a total of 87 CFU found on the devices during the four week monitoring period: gram positive: 86 CFU gram negative: 1 CFU		<i>No statistical significance of these changes reported</i>
MORTER 2011	Detection of Norovirus	Actichlor plus solution	Not reported	After cleaning, NoV was detected on 4/10 (40%) of keyboards and 1/8 (12.5%) of mice. After a second cleaning, 1/4 (25%) of keyboards remained positive and 0/3 (0%) of mice remained positive.		<i>No baseline level of contamination, therefore change cannot be determined. However, even after first cleaning, 40% of keyboards were contaminated, suggesting poor effect</i>
SMITH 2006	Total bacterial load	Clorox disinfecting wipes	52/120 (43%) of cultures positive, but significant pathogens were found in only 1.7% of cultures (MSSA and Serratia species)	18/46 (39%) of cultures were positive for various organisms, but no significant pathogens were isolated	P = 0.799	<i>Non-statistically significant reduction in contamination</i>
STAMBAU GH 2009	Detection of Multidrug-resistant organisms	Disinfectant wipes (ammonium chloride and isopropyl alcohol)	Overall rate not given	Both conventional and sealed keyboard/mice experienced a reduction in detectable organisms when disinfected 3x/day. <u>CNS</u> : reduced from 88.6% in baseline to 5% in sealed keyboards and 25% in conventional keyboards.		<i>No statistical significance of these changes reported</i>

STUDY	OUTCOME MEASURES	INTERVENTION METHOD	BASELINE CONTAMINATION	POST-INTERVENTION CONTAMINATION	P-VALUES	COMMENTS
				<u>Lactose fermenting GNR</u> reduced from 25% in baseline to 10% in sealed keyboards and 0% in conventional. <u>Bacillus</u> reduced from 23% in baseline to 10% in sealed keyboards and 0% in conventional keyboards All other organisms were reduced 100%		
SWEENEY 2009	Total bacterial load	Astroplast Nano-UV disinfectant light scanner	67/68 (98.5%) showed some growth	62/68 (91%) showed some growth after disinfection		<i>No statistical significance of these changes reported</i>

Abbreviations: ACC = Aerobic Colony Counts, C. Diff = Clostridium difficile, CFU = Colony forming units, CNS = Coagulase-negative staphylococcus, GNB = Gram Negative Bacilli, GNR = Gram Negative Rods, MRSA = Methicillin-resistant Staphylococcus aureus, MSSA = Methicillin-sensitive Staphylococcus aureus, NoV = Norovirus, VRE = Vancomycin-resistant Enterococcus