Table SI. Search strategy and PubMed database search results.

Query	Search terms	Results (n)
(Cardiac surgery) (nasal decolonization)	(((((((('thoracic surgery'[MeSH Terms] OR ('thoracic'[All Fields] AND 'surgery'[All Fields]) OR 'thoracic surgery'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) OR 'cardiac surgery'[All Fields]) OR 'cardiac surgical procedures'[MeSH Terms]) OR (('cardiac'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiac surgical procedures'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) AND ((((((((('nasalance'[All Fields] OR 'nasality'[All Fields]) OR 'nasalization'[All Fields]) OR 'nasalized'[All Fields]) OR 'nasally'[All Fields]) OR 'nose'[MeSH Terms]) OR 'nose'[All Fields]) OR 'nasal'[All Fields]) OR 'nasals'[All Fields]) AND ((('decolonization'[All Fields] OR 'decolonize'[All Fields]) OR 'decolonized'[All Fields]) OR 'decolonizing'[All Fields]))	18
(cardiovascular surgery) AND (nasal decolonization)	((((('cardiovascular surgical procedures'[MeSH Terms] OR (('cardiovascular'[All Fields] procedures'[All Fields]) OR ('cardiovascular'[All Fields] AND 'surgery'[All Fields])) OR 'cardiovascular surgery'[All Fields]) AND (((((((((('nasalance'[All Fields] OR 'nasality'[All Fields]) OR 'nasalization'[All Fields]) OR 'nasalized'[All Fields]) OR 'nasally'[All Fields]) OR 'nose'[MeSH Terms]) OR 'nose'[All Fields]) OR 'nasal'[All Fields]) OR 'nasals'[All Fields]) AND ((('decolonization'[All Fields] OR 'decolonize'[All Fields]) OR 'decolonized'[All Fields]) OR 'decolonizing'[All Fields]))	17
(cardiothoracic surgery) AND (nasal decolonization)	('cardiothoracic'[All Fields] AND (((((((((('surgery'[MeSH Subheading] OR 'surgery' [All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures'[All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields])) AND (((((((((('nasalance'[All Fields] OR 'nasality'[All Fields]) OR 'nasalization'[All Fields]) OR 'nasalized'[All Fields]) OR 'nasally'[All Fields]) OR 'nose'[MeSH Terms]) OR 'nose'[All Fields]) OR 'nasal'[All Fields]) OR 'nasals'[All Fields]) AND ((('decolonization'[All Fields] OR 'decolonize'[All Fields]) OR 'decolonized'[All Fields]) OR 'decolonizing'[All Fields]))	7
(cardiac surgery) AND (mupirocin)	(((((((('thoracic surgery'[MeSH Terms] OR ('thoracic'[All Fields] AND 'surgery'[All Fields]) OR 'thoracic surgery'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) OR 'cardiac surgery'[All Fields]) OR 'cardiac surgical procedures'[MeSH Terms]) OR (('cardiac'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiac surgical procedures'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) AND (('mupirocin'[MeSH Terms] OR 'mupirocin'[All Fields]) OR 'mupirocine'[All Fields])	53
(cardiovascular surgery) AND (mupirocin)	((((('cardiovascular surgical procedures'[MeSH Terms] OR (('cardiovascular'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiovascular surgical procedures'[All Fields]) OR ('cardiovascular'[All Fields] AND 'surgery'[All Fields])) OR 'cardiovascular surgery'[All Fields]) AND (('mupirocin'[MeSH Terms] OR 'mupirocin'[All Fields]) OR 'mupirocine'[All Fields])	62
(cardiothoracic surgery) AND (mupirocin)	('cardiothoracic'[All Fields] AND (((((((((('surgery'[MeSH Subheading] OR 'surgery '[All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures' [All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields])) AND (('mupirocin'[MeSH Terms] OR 'mupirocin'[All Fields]) OR 'mupirocine'[All Fields])	22
(cardiac surgery) AND (staphylococcus aureus)	(((((((('thoracic surgery'[MeSH Terms] OR ('thoracic'[All Fields] AND 'surgery'[All Fields]) OR 'thoracic surgery'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) OR 'cardiac surgery'[All Fields]) OR 'cardiac surgical procedures'[MeSH Terms]) OR (('cardiac'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiac surgical procedures'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery' [All Fields])) AND (('staphylococcus aureus'[MeSH Terms] OR ('staphylococcus'[All Fields] AND 'aureus'[All Fields])) OR 'staphylococcus aureus'[All Fields])	1,813
(cardiovascular surgery) AND (staphylococcus aureus)	((((('cardiovascular surgical procedures'[MeSH Terms] OR (('cardiovascular'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiovascular surgical procedures'[All Fields]) OR ('cardiovascular'[All Fields] AND 'surgery'[All Fields])) OR 'cardiovascular surgery'[All Fields]) AND (('staphylococcus aureus'[MeSH Terms] OR ('staphylococcus'[All Fields] AND 'aureus'[All Fields])) OR 'staphylococcus aureus'[All Fields])	1,991

Table SI. Continued.

Query	Search terms	Results (n)
(cardiothoracic surgery) AND (staphylococcus aureus)	('cardiothoracic'[All Fields] AND (((((((((('surgery'[MeSH Subheading] OR 'surgery'[All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures'[All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields])) AND (('staphylococcus aureus'[MeSH Terms] OR ('staphylococcus'[All Fields] AND 'aureus'[All Fields])) OR 'staphylococcus aureus'[All Fields])	302
(cardiac surgery) AND (surgical site infection)	((((((((('thoracic surgery'[MeSH Terms] OR ('thoracic'[All Fields] AND 'surgery'[All Fields])) OR 'thoracic surgery'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) OR 'cardiac surgery'[All Fields]) OR 'cardiac surgical procedures'[MeSH Terms]) OR (('cardiac'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiac surgical procedures'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) AND ((((('surgical wound infection'[MeSH Terms] OR (('surgical'[All Fields] AND 'wound'[All Fields]) AND 'infection'[All Fields])) OR 'surgical wound infection'[All Fields]) OR (('surgical'[All Fields] AND 'site'[All Fields]) AND 'infection'[All Fields])) OR 'surgical site infection'[All Fields])	5,534
(cardiothoracic surgery) AND (surgical site infection)	('cardiothoracic'[All Fields] AND (((((((((('surgery'[MeSH Subheading] OR 'surgery'[All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures'[All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields])) AND ((((('surgical wound infection'[MeSH Terms] OR (('surgical'[All Fields] AND 'wound'[All Fields]) AND 'infection'[All Fields])) OR 'surgical wound infection'[All Fields]) OR (('surgical'[All Fields] AND 'site'[All Fields]) AND 'infection'[All Fields])) OR 'surgical site infection'[All Fields])	865
((cardiac surgery) AND (nasal carriers)) AND (infection)	((((((((('thoracic surgery'[MeSH Terms] OR ('thoracic'[All Fields] AND 'surgery'[All Fields])) OR 'thoracic surgery'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) OR 'cardiac surgery'[All Fields]) OR 'cardiac surgical procedures'[MeSH Terms]) OR (('cardiac'[All Fields] AND 'surgical'[All Fields]) AND 'procedures'[All Fields])) OR 'cardiac surgical procedures'[All Fields]) OR ('cardiac'[All Fields] AND 'surgery'[All Fields])) AND ((((((((('nasalance'[All Fields] OR 'nasality'[All Fields]) OR 'nasalization'[All Fields]) OR'nasalized'[All Fields]) OR 'nasally'[All Fields]) OR 'nose'[MeSH Terms]) OR 'nose'[All Fields]) OR 'nasal'[All Fields]) OR 'nasals'[All Fields]) AND ((((((('carrier state'[MeSH Terms] OR ('carrier'[All Fields] AND 'state'[All Fields])) OR 'carrier state'[All Fields]) OR 'carrier'[All Fields]) OR 'carrier s'[All Fields]) OR 'heterozygote'[MeSH Terms]) OR 'heterozygote'[All Fields]) OR 'carriers'[All Fields]))) AND (((((((((((((((((((((('infect'[All Fields] OR 'infectability'[All Fields]) OR 'infectable'[All Fields]) OR 'infectant'[All Fields]) OR 'infectants'[All Fields]) OR 'infected'[All Fields]) OR 'infecteds'[All Fields]) OR 'infectibility'[All Fields]) OR 'infectible'[All Fields]) OR 'infecting'[All Fields]) OR 'infection s'[All Fields]) OR 'infections'[MeSH Terms]) OR 'infections'[All Fields]) OR 'infection'[All Fields]) OR 'infective'[All Fields]) OR 'infectiveness'[All Fields]) OR 'infectives'[All Fields]) OR 'infectivities'[All Fields]) OR 'infects'[All Fields]) OR 'pathogenicity'[MeSH Subheading]) OR 'pathogenicity'[All Fields]) OR 'infectivity'[All Fields])	49
((surgery) AND (mupirocin)) AND (infection)	(((((((((('surgery'[MeSH Subheading] OR 'surgery'[All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures'[All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields]) AND (('mupirocin'[MeSH Terms] OR 'mupirocin'[All Fields]) OR 'mupirocine'[All Fields])) AND ((((((((((((((((((((((('infect'[All Fields] OR 'infectability'[All Fields]) OR 'infectable'[All Fields]) OR 'infectant'[All Fields]) OR 'infectants'[All Fields]) OR 'infected'[All Fields]) OR 'infecteds'[All Fields]) OR 'infectibility'[All Fields]) OR 'infectible'[All Fields]) OR 'infecting'[All Fields]) OR 'infection s'[All Fields]) OR 'infections'[MeSH Terms]) OR 'infections'[All Fields]) OR 'infection'[All Fields]) OR 'infective'[All Fields]) OR 'infectiveness'[All Fields]) OR 'infectives'[All Fields]) OR 'infectivities'[All Fields]) OR 'infects'[All Fields]) OR 'pathogenicity'[MeSH Subheading]) OR 'pathogenicity'[All Fields]) OR 'infectivity'[All Fields])	339

Table SI. Continued.

Query	Search terms	Results (n)
(surgery) AND (nasal carrier)	(((((((((('surgery'[MeSH Subheading] OR 'surgery'[All Fields]) OR 'surgical procedures, operative'[MeSH Terms]) OR (('surgical'[All Fields] AND 'procedures'[All Fields]) AND 'operative'[All Fields])) OR 'operative surgical procedures'[All Fields]) OR 'general surgery'[MeSH Terms]) OR ('general'[All Fields] AND 'surgery'[All Fields])) OR 'general surgery'[All Fields]) OR 'surgery s'[All Fields]) OR 'surgerys'[All Fields]) OR 'surgeries'[All Fields]) AND ((((((((('nasalance'[All Fields] OR 'nasality'[All Fields]) OR 'nasalization'[All Fields]) OR 'nasalized'[All Fields]) OR 'nasally'[All Fields]) OR 'nose'[MeSH Terms]) OR 'nose'[All Fields]) OR 'nasal'[All Fields]) OR 'nasals'[All Fields]) AND \ (((((((('carrier state'[MeSH Terms] OR ('carrier'[All Fields] AND 'state'[All Fields])) OR 'carrier state'[All Fields]) OR 'carrier'[All Fields]) OR 'carrier s'[All Fields]) OR 'heterozygote'[MeSH Terms]) OR 'heterozygote'[All Fields]) OR 'carriers'[All Fields]))	589

Table SII. Risk of bias in included studies.

A, RCTs

Study	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting
Konvalinka *et al* (13)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Unclear risk
Bode *et al* (12)	Low risk	Unclear risk	Low risk	Low risk	Low risk	Low risk

B, Non-RCTs

Study	Selection of participants	Confounding variables	Intervention measurements	Blinding of outcome assessment	Incomplete outcome data	Selective outcome reporting
Nicholas *et al* (35)	Low risk	High risk	Low risk	High risk	High risk	High risk
Saraswat *et al* (34)	High risk	Low risk	Low risk	High risk	Low risk	Unclear risk
Schweizer *et al* (33)	High risk	High risk	Low risk	High risk	High risk	Unclear risk
Jog *et al* (32)	High risk	High risk	Low risk	High risk	Low risk	Unclear risk
Shrestha *et al* (31)	Low risk	High risk	Low risk	High risk	Low risk	Unclear risk
Nicholson *et al* (30)	High risk	High risk	Low risk	High risk	Low risk	Unclear risk
Lemaignen *et al* (14)	High risk	Low risk	High risk	High risk	Low risk	Unclear risk
Kohler *et al* (29)	High risk	Low risk	Low risk	High risk	High risk	Unclear risk
Thompson *et al* (27)	High risk	High risk	Low risk	High risk	Low risk	Unclear risk
Walsh *et al* (28)	High risk	High risk	Low risk	High risk	Low risk	Unclear risk
Coskun *et al* (25)	High risk	High risk	Low risk	High risk	Unclear risk	Unclear risk
Martorell *et al* (26)	High risk	High risk	Low risk	High risk	Low risk	Unclear risk
Usry *et al* (23)	High risk	High risk	Unclear risk	High risk	Unclear risk	Unclear risk
Cimochowski *et al* (24)	High risk	High risk	Low risk	High risk	High risk	Unclear risk
Kluytmans *et al* (36)	High risk	High risk	Low risk	High risk	High risk	Unclear risk

RCT, randomized controlled trial.