

	Objectives		Sample Selection				Detection methods	Outcome Measures			Confounding
	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 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?	Were the swabbing and lab processes clearly stated and consistently performed across all devices?	Were the outcomes measured at multiple time points?	Were findings for all primary outcomes reported?	Are the estimates of prevalence or incidence given with confidence intervals and in detail by subgroup, if appropriate?	Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?
Al-Hamad 2008	Yes	Yes (Cross sectional)	No	Yes	No	No	Yes	Yes	Yes	No	Unclear
Ali 2015	Yes	Yes (Cross sectional)	Yes	Yes	No	No	Yes	No	Yes	No, but gives Mean no. of CFU/cm <sup>2</sup> ± SD	Some Compared sampling techniques: contact plate vs. Sponge swab
Anastasiades 2009	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Bures 2000	Yes	Unclear (unclear if items were swabbed each time)	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Unclear
Catano 2012	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Choi 2014	Yes	Yes (Cross sectional)	No	Yes	Yes	No	No	Mixed/Unclear	Yes	No	No
Ciragil 2005	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Dancer 2008	Yes	Yes (Cross sectional, 1x week for 6 months per ward)	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Devine 2001	Yes	Unclear design (possibly cross-sectional)	No	Yes	Yes	No	yes	No	Yes	No	No

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Engelhardt 2008	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No Gives mean, median CFU values	Yes (# of users, ward vs. ICU, time used before sampling, room type)
Faires 2012	Yes	Yes (Multiple cross sectional samples)	Yes	Yes	No	No	Yes	Yes	Yes	No - CI given only for total rate of all surfaces sampled	Yes (surface location, type of surface, hospital (3 studied))
Faires 2013	Yes	Mixed - Cross sectional yes for prevalence aim but not for determining risk factors association	No (for keyboards)	Yes	No	No	Yes	Yes	Yes	No	No
Farias 2017	Yes	Yes (Cross sectional)	Unclear (text states items were sampled from each ward, but results only show keyboards in one ward)	Yes	Yes	No	Yes	Yes	Yes	No	No (not specific to keyboards)
Fellowes 2006	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Gerba 2016	Yes	Yes (Cross sectional)	No	Unclear	Yes	No	Yes	No	Yes	No	No
Gray 2007	No	Yes (Cross sectional)	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes (any significant differences in the # of colonies from the 3 areas sampled)

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Hardy 2014	Yes	Yes, for contamination aim (Cross sectional)	Yes	Yes	No	No	Yes	Yes	Yes	No	No
Hartman 2004	Yes	Yes (Cross sectional over 3 months)	No	Yes	No	No	Yes	Yes	Yes	No	Yes (patient room vs. physician's station, patient room vs central workstation)
Hassan 2014	Yes	Yes (Cross sectional)	No	Unclear	Yes	No	No	No	Yes	No	Yes (single user vs. multiple user)
Hirsch 2014	Yes	Yes (Cross sectional)	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes (hospital vs. non-hospital setting)
Hong 2012	Yes	Yes (Cross sectional)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No (hand hygiene and contact studied, but not statistically adjusted for relationship to contamination)
Karbasizade 2014	Yes	Yes (Cross sectional)	No	Unclear	Yes	Yes	Yes	No	Yes	No	No
Keerasuntonpong 2017	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	Yes (compared patient areas vs. offices)
Khan 2015	Yes	No (Cross sectional)	No	No	Yes	No	Yes	No	Unclear - some findings reported, but data not shown.	No	Mixed - some data not shown at one institution, differences between specialties

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Kiedrowski 2013	Yes	Yes (Cross sectional)	No	Unclear	Yes	No	No	No	No S. aureus reported, but not MRSA	No	No
Link 2016	Yes	Yes (Cross sectional with a control)	Yes	Yes	No (only # of samples)	Yes (for # of samples)	Yes	Yes	No	No	Yes (high touch vs. low touch areas, minutes of surgery)
Lu 2009	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	Yes (non-ICU vs. ICU, accounting vs. clinical use)
Malta 2016	Yes	Yes (Cross sectional at 2 time points)	Yes	Yes	No	No	Yes	Yes	Yes	No (but mean, med, min, max given)	Some (before/after clinical procedures)
Man 2002	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Moore 2013	Yes	Yes (Cross sectional over 17 weeks)	Yes	Yes	Unclear	No	Yes	Yes	Unclear - not all results reported for keyboards (only in one ward)	No	Some - zones of distance from patient
Motta 2007	Yes	Yes (Cross sectional at 3x/day 1x/month over 1 year)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes, but overall baseline rate not stated, only by subgroup	Some (samples taken before, during, and after clinical procedures)
Oguzkaya-Artan 2015	Yes	Yes (Cross sectional)	No	Yes	Yes	No	No	No	Yes	No	No
Oie 2005	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	Yes	Yes	No (but mean SD given)	No
Otter 2011	Yes	Yes (Cross sectional)	No	Yes	No	No	Yes	No	Yes	No	No

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Phumisa ntiphong 2009	Yes	No (Cross sectional)	Yes	Yes	Yes	No	No	No	Yes	No	No
Pugliese 2011	Yes	Yes (Cross sectional)	No	Unclear	Yes	No	No	No	Yes	No	Some (specific keyboard location)
Rastogi 2012	Yes	Unclear (Cross sectional taken biweekly for 1 year)	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No (did study temporal association of positive blood cultures with positive surveillance cultures)
Reem 2014	Yes	Yes (Cross Sectional, quarterly for 1 year)	Yes	Yes	Yes	No	No (not specified which of the 2 swabbing methods was used on keyboards)	Yes	Yes	No	No
Richard 2017	Yes	Yes (Cross sectional)	Yes	Yes	Yes	No	Yes	No	Yes	No (RLU mean, SD, min/max given)	No but compared keyboards to contamination on other surfaces
Rutala 2006	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No (CFU range given)
Saito 2015	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes, but not always specific by subgroup	No (ATP mean value and SD given)	Yes, but these results specific to keyboards not provided
Schultz 2003	Yes	Yes (Cross sectional)	Yes	Yes	Yes	No	Yes	No	Yes	No	No

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Senok 2015	Yes	Unclear	No	Yes	No	No	Yes	No	Yes	No	No
Sykes 2006	Yes	Yes, for the prevalence aim (Cross Sectional - 15x over 3 months)	No	Yes	Yes	No	Yes	Yes	Overall cont. rate not given for keyboards - isolated pathogens listed	No	No
Tan 2013	Yes	Yes, for the prevalence aim (Cross Sectional)	No	Yes	No	No	Yes	No	Yes	No	No
Trochess et 2012	Yes	Yes (Cross sectional)	No	Yes	No	No	Unclear (not clear how many times each object was sampled)	Yes	Yes	No	Yes, some looked at # of positive sites for S. aureus at different dates and at personal vs nonpersonal surfaces
Waghorn 2005	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Westervay 2017	Yes	Yes (Cross sectional)	No	Yes	Yes	No	Yes	No	Yes	No	No
Wilson 2006	Yes	Yes (Cross sectional)	Yes	Yes	Yes	No	Unclear (number of swabs varied because some patients were discharged or died)	Yes	Yes	No (but median and range of CFU given)	No
Yun 2012	Yes	Yes (Cross sectional)	No	Yes	Unclear if # is samples or keyboards/ mice	No	Yes	No	Yes	No	No