

	Objectives		Sample Selection					Intervention	
	Is the aim/objective of the study clearly described?	Was the ideal study design chosen to meet the aims?	Were selection criteria for the devices pre-specified, clearly described, and implemented consistently?	Were the devices in the study representative of those who would be eligible for the intervention in the general or clinical population of interest?	Was the number of examined items stated and/or an inclusion rate given?	Was a power calculation prespecified to guide sample size?	Was loss to follow-up after baseline 20% or less?	Was the intervention clearly described and delivered consistently across the study population?	Was the timeframe appropriate so that one could reasonably expect to see an association between exposure and outcome if it existed?
Albrecht 2013	Yes	Yes (Prospective comparative analysis)	Yes	Yes	Yes	Yes	Yes	No	Yes
Codish 2015	Yes	Yes (Cluster RCT)	No	Yes	Yes	No	Yes	Yes	Yes
Cordeiro 2015	Yes	No (Pre/Post)	No	Yes	Yes	No	Yes	No	Yes
Dancer 2009	Yes	Yes (Prospective Cross-over)	Yes	Yes	Yes	Yes	Unclear	Yes	Yes
de Grood 2012	Yes	No (Cross sectional + Pre/Post)	Yes	Yes	Yes	No	Yes	Yes	Yes
Dumford 2009	No - aims do not mention the post-cleaning survey	No (Cross sectional + Pre/Post)	Yes	Yes	Yes	No	No - not all keyboards were used in -post study	No	Yes
Duszak 2014	No - aims do not mention the post-cleaning survey	Mixed... (Cross sectional + Pre/Post)	No, clearly described but not consistently implemented	Yes	Yes	No	No - not all keyboards were used in -post study	Mixed - clearly described but not delivered to all keyboards in initial sample	Yes
Fukada 2008	Yes	No (Pre/Post)	No	Yes	No	No	No - not all keyboards were used in -post study	Mixed - clearly described but not delivered to all keyboards in initial sample	Yes
Gostine 2016	Yes	No? (Pre/Post)	Yes	Yes	Yes	No	Yes	Yes	Unclear (study explored range of types of disinfection cycles and time delays)
Grabsch 2012	Yes	No (Pre/Post)	No	Yes	No	No	Unclear - looks like there were more sites during intervention	Yes	Unclear (poorly described)
Jones 2015	Yes	Yes (Controlled Trial)	Yes	Yes	Yes	No	Yes	Yes	Yes

	Comparison/Controls		Detection Methods		Outcome Measures				Confounding
	Was there a comparison or control group?	If yes, explain what the comparison was.	Were the outcome assessors (swabbing and lab) blinded to the intervention or exposure status of participants?	Were the swabbing and lab processes clearly stated and consistently performed across all devices?	Were the outcome measures pre-specified, clearly defined, valid, reliable, and assessed consistently using reliable methods across all devices?	Was the outcome measured multiple times before the intervention and multiple times after the intervention? (Or were multiple samples taken from each intervention group?)	Were findings for all primary outcomes reported?	Did statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?
Albrecht 2013	No		Yes	Yes	Yes	No	Yes	Yes	Unclear
Codish 2015	Yes	1 group disinfected with Mediwipes, another with TriGene wipes	Unclear	Yes	Yes	No	Yes	Yes	Unclear
Cordeiro 2015	Yes	Pre and post samples compared.	Unclear	Yes	No	No	No	No	No
Dancer 2009	Yes	Two matched wards selected, the intervention conducted 6 months in one, then 6 months in the other	Unclear	Yes	Yes	Yes	Yes - but baseline specific to keyboards not given	Yes	No
de Grood 2012	Yes	CleanKeys keyboard vs. conventional keyboards	Unclear	Yes	Yes	No - twice before cleaning, once after	Yes	No	No
Dumford 2009	Yes	A sample of surfaces were sampled again 14 months after initial survey (after a disinfection protocol was initiated)	Unclear	Yes	Yes	No	Yes	Yes, but for all surfaces tested, not only keyboards	No
Duszak 2014	Yes	At 1 workstation in each of the 4 reading rooms, sampling was repeated after being disinfected.	Unclear	Yes	Yes	No	Yes	Yes (but not for keyboards separately)	No
Fukada 2008	Yes	Keyboards in the OR were swabbed after health procedure vs. 1 hour after cleaning	Unclear	Yes	Yes	No	Yes	Yes	No
Gostine 2016	Yes	Keyboards tested prior to cleaning vs. keyboards disinfected using UV Angel lamps	Unclear	Mixed: Swabbing process defined, but not lab	Yes	Yes	Yes	Yes	No, but effect of UV cycle length and delay options reported
Grabsch 2012	Yes	Outcomes were assessed during the 6 months pre and 12 months post implementation	Unclear	No, swabbing timing not clear or done consistently throughout pre-period	Yes	Yes	Yes	Yes, but for all surfaces tested, not only keyboards	No
Jones 2015	Yes	In ICU: Pre and post swabs with both CHG spray and standard methods In wards: Swabs taken before and after CHG intervention	Mixed: lab persons blinded only	Yes	Yes	Yes	Yes	Yes	No

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Jungnickel 2014	Yes	No (Pre/Post)	No	Yes	Yes	No	Yes	Unclear - disinfection process done "as (care staff) saw fit"	Yes
Martin 2011	Yes	Yes (Randomized double blind cross-over trial)	Yes	Yes	Yes	No	Yes	Yes	Yes
Messina 2013 A	Yes	No (Pre/Post)	Yes	Yes	Yes	No	Yes	Yes	Yes
Messina 2013 B	Yes	No (Pre/Post)	Yes	Yes	Yes	No	Yes	Yes	Yes
Morter 2011	Yes	No (Post-Intervention survey)	Yes	Unclear (Only conducted where there were NoV outbreaks)	Yes	No	Unclear	Yes	Yes
Neely 1999	No	No (Pre/Post)	No	Yes	No	No	Unclear	Yes	Yes
Patel 2010	Yes	No (Cross sectional + Pre/Post)	No	Yes	Yes	No	No - only 2 keyboards were used in post interv. study	Yes	Yes
Shaikh 2016	Yes	No (Pre/Post)	No	Unclear	Yes	No	Yes	Yes	Yes
Smith 2006	Yes	No Pre/Post	Yes	Yes	Yes	No	No - not all keyboards were used in -post study	No	Yes
Stambaugh 2009	Yes	No Pre/post with stratfied groups	Yes	Yes	Yes	No	No - not all keyboards were used in -post study	Yes	Yes
Sweeney 2009	Yes	No (Pre/Post)	No	Yes	Yes	No	Yes	Yes	Yes
Wilson 2008	Yes	Yes (Controlled trial)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wilson 2011	Yes	Yes (Prospective randomized cross-over)	Yes	Yes	No	No	Yes	Yes	Standard vs. enhanced cleaning
Xu 2017	Yes	No (Pre/Post)	No	yes	No	No	much higher in interv. than	Yes	Yes

						baseline (19 v. 206 samples)			
		Comparison/Controls		Detection Methods		Outcome Measures			Confounding
	Was there a comparison or control group?	If yes, explain what the comparison was.	Were the outcome assessors (swabbing and lab) blinded to the intervention or exposure status of participants ?	Were the swabbing and lab processes clearly stated and consistently performed across all devices?	Were the outcome measures pre-specified, clearly defined, valid, reliable, and assessed consistently using reliable methods across all devices?	Was the outcome measured multiple times before the intervention and multiple times after the intervention? (Or were multiple samples taken from each intervention group?)	Were findings for all primary outcomes reported?	Did statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes?	Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?
Jungnickel 2014	Yes	Samples taken before and after intervention	Unclear	No	Yes	Yes	Yes	No	No
Martin 2011	Yes	UV light treated keyboards vs. Existing keyboards vs. non-UV control keyboards	Yes	Yes	Yes	No	Yes	Yes	Yes, some
Messina 2013 A	Yes	Pre-and post disinfection samples taken	Unclear	Yes	Yes	No	Yes	Yes	Yes, some such as type of clinical setting
Messina 2013 B	Yes	Pre-and post disinfection samples taken	Unclear	Yes	Yes	No	Yes	Yes	No
Morter 2011	No		Unclear	Yes	Yes	No	Yes	No	No
Neely 1999	Yes	A. baumannii colonizations pre and post infection control measures	Unclear	Unclear	No	N/A	N/A	Yes	No
Patel 2010	Yes	2 of the keyboards were swabbed after being disinfected twice daily	Unclear	Yes	No (only did aerobic cultures not anerobic too)	No	Yes	Yes	No
Shaikh 2016	Yes	keyboards swabbed before and after UV decontamination	Unclear	Yes	Yes	No	Yes	Yes	No
Smith 2006	Yes	Swabs from desktop computers in hallway were compared with physician notebooks. Also, some notebooks compared pre/post cleaning	No	Yes	Yes	No	No	Yes	No
Stambaugh 2009	Yes	3 groups: - not disinfected - conventional keyboards disinfected 3x/day - Sealed keyboards disinfected 3x/day	Unclear	Yes	Yes	Yes	Yes	No	No
Sweeney 2009	Yes	Devices swabbed before and after disinfection	Unclear	Yes	Yes	No	Yes	No	No
Wilson 2008	Yes	2 types of test keyboards vs. standard control keyboard	Unclear	No	Yes	Yes	Yes	Yes	No
Wilson 2011	Yes	Yes	Unclear	Yes	Yes	Yes	Unclear for keyboards	Unclear for keyboards	Mostly no (timing of sampling assessed, seasons)

Xu 2017	Yes	Baseline period: daily routine cleanings vs. Intervention period using 2 types of disinfectant wipes	Unclear	Yes	Yes	Yes	No	Yes	No
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