Appendix A. Search Strategies

The following electronic databases were searched for citations.

- MEDLINE® (January 1, 1990, to September 1, 2011)
- EMBASE® (January 1, 1990, to September 1, 2011)
- Cochrane Controlled Trials Register (to September 1, 2011)

The MEDLINE® search resulted in 4746 unique citations. The EMBASE® search resulted in 3199 citations. The Cochrane search resulted in no new citations.

PubMed search 8/24/10 – yield 4746

Search updated 9/1/11 for 8/24/10 to 9/1/11

"Methicillin-Resistant Staphylococcus aureus"[Mesh]
OR ("Methicillin Resistance"[Mesh] AND "Staphylococcus aureus"[Mesh])
OR "methicillin-resistant staphylococcus aureus" OR MRSA
AND
"prevention and control "[Subheading] OR "Mass Screening"[Mesh] OR screening OR screened OR screen OR surveillance OR diagnosis
AND
randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials [mh] OR "clinical trial" OR ((singl* OR doubl* OR trebl* OR tripl*) AND (mask* OR blind*)) OR placebos [mh] OR placebo* OR random* OR research design [mh:noexp] OR follow-up studies [mh] OR prospective studies [mh] OR prospectiv* OR volunteer*) OR "Comparative Study "[Publication Type] OR "Evaluation Studies "[Publication Type] OR control OR controlled OR controls

EMBASE search10/18/10 – yield 3199

Search updated 9/1/11 for 10/18/10 to 9/1/11

'methicillin-resistant staphylococcus aureus'/exp OR ('methicillin resistance'/exp AND 'staphylococcus aureus'/exp) OR MRSA AND [humans]/lim
AND
'prevention and control'/exp OR 'mass screening'/exp OR 'screening'/exp OR screened OR screen OR surveillance OR 'diagnosis'/exp AND [humans]/lim
AND
'randomized controlled trial'/exp OR 'randomised controlled trial'/exp OR 'controlled clinical trial'/exp OR 'clinical trial'/exp OR (singl* OR doubl* OR trebl* OR tripl* AND (mask* OR blind*)) OR placebo* OR random* OR 'follow-up study'/exp OR 'prospective study'/exp OR

prospectiv* OR volunteer* OR 'comparative study'/exp OR 'evaluation study' OR 'control'/exp OR controlled OR controls AND [humans]/lim

Cochrane search10/18/10

Search updated 9/1/11 – search last 12 months – no unique records found

"methicillin-resistant staphylococcus aureus" OR ("Methicillin Resistant" AND "Staphylococcus aureus")
AND
Screening OR Diagnosis OR surveillance

Search Strategy For Gray Literature

Regulatory Information

FDA

Source: http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm
Date searched: 6/21/2011
Search strategy: 510(k) summary documents for the following were searched on FDA@devices
Xpert MRSA SA/SSTI
XPert MRSA SA/BC)
XPert MRSA
GeneOhm MRSA assay
BBL ChromAgar MRSA
Records: 49

Clinical trial registries

NIH database

Source: http://clinicaltrials.gov/
Date searched: 6/17/2011
Search strategy: Keyword + [ALL-FIELDS] AND "COMPLETED" [OVERALL-STATUS]
Key words: "MRSA Screen" "MRSA Screening" "MRSA surveillance" "MRSA active surveillance" "MRSA intervention" "MRSA prevention"
Records: 63

BioMed central

Source: http://www.controlled-trials.com/mrct/
Date searched: 6/13/2011
Search strategy: "MRSA" for completed trials
Records:13

PhRMA

Source: http://www.clinicalstudyresults.org/home/
Date searched: 6/20/2011
Search strategy: Search String = "MRSA" for completed trials
Records: 2

WHO International Clinical Trials Registry Platform Search Portal

Source: http://apps.who.int/trialsearch/
Date searched: 6/20/2011
Search strategy: Search String = "MRSA" in the Title for ALL recruitment status trials
Records: 90

Conference Papers and Abstracts

Cambridge scientific abstracts

Source: http://www.csa.com/factsheets/cpi-set-c.php
Date searched: 6/28/2011
Search strategy: search string "MRSA"
Records:73

Scopus

Source: http://www.scopus.com/home.url
Date searched:6/29/2011
Search strategy: search string "MRSA"
Records:211

Specific conferences and association meetings

Source:

1. ICAAC (Interscience Conference on Antimicrobial Agents and Chemotherapy)
2. The Infectious Disease Society of America
3. The Society for Healthcare Epidemiology of America
4. The Association of Professionals in Infection Control and Epidemiology
5. The American College of Physicians
6. The Pediatric Infectious Diseases Society
7. The European Society of Clinical Microbiology and Infectious Diseases
8. The International Society of Infectious Diseases
9. The Australasian Society of Infectious Diseases
10. The International Sepsis Forum
11. The European Society of Intensive Care Medicine

Date searched: 6/21/2011
Search strategy: KW: "MRSA"
Records:829

Government documents

RePORTER

Source: http://projectreporter.nih.gov/reporter.cfm
Date searched: 6/20/2011
Search strategy: key word "MRSA" OR "methicillin-resistant"
Records:9

HSRPROJ

Source: http://wwwcf.nlm.nih.gov/hsr_project/home_proj.cfm
Date searched: 6/15/2011
Search strategy: key word "MRSA" OR "methicillin-resistant"
Records:6

AHRQ GOLD

Source: http://gold.ahrq.gov/projectsearch/
Date searched: 6/15/2011
Search strategy: key word "MRSA" OR "methicillin-resistant"
Records: 0

Manufacturer Database

Source: CEPHEID
Date posted: 8/3/11
Date searched: 6/29/2011
Search strategy: Not applicable
Records: 95

Appendix B. Excluded Studies

Excluded: Foreign language

1. P. Bailly, B. Mulin, P. Minary and D. Talon. Control of methicillin-resistant Staphylococcus aureus infections in a university hospital: Critical analysis of results: Controle des infections Staphylococcus aureus meticillinoresistant dans un CHU: Analyse critique des resultats obtenus. Med. Mal. Infect. 1999 29(3), 178-183. Ref ID 1284.

Excluded: No primary data

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3. EMR has key role in screening program to reduce MRSA infection. Perform Improv Advis 2005 9(11), 129-30, 121. Ref ID 225.

4. G. Duckworth and A. Charlett. Improving surveillance of MRSA bacteraemia. BMJ 2005 331(7523), 976-7. Ref ID 226.

5. P. Johnson, A. Pearson and G. Duckworth. Surveillance and epidemiology of MRSA bacteraemia in the UK. J Antimicrob Chemother 2005 56(3), 455-62. Ref ID 239.

6. H. A. Verbrugh. Value of screening and isolation for control of methicillin-resistant Staphylococcus aureus. Clin Infect Dis 2005 41(2), 268-9; author reply 270-1. Ref ID 245.

7. L. Bissett. Controlling the risk of MRSA infection: screening and isolating patients. Br J Nurs 2005 14(7), 386-90. Ref ID 276.

8. C. Meek. Isolate patients, screen staff to fight MRSA. CMAJ 2004 171(10), 1158. Ref ID 323.

9. B. M. Farr. Prevention and control of methicillin-resistant Staphylococcus aureus infections. Curr Opin Infect Dis 2004 17(4), 317-22. Ref ID 346.

10. L. A. Hawley, S. K. Fridkin and C. G. Whitney. Drug-resistant Streptococcus pneumoniae and methicillin-resistant Staphylococcus aureus surveillance. Emerg Infect Dis 2003 9(10), 1358-9. Ref ID 406.

11. C. A. Muto, J. A. Jernigan, B. E. Ostrowsky, H. M. Richet, W. R. Jarvis, J. M. Boyce and B. M. Farr. SHEA guideline for preventing nosocomial transmission of multidrug-resistant strains of Staphylococcus aureus and enterococcus. Infect Control Hosp Epidemiol 2003 24(5), 362-86. Ref ID 446.

12. B. S. Cooper, S. P. Stone, C. C. Kibbler, B. D. Cookson, J. A. Roberts, G. F. Medley, G. J. Duckworth, R. Lai and S. Ebrahim. Systematic review of isolation policies in the hospital management of methicillin-resistant Staphylococcus aureus: a review of the literature with epidemiological and economic modelling. Health Technol Assess 2003 7(39), 1-194. Ref ID 466.

13. M. S. Arnold, J. M. Dempsey, M. Fishman, P. J. McAuley, C. Tibert and N. C. Vallande. The best hospital practices for controlling methicillin-resistant Staphylococcus aureus: on the cutting edge. Infect Control Hosp Epidemiol 2002 23(2), 69-76. Ref ID 520.

14. B. M. Farr and W. R. Jarvis. Would active surveillance cultures help control healthcare-related methicillin-resistant Staphylococcus aureus infections?. Infect Control Hosp Epidemiol 2002 23(2), 65-8. Ref ID 521.

15. M. H. Wilcox and A. Swann. Methicillin-resistant Staphylococcus aureus and healthcare associated infection surveillance. J Hosp Infect 2002 50(1), 80-1. Ref ID 528.

16. Hospital's aggressive screening efforts save money in long run. Health Care Cost Reengineering Rep 1997 2(9), 135-40. Ref ID 711.

17. C. Thornsberry. Epidemiology of staphylococcal infections--a USA perspective. J Chemother 1994 6 Suppl 2(), 61-5. Ref ID 797.

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19. C. Slekovec, D. Talon and X. Bertrand. Which screening is needed in intensive care units: MRSA or Pseudomonas aeruginosa?. J. Hosp. Infect. 2010 75(4), 329-330. Ref ID 896.

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31. B. Y. Lee, A. E. Wiringa, R. R. Bailey, V. Goyal, G. J. Lewis, B. Y. Tsui, K. J. Smith and R. R. Muder. Screening cardiac surgery patients for MRSA: an economic computer model. Am J Manag Care 2010 16(7), e163-73. Ref ID 9040.

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33. M. Melzer, L. Bain and Y. J. Drabu. Rapid screening for MRSA: Preventing infections from cannulas reduces MRSA. BMJ 2008 336(7653), 1085-6. Ref ID 9044.

34. D. J. Morgan, D. J. Diekema, K. Sepkowitz and E. N. Perencevich. Adverse outcomes associated with Contact Precautions: a review of the literature. Am J Infect Control 2009 37(2), 85-93. Ref ID 9046.

35. R. B. Nelson. Benefits and drawbacks of universal surveillance of methicillin-resistant Staphylococcus aureus. Ann Intern Med 2008 149(1), 67-8; author reply 68-9. Ref ID 9050.

36. C. D. Salgado, M. C. Vos and B. M. Farr. Universal screening for methicillin-resistant Staphylococcus aureus by hospitals. JAMA 2008 300(5), 503-4; author reply 504-5. Ref ID 9061.

37. E. Tacconelli. Screening and isolation for infection control. J Hosp Infect 2009 73(4), 371-7. Ref ID 9066.

38. E. Tacconelli, G. De Angelis, C. de Waure, M. A. Cataldo, G. La Torre and R. Cauda. Rapid screening tests for meticillin-resistant Staphylococcus aureus at hospital admission: systematic review and meta-analysis. Lancet Infect Dis 2009 9(9), 546-54. Ref ID 9067.

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61. N. Kekre. Editorial: Microbes strike back: End of golden era of antibiotics. Indian Journal of Urology 2010 26(3), 325. Ref ID 12271.

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63. B. Y. Lee, A. E. Wiringa, R. R. Bailey, V. Goyal, B. Tsui, G. J. Lewis, R. R. Muder and L. H. Harrison. The economic effect of screening orthopedic surgery patients preoperatively for methicillin-resistant Staphylococcus aureus. Infect Control Hosp Epidemiol 2010 31(11), 1130-8. Ref ID 12301.

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Excluded: Animal Study

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Excluded: NRS

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Excluded: Not relevant study design

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Excluded: Does not meet above mentioned criteria during quality control: review

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Appendix C. MRSA Abstract and Title Screening Form

1. Is article published in English? Exclude if not English.

- Yes
- No
- Uncertain

2. Does article report primary data? Exclude if no primary data (narrative reviews, commentaries, editorials, letters, news reports, etc...)

- Yes
- No
- Uncertain

3. Are the study participants human? Exclude if non human participants.

- Yes
- No
- Uncertain

4. Was study conducted among patients in ambulatory care or hospital settings? Exclude if not patients in ambulatory health care or hospital settings (nursing homes); also apply if focus is not patients (e.g. health care workers).

- Yes
- No
- Uncertain

5. Was MRSA the primary disease focus? Exclude if focus of study does not include or is not primarily centered on MRSA.

- Yes
- No
- Uncertain

6. Was the design a comparison of MRSA screening vs no screening or one screening method with another screening method? Exclude if the study is not a randomized controlled trial (RCT) or quasi-experimental study (QEX) comparing either screening (by either culture or PCR) vs no screening OR more limited screening vs expanded screening (NDE, see more detailed description of included and excluded study designs below); should also mark for retrieval.

- Yes
- No
- Uncertain

Appendix D. MRSA Full-text Screening Form

1. Is article published in English? Exclude if not English.

- Yes
- No
- Uncertain

2. Does article report primary data? Exclude if no primary data (narrative reviews, commentaries, editorials, letters, news reports, etc...)

- Yes
- No
- Uncertain

3. Are the study participants human? Exclude if non human participants.

- Yes
- No
- Uncertain

4. Was study conducted among patients in ambulatory care or hospital settings? Exclude if not patients in ambulatory health care or hospital settings (nursing homes); also apply if focus is not patients (e.g. health care workers).

- Yes
- No
- Uncertain

5. Was MRSA the primary disease focus? Exclude if focus of study does not include or is not primarily centered on MRSA.

- Yes
- No
- Uncertain

6. Was the design a comparison of MRSA screening vs no screening or one screening method with another screening method? Exclude if the study is not a randomized controlled trial (RCT) or quasi-experimental study (QEX) comparing either screening (by either culture or PCR) vs no screening OR more limited screening vs expanded screening (NDE, see more detailed description of included and excluded study designs below); should also mark for retrieval.

- Yes
- No, compared different forms of MRSA screening
- No, irrelevant study
- Uncertain

7. Did the study report a relevant outcome? Exclude if: no outcome is reported with a denominator or if one of these outcomes is not reported: MRSA incidence or prevalence, morbidity, mortality, harms, or resource utilization.

- Yes
- No
- Uncertain

8. Did the study report a statistical analysis? Exclude if: no statistical analysis is reported, also sort into categories: 2-group tests vs regression or time series analysis. If you answer 'Yes', please enter 1 for two-group test and 2 for time-series or regression analysis in the adjacent text box.

- Yes
- No
- Uncertain

9. Additional Comments:

10. Quality control: After QC review, should article be included?

- Yes
- No
- Uncertain

11. QC comments

Appendix E. MRSA Data Abstraction Form Elements

Study Characteristics

1. First Author (last name, first name)
2. Year
3. Country
4. Study Design
    a. RCT
    b. ITS
    c. QEX-BA
    d. QEX-CG
    e. X-OVER
5. Intervention N:
    a. Rate:
    b. Proportion:
    c. Both:
6. Indicate the units for the Intervention N:
    a. Person-Time
    b. Individuals
    c. Other
7. Control N:
    a. Rate:
    b. Proportion:
    c. Both:
8. Indicate the units for the Control N:
    a. Person-time
    b. Individuals
    c. Other:
9. Intervention(s) (including assay type)
10. Control Intervention(s) (including assay type)
11. Setting
12. Study duration
13. Pre-defined endpoints
14. Inclusion Criteria
15. Exclusion Criteria
16. Participant Characteristics of Intervention Group
17. Participant Characteristics of Control Group
18. Colonization Pressure Intervention Group
19. Colonization Pressure Control Group
20. Turnaround Time
21. Duration of Follow-Up Intervention Group
22. Duration of Follow-Up Control Group
23. Source of Funding and Disclosed Author-Industry Relationships

Outcomes

1. Study Description of Outcome (how did article label the outcome?)
2. Study Definition of Numerator of Outcome
3. Study Definition of Denominator of Outcome
4. Indicate how the outcome measure is reported and specify units if rate (e.g., per 1000 patient-days)
    a. Rate:
    b. Proportion
    c. Both:
    d. Other:
5. If the outcome is a rate indicate the units
    a. per 100 patient days
    b. per 1000 patient days
    c. per 10,000 patient days

    d. per 100 admissions
    e. per 1000 admissions
    f. per 10,000 admissions
    g. Other:
6. Frequency of Outcome in Intervention Group:
7. Frequency of Outcome in Control Group:
8. Difference [Screening-Control (95% CI)]
9. Difference Metric:
    a. Rate Ratio:
    b. Risk Ratio:
    c. Rate Difference:
    d. Risk Difference:
10. Analysis (e.g., Regression, Name of Statistical Test)
11. Univariate Analysis Results (variable1 (p value); ...)
12. Multivariate Analysis Results (variable1 (p value); ...)
13. Were covariates included in multivariate models based on univariate analysis p values?
    a. Yes
    b. No
    c. Uncertain
14. Describe decisions for building final multivariate model.

Study Quality

1. Initial assembly of comparable groups
    a. Yes
    b. No
    c. Uncertain
2. Maintenance of comparable groups (includes attrition, crossovers, adherence, and contamination)
    a. Yes
    b. No
    c. Uncertain
3. Avoidance of important differential loss to followup or overall high loss to followup.
    a. Yes
    b. No
    c. Uncertain
4. Measurements reliable, valid, equal (includes masking of outcome assessment)
    a. Yes
    b. No
    c. Uncertain
5. Interventions comparable/clearly defined
    a. Yes
    b. No
    c. Uncertain
6. All important outcomes considered
    a. Yes
    b. No
    c. Uncertain
7. Appropriate analysis of results (adjustment for potential confounders and intention-to-treat analysis)
    a. Yes
    b. No
    c. Uncertain
8. Funding/sponsorship source acknowledged
    a. Yes
    b. No
    c. Uncertain
9. Overall Rating
    a. Good
    b. Fair
    c. Poor
10. Were baseline prognostic characteristics clearly described and groups shown to be comparable?
    a. Yes

    b. No
    c. Uncertain
11. Were interventions clearly specified?
    a. Yes
    b. No
12. Were participants in treatment groups recruited in the same time period?
    a. Yes
    b. No
    c. Uncertain
13. Was there an attempt by investigators to allocate participants to treatment groups in an attempt to minimize bias?
    a. Yes
    b. No
14. Were concurrent/concomitant treatments clearly specified and given equally to treatment groups?
    a. Yes
    b. No
15. Were outcome measures clearly valid, reliable, and equally applied to treatment groups?
    a. Yes
    b. No
16. Were outcome assessors blinded?
    a. Yes
    b. No
    c. Uncertain
17. Was the length of follow-up adequate? (median/mean, range of follow-up)
    a. Yes
    b. No
18. Was attrition below an overall high level (<20%)?
    a. Yes
    b. No
    c. Uncertain
19. Was the difference in attrition between treatment groups below a high level (<15%)?
    a. Yes
    b. No
    c. Uncertain
20. Did the analysis of outcome data incorporate a method for handling confounders such as statistical adjustment?
    a. Yes
    b. No
21. Did the study design use a separate control group?
    a. Yes
    b. No
22. Did the statistical analysis use regression or time series modeling?
    a. Yes
    b. No

Appendix F. Data Abstraction Tables

Appendix Table F1. Characteristics of Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Chabernyet al., 2008,[1] Germany	QEX-BA	Expanded Vs Limited Screening	C + Int: (219,124 admissions; 1,987,676 patient-days)	Limited screening of high risk (roommates and known readmitted patients) using culture: 01/01/02 - 06/30/04	Expanded screening of high risk patients plus major surgical wards and ICUs using culture: (07/01/04 - 12/31/04)	Hospital	Primary: incidence of nosocomial MRSA infections for the entire hospital.
Chowers et al., 2009,[2] Israel	QEX-ITS	Screening of High Risk Pts Vs No Screening	C + Int: (n=377,945; 1,535,806 patient days)	No screening: 11/01 - 07/03	Screening using culture of high risk patients in periods 1 and 2, using PCR in periods 3 and 4: 7/03-12/07	Community hospital	Primary: nosocomial MRSA bacteremia rates Secondary: number of MRSA-positive carriers per number of screened patients
Ellingson et al., 2011,[3] USA	QEX-ITS	Screening of High Risk Pts Vs No Screening	NR	No screening: 10/99-10/01	Screening using culture in surgical ward, surgical ward plus SICU, surgical ward plus SICU plus all remaining acute care wards: 10/01-05/08	Veterans Affairs acute care hospital	Clinical incidence of MRSA colonization or infection. Secondary outcomes included clinical incidence of MSSA colonization or infection, quarterly incidence of MRSA bloodstream infection and monthly proportion of all clinically incident *S. aureus* isolates that were resistant to methicillin.
Gould et al., 2007,[4] UK	QEX-ITS	Screening of ICU Risk Pts Vs No Screening	C: (n=1232) Int: (n=1421)	No screening:	Screening at time of ICU admission by culture: 05/01 - 04/03	Mixed MICU/SICU	Acquisition and spread of MRSA in the ICU.

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Harbarth et al., 2008,[5] Switzerland	QEX-CG, X-OVER	Screening of Surgical Pts Vs No Screening	C: (83,120 patient days ; 10,910 admissions) Int: (83,757 patients days; 10,844 admissions)	Standard IC alone: Period 1 ((10/04 - 06/05): Urology, transplant & abd. surgery wards Period 2 (09/05 - 05/06):Orthopedic, neurosurgery, plastic surgery, cardio, & thoracic surgery wards	Standard IC plus screening in surgical wards using PCR Int 1: (10/04-06/05) Orthopedic, Neurosurgery, plastic surgery, cardiovascular, & thoracic surgery wards Int 2 (09/05-05/06): Urology, transplant, & abd. surgery wards	Abdominal surgery, orthopedics, urology, neurosurg, cardiovasc surgery, thoracic surgery, plastic surgery, and solid organ transplantation wards.	Primary: nosocomial MRSA infection rates; Secondary: MRSA SSI rates; MRSA colonization infection rates
Harbarth et al., 2000,[6] Switzerland	QEX-BA	Screening of High Risk Pts Vs No Screening	C + Int: (50,6012 admissions)	No screening: 01/89 - 12/92	Screening in high risk wards using culture: 01/93 - 12/97	Primary and tertiary care teaching hospital	Reservoir of MRSA patients and rate of MRSA bacteremia
Holzmann-Pazgal et al., 2011,[7] USA	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n= 730) Int: (n=2367)	No screening: 1/06-12/06	Screening in PICU by culture: 1/07-12/09	PICU	Incidence of MRSA transmission and nosocomial MRSA acquisition in the PICU
Huang et al., 2006,[8] USA	QEX-ITS	Screening of ICU Risk Pts Vs No Screening	NR	No screening: 01/96 - 07/02	Screening by culture (on ICU admission and weekly throughout ICU stay): 09/03 - 12/04	ICU	MRSA bacteremia
Huskins et al., 2011,[9] USA	RCT	Screening of ICU Risk Pts Vs No Screening	C: (n=1615) Int: (n= 2441)	No screening: 3/06-8/06	Screening in ICU by culture: 3/06 - 8/06	Adult ICUs: MICU/SICU	ICU-level incidence of new events of colonization or infection with MRSA or VRE. Secondary ICU-level outcomes were the incidences of colonization or infection with MRSA and VRE calculated separately as well as several processes of care measures.

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Jain et al., 2011,[10] USA	QEX-BA	Universal Vs No Screening	Int: 1,934,598	No screening: 10/05-9/07	MRSA bundle including universal screening using culture or PCR: 10/07-6/10	Veterans Affairs hospitals	Health care-associated MRSA infections
Leonhardt et al., 2011,[11] USA	QEX-CG (Case Control)	Universal Vs Screening of Selected Pts	C: (n= 5931) Int: (n=9118)	Screening in high risk patients using PCR: 04/09 - 12/09	Universal screening using PCR: 04/09 - 12/09	Community hospital	Hospital-acquired MRSA infection; MRSA prevalence on admission
Muder et al., 2008,[12] USA	QEX-BA	Screening of Surgical Pts Vs No Screening	C (year 2002): (9,796 person-time Int (year 2006): (11,653 person-time)	No screening: Unit A: (09/00 - 10/01) ; Unit B: (09/02 - 10/03)	Screening in ICU using culture: Unit A (10/01 - 09/26/06) Unit B (10/03 - 09/26/06)	SICU	SSI rates and MRSA infection rates
Raineri et al., 2007,[13] Italy	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=667; 5,456 patient-days) Int1: (n=1995 total admissions to the ICU; 13669 patient-days) Int2: (n=1316 total admissions; 8310 patient days)	No screening: 01/96 - 12/31/97	Screening by culture in ICU: 01/01/98 - 2005	MICU/SICU	MRSA infections diagnosed in ICU and acquisition of MRSA during ICU stay
Robicsek et al., 2008,[14] USA	QEX-BA	Universal Vs No Screening	C: (n= 39,521) Int: (n=73,464)	No screening: 8/03-8/04	Universal screening using PCR: 9/05-9/07	3-hospital organiza-tion	Primary: Aggregate hospital-associated MRSA Infection rate; Secondary: Rate of health care-associated MRSA and MSSA bacteremia, rates of

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
		Universal Vs Screening of Selected Pts	C: (4392 ICU admissions) Int: (n=73,464)	Screening in ICU using PCR: 9/04-8/05	Universal screening using PCR + routine therapy for colonization: 9/01/05 - 4/30/07	ICU	aggregate MRSA infection occurring up to 180 days after discharge, adherence to MRSA surveillance.
		Screening of ICU Risk Pts Vs No Screening	C: (n=39,521) Int: (n=40392)	No screening: 08/03 - 08/04	Screening in ICU by PCR: 09/04 - 08/05	ICU	
Rodriguez-Bano et al., 2010,[15] Spain	QEX-ITS	Screening of High Risk Pts Vs No Screening	NR	No screening: Period A 1/95-12/96 Period B 1/9712/-98	Period C: Screening using culture in patients + HCW in wards with suspected MRSA transmission and screening of roommates of patients with MRSA colonization in wards without active screening : 01/99 - 12/00 Period D: In addition to period C intervention, active screening in readmitted patients previously colonized with MRSA and patients admitted from other health care facilities: 1/01-12/08	Tertiary teaching hospital	Rates of MRSA colonization or infection and rates of MRSA bacteremia

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
	QEX-ITS	Expanded Vs Limited Screening	NR	Limited in high risk units using culture: period C 1/99-12/00	Expanded screening of high risk units OR high risk units plus high risk patients using culture: Period D 01/01-12/08	Tertiary referral hospital	

Abd: Abdominal; BA: Before after; C: Control; CG: Control group; HCW: Health care workers; IC: Infection control; ICU: Intensive care unit; Int: Intervention; ITS: Interrupted time series; MICU: Medical intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* MSSA: Methicillin-sensitive *Staphylococcus aureus;* N: No; NR: Not reported; PCR: Polymerase chain reaction; PICU: Pediatric intensive care unit; QEX: Quasi-experimental; RCT: Randomized controlled trial; SICU: Surgical intensive care unit; SSI: Surgical site infection; X-over: Cross over; Y: Yes

Appendix Table F2. Characteristics of Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Blumberg, et al., 1994,[16] South Africa	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=2315) Int: (n=2605)	No screening: 1 year	Screening in ICU and pediatric oncology unit using culture: 1 year	ICU (MICU, SICU, PICU and pediatric oncology)	Identification and treatment of MRSA-positive staff and patients as well as to isolate MRSA-positive patients in the ICU and pediatric oncology units.
Bowler et al., 2010,[17] USA	QEX-BA	Screening of High Risk Pts Vs No Screening	NR	No screening: 07/05 - 06/06	Screening of high risk patients using culture: 07/06 - 06/08	Regional-referral Hospital.	Prevalence and nosocomial transmission of MRSA
Boyce et al., 2004,[18] USA	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=not specified) Int: (n=523)	No screening: Beginning 5 months before spring of 2003	Screening at time of SICU admission by culture: Beginning in spring 2003 and continue 5 months after that.	SICU	Number of health care-associated MRSA infections acquired in the SICU
Clancy et al., 2006,[19] USA	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=not specified) Int: (n=1890)	01/02 - 03/03	Screening at time of MICU or SICU admission by culture: 04/03 - 06/04	MICU/SICU	Primary: Incidence of MRSA infection; Secondary: Percentage of ICU patients colonized or infected with MRSA on admission, mean number of census-days after admission that a clinical specimen was positive for MRSA in patients who developed nosocomial infections
de la Cal et al., 2004,[20] Spain	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=140) Int1: (n=258) Int2: (n=401)	No screening: 07/96 - 04/97	Screening at time of MICU /SICU admission or those expected to be on ventilation > 3 days using culture: 05/97 - 09/97	Adult MICU/SICU	Incidence of ICU-acquired MRSA colonization or infection

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Eveillard et al., 2006,[21] France	QEX-BA	Expanded Vs Limited Screening	C: Int: (n=455)	Limited screening of selected high risk patients using culture: 04/02 - 09/02	Expanded screening of patients admitted to internal medicine ward using culture: 04/03 - 09/03	Internal medicine ward in a teaching hospital	Prevalence of MRSA carriage on admission
Girou et al., 2000,[22] France	QEX-BA	Expanded Vs Limited Screening	C: (n= 370) Int: (n=359)	Limited screening of high risk patients admitted to dermatology ward using culture: 09/96 - 05/97	Expanded screening of patients admitted to dermatology ward using culture: 05/97 - 12/97	Dermatology ward (including 2 ICU beds)	Number of patients with MRSA + screening sample in intervention period without risk factors, Rate of acquired MRSA, Rate of imported MRSA
Jog et al., 2008,[23] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n= 697) Int: (n=765)	No screening: 10/04-09/05	Screening in cardiac surgery unit using PCR: 10/05-09/06	Cardiac surgery and general ward in a teaching hospital	SSIs in patients undergoing cardiac surgery. MRSA rates were measured as well.
Keshtgar et al., 2008,[24] UK	QEX-BA	Screening of High Risk Pts Vs No Screening	C: (1,469,399 person-time) Int: (221,027 person time)	No screening: 01/00-12/05	Screening of critical care, elective and emergency surgery wards using PCR: 01/06 - 12/06	Teaching hospital; critical care, routine and emergency surgical wards.	Rate of MRSA wound infection and bacteremia
Kim et al., 2010,[25] USA	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n= 5293) Int: (n=7019)	No screening: 10/05 - 07/06	Screening at preadmission in patients undergoing elective orthopedic surgery using PCR: 07/06 - 09/07	Orthopedic surgery ward	MRSA SSI rate

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Kurup et al., 2010,[26] Singapore	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n=not specified) Int: (n=653)	No screening: 07/06 - 06/07	MICU screening using culture and SICU screening using PCR: 07/07 - 06/08	MICU, SICU	MRSA infection rates in the MICU and SICU
Lipke et al., 2010,[27] USA	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=NR) Int: (n=5570)	No screening: 02/05 - 01/06	Screening in patients undergoing selected surgical procedures at preadmission using culture: 02/06 - 01/07	Community hospital	MRSA SSI rate
Malde et al., 2006,[28] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=6555) Int: (n=4141)	No screening: 01/96 - 12/00	Screening for elective and emergency surgery vascular admissions using culture Emergency admissions 01/01 - 12/04 Elective admissions 01/01 - 12/04	Vascular ward in university hospital	Primary outcomes: Wound infection, Major limb amputation, Mortality. Secondary outcomes: MRSA infection, Colonization or Infection with MRSA
Nixon et al., 2006,[29] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=2341) Int: (n=3253)	No screening: 01/03 - 05/03	Screening in orthopedic surgery elective patient pre-admission or before transfer using culture: Elective 1/04 - 05/04 Trauma 01/04 - 05/04	Orthopedic ward in a university hospital	MRSA SSI incidence, MRSA Colonization, Morbidity and Mortality of MRSA patients (colonized and infected)

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Pan et al., 2005,[30] Italy	QEX-BA	Screening of High Risk Pts Vs No Screening	NR	No screening: 01/96 - 06/97	Screening of high risk patients and wards using culture: 01/00 - 12/01	Community hospital	Incidence rate of MRSA bloodstream infection
Pofahl et al., 2009,[31] USA	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n= 8469) Int: (n=5094)	No screening: 01/04 - 02/07	Screening in surgical patients using PCR: (02/15/07 - 07/01/08)	Surgical ward in a tertiary care hospital	MRSA SSI rate
Salaripour et al., 2006,[32] Canada	QEX-BA	Screening of High Risk Pts Vs No Screening	NR	No screening: 02/00 - 02/01	Screening of high risk patients using culture: 03/01 – 2005	Hospital	Rate of Nosocomial MRSA
Sankar et al., 2005,[33] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=164) Int: (n=231)	No screening: 10/00 - 04/01	Screening at preadmission in patients undergoing elective total joint arthroplasty using culture: 04/01 - 10/01	Elective orthopedic ward	Post-operative MRSA infection; length of hospital stay
Schelenz et al., 2005,[34] UK	QEX-BA	Expanded Vs Limited Screening	C: (n= 1075) Int: (n=1075)	Limited screening: likely to have used culture: Started 16 months before August 2000	Expanded screening: Started September 2000 and continued for 16 months.	Cardiothoracic surgical ward	MRSA acquisition and infection rates
Simmons et al., 2011,[35] USA	QEX-BA	Screening of ICU Risk Pts Vs No Screening	Not specified	No screening: 01/07 - 06/08	ICU screening using PCR: 07/08 - 12/09	ICU	ICU-acquired MRSA rate, Hospital-wide MRSA rate
Sott et al., 2001,[36] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=113) Int: (n=123)	No screening: Year 2005 (12 months)	Screening at preadmission in patients undergoing elective primary total hip replacement using culture: Year 2006 (12 months)	Orthopedic unit	MRSA post-operative sepsis

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
Souweine et al., 2000,[37] France	QEX-BA	Screening of ICU Risk Pts Vs No Screening	C: (n= 233) Int: (n=351)	No screening: 05/94 - 04/95	Screening on ICU admission using culture: 05/95 - 04/96	MICU/SICU	Patients infected or colonized by MRSA in the ICU
Supriya et al., 2009,[38] Scotland	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n= 84) Int: (n=31)	No screening: 02/06 - 02/07	Screening at preadmission in head and neck cancer surgery patients using culture: 07/07 - 01/08	Tertiary referral center	MRSA infection rates
Thomas et al., 2007,[39] UK	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n=101) Int: (n=47)	No screening: 01/02 - 09/04	Screening for all patients referred for PEG insertion using culture: 10/04 - 08/06	Endoscopy unit in a hospital	Peristomal MRSA Infection
Thompson et al., 2009,[40] UK	QEX-BA	Expanded Vs Limited Screening	C: Int: (n=914)	Limited screening of high risk patients in ICU using culture: 01/01 - 11/06	Expanded screening of all ICUs using culture: 12/06 - 06/08	ICU	Prevalence of MRSA in admissions and its acquisition and bacteremia rates within ICU
Trautmann et al., 2007,[41] Germany	QEX-BA	Expanded Vs Limited Screening	NR	Limited screening of high risk patients using culture: 01/02 - 12/02	Expanded screening of high risk patients plus SICU using culture: dates NR	Surgical ICU	NR
Walsh et al., 2011,[42] USA	QEX-BA	Screening of Surgical Pts Vs No Screening	C: (n= 2766) Int: (n=2496)	No screening: 01/04 - 01/07	Screening at pre-admission of patients undergoing elective cardiothoracic surgery using culture: 02/07 - 01/31/10	Cardiothoracic surgery ward and ICU in a community hospital	MRSA SSI rate
Wernitz et al., 2005,[43] Germany	QEX-BA	Screening of High Risk Pts Vs No Screening	C: (n= 36,118) Int: (n=36,962)	No screening: 09/99 - 03/01	Screening of high risk patients using culture: 05/01 - 11/02	Acute care university teaching hospital:	Frequency of hospital-acquired MRSA infection

Author, Year, Country	Design	MRSA Strategy	N	Control (strategy, duration)	Intervention (strategy, duration)	Study Setting	End Points
West et al., 2006,[44] USA	QEX-BA	Expanded Vs Limited Screening	C: Int: (n=7,712)	Limited screening on ICU admission using culture: 09/01 - 06/02	Expanded screening of ICU admission plus those at high risk admitted to general wards using culture: 07/02 - 10/03	Tertiary care facility + suburban hospital ICU in a community hospital	Rate of nosocomial MRSA infection.

BA: Before after; C: Control; CG: Control group; IC: Infection control; ICU: Intensive care unit; Int: Intervention; MICU: Medical intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No; NR: Not reported; PCR: Polymerase chain reaction; PEG: Percutaneous endoscopic gastrostomy; PICU: Pediatric intensive care unit; QEX: Quasi-experimental; SICU: Surgical intensive care unit; SSI: Surgical site infection

Appendix Table F3. Infection Control Practices in Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Chabernyet al., 2008,[1] Germany	Expanded Vs Limited Screening	None	Isol/coh, BP, HW, Alcohol-based hand rubs, INAM, TAMW	Audit and feedback	None	Isol/coh, BP, INAM, TAMW, HW, Alcohol-based hand rubs	Audit and feedback
Chowers et al., 2009,[2] Israel	Screening of High Risk Pts Vs No Screening	None	None	Contact isolation, roommates screened for MRSA	None	Contact isolation, eradication	Monitoring to ensure compliance with screening and contact isolation (periods 2 and 4 only).
Ellingson et al., 2011,[3] USA	Screening of High Risk Pts Vs No Screening	None	None	None	None	Contact precautions, Unspec HH,	Unspec HH, Decontaminate spaces, systems and behavior change strategies to promote adherence to the behavior change protocol.
Gould et al., 2007,[4] UK	Screening of ICU Risk Pts Vs No Screening	Isol/coh, BP	None	None	Isol/coh, BP	INAM, TAMW	None

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Harbarth et al., 2000,[6] Switzerland	Screening of High Risk Pts Vs No Screening	None	None	None	Isol/coh of patients previously known to be colonized or infected with MRSA	Isol/coh, INAM, TAMW, IVAB (only for those with MRSA infection), surveillance cultures	HH education program. Computer alerts, Alcohol-based hand rubs, Surveillance cultures of roommates and outbreak investigations, when possible.
Harbarth et al., 2008,[5] Switzerland	Screening of ICU Risk Pts Vs No Screening	None	Period 1 & 2: Isol/coh, BP, INAM, TAMW, Other- Adjustment of antibiotic prophylaxis	Period 1 & 2: Other- standard hand hygiene	Period 1 & 2: None	Period 1 & 2: Isol/coh, BP, INAM, TAMW, Computer alerts, Antibiotic route unspecified	Period 1: Other- standard hand hygiene Period 2: Other- Antibiotics route unspecified, Alcohol-based hand rubs
Holzmann-Pazgal et al., 2011,[7] USA	Screening of ICU Risk Pts Vs No Screening	Isol/coh, BP	None	None	Isol/coh, BP	None	HWCC
Huang et al., 2006,[8] USA	Screening of ICU Risk Pts Vs No Screening	None	None	Campaign for sterile central venous catheter placement, alcohol-based hand rubs, hand hygiene campaign	Contact precautions	None	Campaign for sterile central venous catheter placement, alcohol-based hand rubs, hand hygiene campaign

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention- BICP
Huskins et al., 2011,[9] USA	Screening of ICU Risk Pts Vs No Screening	Iso/coh, BP	None	Reinforcement of IC practices, unspecified HH	Iso/coh, BP	Universal gloving. Contact precautions for those patients infected or colonized with MRSA or VRE during the prior year.	Visual aids/signage, Reinforcement of IC practices, report on providers' use of universal gloving, unspecified HH
Jain et al., 2011,[10] USA	Universal Vs No Screening	None	None	None	None	Contact precautions, HW, Repeat assays	Culture change campaign
Leonhardt et al., 2011,[11] USA	Universal Vs Screening of Selected Pts	Isol/coh, BP (only for patients known to be MRSA positive)	Isol/coh, BP, BPCC, perioperative decolonization and antibiotic prophylaxis when appropriate	Isol/coh, BP	Isol/coh, BP (only for patients known to be MRSA positive)	Isol/coh, BP, BPCC, perioperative decolonization and antibiotic prophylaxis when appropriate	Reinforcement of ICP
Muder et al., 2008,[12] USA	Screening of ICU Risk Pts Vs No Screening	Unit A: None Unit B:	Unit A: None Unit B:	Unit A: None, Unspec HH, Other- Peri-operative antimicrobial prophylaxis Unit B:	Unit A & B: BP, Unspec HH, Others- Standard precaution	Unit A: BP, Repeat assays, Other- Toyota Production System method of intervention Unit B: BP, Repeat assays, Other- Toyota Production System	Unit A & B: None, Unspec HH, Other- Peri-operative antimicrobial prophylaxis

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Raineri et al., 2007,[13] Italy	Screening of ICU Risk Pts Vs No Screening	None	None	None	Intervention 1: Contact precautions (hand hygiene and gloves, when performing procedures at risk for MRSA transmission, gowns and masks). INAM, TAMW, repeat assays. Intervention 2: Same as intervention 1 plus Iso/Coh	None	Staff education.
Robicsek et al., 2008, [14] USA	Screening of ICU Risk Pts Vs No Screening	Isol/coh, BP, dedicated equipment for staff use	None	None	Isol/coh, BP, dedicated equipment for staff use,	None	None
Robicsek et al., 2008,[14] USA	Universal Vs No Screening	None	Isol/coh, BP, dedicated equipment for staff use	None	None	Isol/coh, BP, dedicated equipment for staff use. INAM, TAMW.	Physician and nursing education. Monitored adherence and provided feedback.
Robicsek et al., 2008,[14] USA	Universal Vs Screening of Selected Pts	None	Isolation, BP, dedicated equipment for staff use	None	None	Isol/coh, BP, dedicated equipment for staff use. INAM, TAMW.	Physician and nursing education. Monitored adherence and provided feedback.

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Rodriguez-Bano et al., 2010,[15] Spain	Screening of High Risk Pts Vs No Screening	None	Period A: None Period B: Contact precautions, dedicated patient care equipment, disinfection of surfaces and devices	Unspec HH, strict cleaning policy	Period C: None Period D: Preemptive isolation of readmitted patients previously colonized with MRSA	Contact precautions, decolonization (INAM, TAMW), dedicated patient care equipment, disinfection of surfaces and devices	Unspec HH, strict cleaning policy, alcohol hand rubs
Rodriguez-Bano et al., 2010,[15] Spain	Expanded Vs Limited Screening	None	Isol/coh, BP, BPCC, Unspec HHDecolonization (INAM, TAMW) for patients without open wounds, respiratory tract colonization, mechanical ventilation, NG tube, urinary tract colonization in presence of urinary catheter, high-level mupirocin resistance. Follow up nasal swabs after 1 week to check for decolonization.	None	Preemptive isolation for readmitted patients previously colonized with MRSA	Isol/coh, BP, BPCC, Unspec HH, alcohol hand rubs, Decolonization (INAM, TAMW) for patients without open wounds, respiratory tract colonization, mechanical ventilation, NG tube, urinary tract colonization in presence of urinary catheter, high-level mupirocin resistance. Follow up nasal swabs after 1 week to check for decolonization.	Alcohol hand hygiene education

BICP: Background infection control practices; BP: Barrier precautions; CHKGL: Checklist/Guidelines; Coh: Cohorting; HH: hand hygiene; HWCC: hand hygiene compliance checks; ICP: Infection control practices; ICPW: Infection control practices while waiting for MRSA results; ICU: Intensive care unit; INAM: Intransal antimicrobial; Iso: isolation; IV: Intravenous; IVAB: Intravenous antibiotics; MICU: Medical intensive care unit; MRSA: Methicillin resistant infection control practices; NG: Nasogastric; OR: Operation room; PO: Oral; POAB: Oral antibiotics; TAMW: Topical antimicrobial wash; Unpsec: Unspecified; VRE: Vancomycin resistant enterococcus

Appendix Table F4. Infection Control Practices in Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Blumberg, et al., 1994,[16] South Africa	Screening of ICU Risk Pts Vs No Screening	None	None	None	Isol/coh (only for patients admitted to ICU, not for those admitted to pediatric oncology unit), BP, INAM, TAMW, alcohol-based hand rubs. Attempt to perform cohort nursing. Repeat assays.	None	None
Bowler et al., 2010,[17] USA	Screening of High Risk Pts Vs No Screening	None	None	None	None	INAM, TAMW, POAB, Repeat assays, screening of household contacts	None
Boyce et al., 2004,[18] USA	Screening of ICU Risk Pts Vs No Screening	None	None	None	Contact precautions	None	None
Clancy et al., 2006,[19] USA	Screening of ICU Risk Pts Vs No Screening	Isol/coh, BP,	None	BP	Isol/coh, BP, HWCC, contact isolation compliance checks, repeat assays	None	New MICU with 24 private rooms (prior unit with only 1 private room). Two new general medical and surgical floors, each with 22 private rooms (previously no private rooms). Increased availability of alcohol hand foam dispensers.

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
de la Cal et al., 2004,[20] Spain	Screening of ICU Risk Pts Vs No Screening	Isol/coh, BP, HW	None	BP, HW, Decontaminate spaces,	Interventions 1 and 2: Isol/coh, BP, TAMW, PO/IVAB, HW, PO antibiotics.	None	Intervention 1: BP, HW, Decontaminate spaces, Intervention 2: Same as intervention 1 plus oral antibiotics (for high risk patients), selective digestive decontamination with PO and IVAB, topical antibiotics, TAMW.
Eveillard et al., 2006,[21] France	Expanded Vs Limited Screening	None	Isol/coh, BP	None	None	Isol/coh, BP	None
Girou et al., 2000,[22] France	Expanded Vs Limited Screening	Isol/coh, BP, HW (for patients at high risk of MRSA acquisition only)	Isol/coh, BP, HW, repeat assays	None	Isol/coh, BP, HW (for patients at high risk of MRSA acquisition only)	Isol/coh, BP, HW, repeat assays.	None.
Jog et al., 2008,[23] UK	Screening of Surgical Pts Vs No Screening	None	Isol/coh, Computer alerts, Antibiotics Route Unspecified	Decontaminate spaces, Other-Ward audits on IC practices and education	INAM, Other-topical triclosan 2%	Isol/coh, INAM, IVAB, Computer alerts, Other-topical triclosan 2%	Unspec HH, Decontaminate spaces, Other-Ward audits on IC practices and education
Keshtgar et al., 2008,[24] UK	Screening of High Risk Pts Vs No Screening	None	None	None	INAM, TAMW for patients who required emergency surgery before results returned	INAM, TAMW , IVAB (if antibiotic prophylaxis required)	None

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Kim et al., 2010,[25] USA	Screening of Surgical Pts Vs No Screening	None	None	None	None	Isol/coh, INAM, TAMW, IVAB, Repeat assays, Other- personalized education and instruction on the eradication by telephone	None
Kurup et al., 2010,[26] Singapore	Screening of ICU Risk Pts Vs No Screening	None	None	None	Isol/coh, TAMW, Repeat assays	None for the 1st half of the intervention period TAMW for the 2nd half of the intervention period	Staff education. HH campaign. HWCC.
Lipke et al., 2010,[27] USA	Screening of Surgical Pts Vs No Screening	None	None	None	None	INAM, TAMW, Other- Education booklet: Living with MRSA, which included facts, treatment and prevention related to MRSA infections	Other- The nurses had a pre-intervention in-service program that ensured that they understood nursing practice changes, change antiseptic cloth before surgery
Malde et al., 2006,[28] UK	Screening of ICU Risk Pts Vs No Screening	None	None	None	Isol/coh, BP, Unspec HH	None Isol/coh, BP, INAM, TAMW, PO/IVAB, MW, Unspec HH, Repeat assays, Delayed admission	HW

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention- BICP
Nixon et al., 2006,[29] UK		Elective: None Trauma:	Elective: Isol/coh, BP, INAM, TAMW, HW Trauma:	Elective: None Trauma:	Elective: Other- delayed admission; Trauma: TAMW, Antibiotic route unspecified	Elective: TAMW, Delayed admission, Antibiotic route unspecified, Other- beds are "ring-fenced" Trauma: Isol/coh, BP, TAMW, IVAB, Repeat assays, Delayed admission	Elective and Trauma: Decontaminate spaces, Other- staff education program, Environmental cleaning guideline, Alcohol-based hand rubs
Pan et al., 2005,[30] Italy	Screening of High Risk Pts Vs No Screening	None	None	None	None	Isol/coh, BP, INAM, TAMW, HW, Other- Colonized wounds were treated with TAM cream	None
Pofahl et al., 2009,[31] USA	Screening of Surgical Pts Vs No Screening	Isol/coh	Isol/coh	None	None	INAM, TAMW	None
Salaripour et al., 2006,[32] Canada	Screening of High Risk Pts Vs No Screening	None	None	None	None	Contact precautions, TAMW, PO/IVAB,, Decontaminate spaces, Signs, Computer alerts, patient and family education. Provided housekeeping with list of rooms of patients under precautions.	Revamp policies for contact precautions, environmental cleaning and transport. Calls to clinical units to remind them to culture high-risk patients. Education of staff. Hand hygiene campaign.

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Sankar et al., 2005,[33] UK	Screening of ICU Risk Pts Vs No Screening	None	IVAB	IVAB	None	INAM, TAMW, IVAB, Repeat assays, Delayed admission	Other- IV antibiotics
Schelenz et al., 2005,[34] UK	Expanded Vs Limited Screening	None	INAM, TAM, Iso (if isolation room available), BP	None	Decolonization (INAM, TAM) of patients with pending screening test results 24 hours before surgery. Admission of patients from high-risk units (ICUs, other hospitals), only after MRSA status known.	INAM, TAM, Iso, BP, alcohol hand rub,	Audit + feedback. Education. Closure of operating rooms to facilitate repairs. Designated nurses for MRSA + patients. Nursing care pathway for MRSA. Use of clippers to prepare the skin in the OR. Pre-operative skin disinfection with a rapidly drying solution. Improvements in environmental cleaning. Alternative in IV antibiotic prophylaxis. Recovery in the OR when possible, rather than admission to the ICU.

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Simmons et al., 2011,[35] USA	Screening of ICU Risk Pts Vs No Screening	Contact isolation, decolonization (type unspecified), Repeat assays	None	None	Contact isolation, decolonization (INAM) an option, Repeat assays	None	Nurses given compliance reports for swab collection and initiation of isolation precautions
Sott et al., 2001,[36] UK	Screening of Surgical Pts Vs No Screening	None	None	None	None	INAM, TAMW, Antibiotic route unspecified, Other- patient counseled by nurse	Other- standard antibiotic prophylaxis
Souweine et al., 2000,[37] France		None	None	None	Isol/coh, BP, INAM, TAMW, HW, Repeat assays, Other- All soiled articles, moist body substances, and waste were wrapped in double bags before removal from rooms	Isol/coh (for patients transferred from another ICU)	Other- imipenem as empiric antibiotic treatment is discouraged; prompt discharge of patients is mandatory, Reinforcement of IC practices
Supriya et al., 2009,[38] Scotland	Screening of Surgical Pts Vs No Screening	None	Isol/coh	None	Isol/coh	Isol/coh, CHKGL, Repeat assays	Repeat assays
Thomas et al., 2007,[39] UK	Screening of ICU Risk Pts Vs No Screening	None	None	None	None	INAM, TAMW, IVAB, Delayed admission, Antibiotic route unspecified	Other- Prophylaxis: Antibiotic Rout Unspecified

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention- BICP
Thompson et al., 2009,[40] UK	Expanded Vs Limited Screening	None.	Isol/coh, BP, Unspec HH, Decontaminate spaces, TAM, INAM Other- Bed curtains replaced and unused items disposed of	Unspec HH, daily cleaning of each bed space. Campaigns to improve practice.	None	Isol/coh, BP, INAM, TAMW, Unspec HH, Other- bed curtains replaced and unused items disposed of.	TAMW, Unspec HH, HWCC, Other- OR scrubs for medical staff and computer keyboards with wipeable surface introduced. Standardized central line care and care to prevent ventilator-associated pneumonia.

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
Trautmann et al., 2007,[41] Germany	Expanded Vs Limited Screening	None	Isol/coh, BP (short/long sleeved gowns), INAM, TAMW, Decontaminate spaces. Oral rinses for some.	None	None	Isol/coh, BP (long sleeved gowns), INAM, TAMW, Decontaminate spaces, Oral rinses for some, written MRSA standard. Signs, Alcohol-based hand rubs, MRSA "carts" were placed outside MRSA patient room which supplied separate supplies for MRSA patients like reusable stethoscopes and blood pressure cuffs. Hand disinfectant, gloves, gowns and masks were also on the cart. Electronic flagging of patient charts.	Surveillance, feedback and staff training also implemented.
Walsh et al., 2011,[42] USA	Screening of Surgical Pts Vs No Screening	None	Isol/coh, HW, Antibiotics Route Unspecified	TAMW, IVAB, Other- Glucose control	None	INAM, Repeat assays, Antibiotic route unspecified	Repeat assays, Other- Intranasal antimicrobial
Wernitz et al., 2005,[43] Germany	Screening of High Risk Pts Vs No Screening	Isol/coh, BP, TAMW	Isol/coh, BP, INAM, TAMW, PO/IVAB (if necessary for clinical indications) HH, Repeat assays	None	Isol/coh, BP, TAMW (all for potential MRSA carriers only)	Isol/coh, BP, INAM, TAMW, PO/IVAB (if necessary for clinical indications) , Unspec HH ,Repeat assays	None

Author, Year, Country	MRSA Strategy	Control- ICP for MRSA+	Control-ICPW	Control- BICP	Intervention-ICPW	Intervention- ICP for MRSA+	Intervention-BICP
West et al., 2006,[44] USA	Expanded Vs Limited Screening	Isol/coh, BP for patients with MRSA colonization or infection on previous admission	Isol/coh, BP, HW, Decontaminate spaces, Alcohol-based hand rubs	None	Isol/coh, BP for patients found to have MRSA colonization or infection on previous admission	Isol/coh, BP, HW, Decontaminate spaces, Alcohol-based hand rubs	None

BICP: Background infection control practices; BP: Barrier precautions; CHKGL: Checklist/Guidelines; Coh: Cohorting; HH: hand hygiene; HWCC: hand hygiene compliance checks; ICP: Infection control practices; ICPW: Infection control practices while waiting for MRSA results; ICU: Intensive care unit; INAM: Intransal antimicrobial; Iso: isolation; IV: Intravenous; IVAB: Intravenous antibiotics; MICU: Medical intensive care unit; MRSA: Methicillin resistant infection control practices; NG: Nasogastric; OR: Operation room; PO: Oral; POAB: Oral antibiotics; TAMW: Topical antimicrobial wash; Unpsec: Unspecified; VRE: Vancomycin resistant enterococcus

Appendix Table F5. Health Care-Associated MRSA Colonization or Infection: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Ellingson et al., 2011,[3] USA	Screening of High Risk Pts Vs No Screening	2.40 per 1000 patient days at risk	1.88 per 1000 patient days at risk	IRR; non-intensive care surgical unit: 0.782 (95% CI 0.683-0.922); Percent change: -21.8 (95% CI -33.7 to -8.8) Poisson			Interrupted time series Immediate intervention impact: Incidence rate ratio 0.964 (95% CI 0.714-1.300), percent change (-3.6 (-29.6 to 30.0), NSS Change in pre- to post-intervention trends: IRR 0.968 (95% CI 0.948-0.988); percent change -3.2 (-5.2 to -1.2). p<0 .01.Persistence of trend in postintervention period: IRR 0.989 (95% CI 0.985-0.992); percent change -1.1 (-1.5 to -0.8),p<0 .01.
Harbarth et al., 2008,[5] Switzerland	Screening of Surgical Pts Vs No Screening	Pooled results : 1.59 per 1000 patient days	Pooled results : 1.69 per 1000 patient days		1.1 (95% CI 0.8-1.4)	Chi-square, Fisher's exact, test, Wilcoxon rank sum test	Poisson regression with GEE approach Number of patients with nosocomial MRSA acquisition: control periods 132; intervention periods 142 Adjusted for monthly number of admitted patients with previously known MRSA carriage, study month, monthly

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
							use of alcohol-based hand rubs, and antibiotic selection pressure exerted by antibiotics without activity against MRSA
Holzmann-Pazgal et al., 2011,[7] USA	Screening of ICU Risk Pts Vs No Screening	6.88 (2006) Per 1000 patient days	2.40 (2008) Per 1000 patient days	p=0.001		Chi-Square, Fisher's exact test,	Linear trend analysis using a general linear model, Multivariate linear regression, Corrgram autocorrelation of the MRSA acquisition rate was used to evaluate for seasonal variation Trend analysis and linear regression only conducted during intervention period.
Huang et al., 2006,[8] USA	Screening of ICU Risk Pts Vs No Screening	43 cases per 1000 patients at risk	23 cases per 1000 patients at risk	p<0.001			Time series, segmented regression
Huskins et al., 2011,[9] USA	Screening of ICU Risk Pts Vs No Screening	13.5 +/- 2.1 Mean +/- SE ICU level incidence per 1000 patient days at risk adjusted for baseline incidence	16.0 +/- 1.8 Mean +/- SE ICU level incidence per 1000 patient days at risk adjusted for baseline incidence	=0.39			An ICU-level analysis-of-covariance model with adjustment for baseline incidence and with the use of an F-test, with a two-sided P value of 0.05.
Jain et al., 2011,[10] USA	Universal Vs No Screening	ICUs 10/07: 3.02 Per 1000 patient days	ICUs 6/10: 2.50 Per 1000 patient days	p<0.001 for trend	-17%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
		Non-ICU 10/07: 2.54 Per 1000	Non-ICU 6/10: 2.00 Per 1000 patient	p<0.001 for trend	-21%		

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
		patient days	days				
Rodriguez-Bano et al., 2010,[15] Spain	Expanded Vs Limited Screening	After intervention 2: 0.28 per 1000 patient days (95% CI: 0.17-0.40)	After intervention 3: 0.07 per 1000 patient days (95% CI 0.06-0.08)				Results of segmented regression analysis: b6 (change in incidence after 3rd intervention)=0.077 (-0.012 to 0.165)(p=0.04). Change in trend after 3rd intervention: b7=0.047 (0.035–0.059)(p<0.001).
Rodriguez-Bano et al., 2010,[15] Spain	Screening of High Risk Pts Vs No Screening	0.55 per 1000 patient days (95% CI: 0.48-0.61)	After intervention 2: 0.28 per 1000 patient days (95% CI: 0.17-0.40) After intervention 3: 0.07 per 1000 patient days (95% CI 0.06-0.08)	Not statistically significant.		Fisher exact test.	Segmented regression: Change in incidence after 2nd intervention: -0.065 (95% CI -0.053 to 0.182), P=0.2: Change in trend after 2nd intervention: -0.045 (95% CI -0.062 to -0.029), P<.001

C: Control; CI: Confidence interval; Diff: Difference; GEE: Generalized estimating equation; I: Intervention; IRR: Incidence Rate Ratio; MRSA: Methicillin-resistant *Staphylococcus aureus;* NSS: Not statistically significant; Y: Yes

Appendix Table F6. Health Care-Associated or Acquired MRSA Infection or Colonization: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate analysis
Chabernyet al., 2008,[1] Germany	Expanded Vs Limited Screening						Segmented regression analysis of interrupted time series, incidence density of MRSA-positive patients per 1000 pd in the whole hospital: Slope before intervention 0.0340 (95% CI .026 to 0.042), p<0.001 Change in level after intervention: Not significant Change in slope after intervention: -0.015 (95% CI -0.032 to 0.001), p 0.002
Raineri et al., 2007,[13] Italy	Screening of ICU Risk Pts Vs No Screening	3.5 (2.1-5.4) per 1000 patient days	1: 1.7 (1.1-2.5) per 1000 patient days	p=0.0023		Chi square, Fisher's exact test, Kruskal-Wallis analysis of variance	Segmented regression Significant rate level reduction after intervention 1:β_2: -3.9, 95% CI -6.31 to -1.40, p=0.003 Significant trend change after intervention 1: β_3: -0.7, 95% CI -1.22 to -0.24, p=0.005

C: Control; CI: Confidence interval; Diff: Difference; I: Intervention; ICU: Intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* pd: patient days; Y: Yes;

Appendix Table F7. Health Care-Associated MRSA Infection: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Chabernyet al., 2008,[1] Germany	Expanded Vs Limited Screening						Segmented regression of interrupted time series, incidence density of nosocomial MRSA infected patients: slope before intervention 0.006 (0.003-0.009), P<0.000, change in level after intervention -0.122 (-0.204 to -0.040), p=0.004. Change in slope after intervention -0.008 (-0.013 to -0.003), p=0.004.
Harbarth et al., 2008,[5] Switzerland	Screening of Surgical Pts Vs No Screening	0.91 per 1000 patient days	1.11 per 1000 patient days		1.2 (95% CI 0.9-1.7)	Chi-square, Fisher's exact test, Wilcoxon rank sum test, Poisson regression with GEE approach	Number of patients with any type of nosocomial MRSA infection, No. (%): control periods 76(.7); intervention periods 93(.9)Total No. of MRSA infections (patients may have had multiple sites of infection): control periods 88; intervention periods 103
Harbarth et al., 2000,[6] Switzerland	Screening of High Risk Pts Vs No Screening	2.25 per 10000 patient days	0.87 per 10000 patient days	p<0.001			Poisson regression
Jain et al., 2011,[10] USA	Universal Vs No Screening	ICUs: 10/07: 1.64 per 1000 patient days	ICUs: 06/10: 0.62 Per 1000 patient days	p<0.001 for trend	-62%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
	Universal Vs No Screening	Non-ICUs: 10/07: 0.47 Per 1000 patient days	Non-ICUs: 6/10: 0.26 Per 1000 patient days	p<0.001 for trend	-45%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
Leonhardt et al., 2011,[11] USA	Universal Vs Screening of Selected Pts	Baseline period: 0.1% Intervention period:	Baseline period: 0.27% Intervention period: 0.15%	p=0.95; p=0.23;	Difference over time in control: 0.0% ; Difference over time in		Difference-in-differences analysis. Standard errors were tested for autocorrelation with the Durbin-Watson statistic Difference-in-Difference: -0.12, p=0.34

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
		0.1%;			intervention: -0.12%,		
Muder et al., 2008,[12] USA	Screening of Surgical Pts Vs No Screening	Unit A: 1.56 per 1000 patient days	Unit A: 0.63 per 1000 patient days	p=0.003	-60%		Segmented Poisson Regression
		Unit B: 5.45 per 1000 patient days	Unit B: 1.35 per 1000 patient days	p=0.001	-75%		Segmented Poisson Regression
Robicsek et al., 2008,[14] USA	Universal Vs Screening of Selected Pts	3.88 per 10000 patient days (95% CI 3.18 to 4.69)	7.45 per 10000 patient days (95% CI 6.13 to 8.96)				Segmented Poisson regression Change 52.4% (CI -78.3% to -9.3%), p<0.05, adjusted prevalence density ratio 0.48 (0.22 to 0.91), p<0.05, time parameter estimate of regression line before intervention 1.00 (95% CI: 0.94 to 1.07), p>0.05, time parameter estimate of regression line during intervention 0.95 (95% CI: 0.89 to 1.02), p>0.05.
Robicsek et al., 2008, [14] USA	Screening of Surgical Pts Vs No Screening	8.91 per 10000 pt days (95% CI 7.56-10.43)	7.45 per 10000 pt days (95% CI 6.13 to 8.96)	p=0.149	-1.46 (95% CI -3.43 to 0.51)		Segmented Poisson regression Change: -36.2% (95% CI: -65.4% to 9.8%), p>0.05, adjusted prevalence densityratio 0.64 (95% CI: 0.35 to 1.10), p>0.05, time parameter estimate of regression line before intervention 1.00 (95% CI: 0.94 to 1.07), p>0.05, time parameter estimate of regression line during intervention 1.04 (95% CI: 0.95 to 1.12), p>0.05.

C: Control; CI: Confidence Interval; Diff: Difference; GEE: Generalized estimating equation; I: Intervention; ICU: Intensive Care Unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* Y: Yes

Appendix Table F8. MRSA Infection: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate analysis
Chabernyet al., 2008,[1] Germany	Expanded Vs Limited Screening						Segmented regression analysis of interrupted time series, incidence density of MRSA-positive patients per 1000 pd in the whole hospital: Slope before intervention 0.0340 (95% CI .026 to 0.042), p<0.001 Change in level after intervention: Not significant Change in slope after intervention: -0.015 (95% CI -0.032 to 0.001), p 0.002
Raineri et al., 2007,[13] Italy	Screening of ICU Risk Pts Vs No Screening	3.5 (2.1-5.4) per 1000 patient days	1: 1.7 (1.1-2.5) per 1000 patient days	p=0.002 3		Chi square, Fisher's exact test, Kruskal-Wallis analysis of variance	Segmented regression Significant rate level reduction after intervention 1:β_2: -3.9, 95% CI -6.31 to -1.40, p=0.003 Significant trend change after intervention 1: β_3: -0.7, 95% CI -1.22 to -0.24, p=0.005

C: Control; CI: Confidence interval; Diff: Difference; I: Intervention; ICU: Intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* Y: Yes

Appendix Table F9. Health Care-Associated MRSA Bacteremia or BSI: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Chowers et al., 2009,[2] Israel	Screening of High Risk Pts Vs No Screening	0.171000 patient days	Screening alone: 0.09 1000 patient days Screening + monitoring: 0.15 1000 patient days Screening with PCR: 0.11 1000 patient days Screening with PCR + monitoring: 0.046 1000 patient days	p=0.59 (compared with preinter-vention period) p=0.13 (compared with preinter-vention period) p=0.02 (compared with preinter-vention period)			
Ellingson et al., 2011,[3] USA	Screening of High Risk Pts Vs No Screening			p=.02	54% decrease in MRSA BSI incidence per 1,000 patient-days in the postinterve n-tion period		Interrupted time series

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Huang et al., 2006,[8] USA	Screening of ICU Risk Pts Vs No Screening	2.8 per 1000 patient days	0.7 per 1000 patient days		-2.1		BSI control calculated via time series model projection based on secular trends prior to screening. Interrupted time series design. Segmented regression models. The Durbin-Watson statistic was used to adjust for serial autocorrelation. Hospital-associated incidence density: Annual trend prior to any intervention: 0.4, p<0.001, Change in trend in the ICU following routine MRSA surveillance: -1.6, p=0.007
		0.5 per 1000 patient days	0.3 per 1000 patient days		-0.2		Hospital-associated incidence density: Annual trend prior to any intervention: 0.02, p=0.08, Change in trend in non-ICU settings following routine MRSA surveillance: -0.3, p=0.008
		0.9 per 1000 patient days	0.3 per 1000 patient days		-0.6		Hospital-associated incidence density: Annual trend prior to any intervention: 0.07, p=0.001, Change in trend hospital wide following routine MRSA surveillance: -0.5, p=0.002
Jain et al., 2011,[10] USA	Universal Vs No Screening	ICU: Not device-associated 10-12/07: 0.14 Per 1000 patient days	ICU: Not device-associated 4-6/10: 0.03 Per 1000 patient days	p<0.001 for trend	-79%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
		Non-ICU 10-12/07: 0.12 Per 1000 patient days	Non-ICU 4-6/10: 0.05 Per 1000 patient days	p=0.11	-58%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
		ICU: Device associated 10-12/07: 0.16 Per 1000 patient days	ICU: Device associated 4-6/10: 0.06 Per 1000 patient days	p<0.001 for trend	-62%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
		ICU: Associated with central venous catheters 10.07: 0.46 Per 1000 patient days	ICU: Associated with central venous catheters 6/10: 0.31 Per 1000 patient days	p<0.001 for trend	-33%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
		Non-ICU 10-12/07: 0.12 Per 1000 patient days	Non-ICU 4-6/10: 0.05 Per 1000 patient days	p=0.11	-58%	Student's t-test, ANOVA with Duncan's multiple comparisons method	Poisson regression. Durbin-Watson statistic
Robicsek et al., 2008,[14] USA	Universal Vs No Screening	1.45 (95% CI, 0.94-2.13) Per 10000 patient days	0.44 (95% CI, 0.22-0.76) Per 10000 patient days	p<0.001	-1.01 (95% CI, -1.63 to -0.39)		Segmented regression
Robicsek et al., 2008, [14] USA	Screening of ICU Risk Pts Vs No Screening	1.45 per 10000 patient days (95% CI 0.94-2.13)	1.26 per 10000 patient days (95% CI 0.76-1.97)		-0.18 (-0.99 to 0.62) p 0.66	Segmented regression	
Rodriguez-Bano et al., 2010,[15] Spain	Screening of High Risk Pts Vs No Screening	Control 0.10 per 1000 patient days (0.08-1.13)	After intervention 2: 0.04 per 1000 patient days (95% CI 0.03-0.05) After Intervention 3: 0.02 per 1000 patient days (0.0-0.3)	Not Significant		Fischer	Segmented regression analysis: Change in incidence after 2nd intervention: -0.051 (-0.083 to -0.020), P=0.002 Change in trend after 2nd intervention: -0.006 (-0.010 to -0.01), P=0.01

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Rodriguez-Bano et al., 2010,[15] Spain	Expanded Vs Limited Screening	After intervention 2: 0.04 per 1000 patient days (95% CI 0.03-0.05)	After Intervention 3: 0.02 per 1000 patient days (0.0-0.3)				Results of segmented regression analysis: b6 (change in incidence after 3rd intervention)=0.0002 (-0.022 to 0.026), p=0.8. Change in trend after 3rd intervention: b7=0.003 (0.000–0.006), p=0.05.

BSI: Blood stream infection; C: Control; CI: Confidence interval; Diff: Difference; I: Intervention; ICU: Intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* PCR: Polymerase chain reaction; Y: Yes

Appendix Table F10. Health Care-Associated or Acquired MRSA Bacteremia or BSI: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Gould et al., 2007,[4] UK	Screening of ICU Risk Pts Vs No Screening						Segmented regression Preintervention slope -0.05 (95% CI -0.18 to 0.08), p 0.428 Post-intervention slope 0.03 (95% CI -0.10 to 0.16), p 0.645 Change in slope 0.08 (-0.10 to 0.27), p 0.376 Change in level -1.32 (95% CI -3.88 to 1.23), p 0.302
Raineri et al., 2007,[13] Italy	Screening of ICU Risk Pts Vs No Screening	1.65 Per 1000 patient days (95% CI 0.8-3.1)	Intervention 1: 0.29 Per 1000 patient days (95% CI 0.08-0.75) Intervention 2: 0.6 Per 1000 patient days (95% CI 0.2-1.4)	p=0.02		Chi-square for trend. Fisher's exact test. Kruskal-Wallis analysis of variance for continuous variables between periods.	

C: Control; CI: Confidence interval; Diff: Difference; I: Intervention; ICU: Intensive care unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* Y: Yes

Appendix Table F11. Healthcare Associated MRSA Surgical Site Infections: Studies that Used Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Harbarth et al., 2008,[5] Switzerland	Screening of Surgical Pts Vs No Screening	0.99 per 100 procedures	1.14 per 100 procedures	Number of surgical site MRSA infection: control periods 60; intervention periods 70	Rate Ratio: 1.2 (95% CI 9.8-1.7)	Chi-square, Fisher's exact test, Wilcoxon rank sum test	Poisson regression with GEE approach Analysis adjusted for monthly number of admitted patients with previously known MRSA carriage, study month, monthly use of alcohol-based hand rubs, and antibiotic selection pressure exerted by antibiotics without activity against MRSA
Harbarth et al., 2000,[6] Switzerland	Screening of High Risk Pts Vs No Screening	0.75 per 10000 patient-days	0.27 per 10000 patient-days	p<0.001			Poisson regression
Muder et al., 2008,[12] USA	Screening of Surgical Pts Vs No Screening	1.91% overall period	1.91% overall period.	p=0.60 for chi-square test for trend.			
Robicsek et al., 2008,[14] USA	Universal Vs No Screening	2.83 (95% CI 2.10 to 3.75)	1.63 (95% CI 1.19 to 2.18)	p=0.008	-1.20 (95% CI -2.07 to -0.34)		Segmented regression
Robicsek et al., 2008, [14] USA	Screening of ICU Risk Pts Vs No Screening	2.83 (95% CI 2.10 to 3.75)	2.06 (95% CI 1.40-2.93)	p=0.165	-0.77 (95% CI -1.85 to 0.30)	Segmented regression	

C: Control; CI: Confidence Interval; Diff: Difference; I: Intervention; ICU: Intensive Care Unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* Y: Yes

Appendix Table F12. Health Care-Associated MRSA Colonization or Infection: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
de la Cal et al., 2004,[20] Spain	Screening of ICU Risk Pts Vs No Screening	Intervention 1: 31/100 patients 14.82/1000 patient-days Intervention 2: 31/100 patients 14.82/1000 patient-days	Intervention 1: 14/100 patients 7.92/1000 patient days Intervention 2: 2/100 patients 1.30 per 1000 patient days	p<0.01, p<0.006 p<0.001, p<0.001		Chi square, Fisher exact test	
Salaripour et al., 2006,[32] Canada	Screening of High Risk Pts Vs No Screening	0.61 per 1000 patient days	0.43 per 1000 patient days	Rates each year from 2001-2005 were significantly lower than the target (p<0.01) and significantly lower than the internal benchmark rate of 0.61 in 2000 (p<0.001).			
Eveillard et al., 2006,[21] France	Expanded Vs Limited Screening	1.13 per 1000 patient days	0.14 per 1000 patient days		RR= 8.1 (95% CI 1.06-64.5) p<0.02	Chi square or Fisher's exact test	
Thompson et al., 2009,[40] UK	Expanded Vs Limited Screening	19.6 Per 1000 bed-days (95% CI 16.5-22.7)	11.8 per 1000 bed-days (95% CI 7.3-16.3)		Rates of acquisition of MRSA from the fifth day in ICU in those initially negative comparing intervention to control chi-square	Chi-square	

					p=.016		
Trautmann et al., 2007,[41] Germany	Expanded Vs Limited Screening	MICU (incidence density per 1000 patient days) 12.2 MICU (incidence density per 1000 patient days) 5.8	SICU (incidence density Per 1000 patient days) 8.3 (2005) 7.5 (2006) MICU (incidence density Per 1000 patient days) 3.3 (2005) 1.7 (2006)		P<0.05 P<0.05	Chi-square	
Girou et al., 2000,[22] France	Expanded Vs Limited Screening	2.9%	2.4%		P=0.68	Chi-square, Fisher's exact test or ANOVA	
Schelenz et al., 2005,[34] UK	Expanded Vs Limited Screening	4.0%	1.5%		RR=2.41 (95% CI: 1.32-4.42) p=0.003	Relative risk, chi square	

C: Control; CI: Confidence interval; Diff: Difference; I: Intervention; ICU: Intensive care unit; MICU: Medical care intensive unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No; RR: Relative risk; SICU: Surgical care intensive unit

Appendix Table F13. Health Care-Associated or Acquired MRSA Infection or Colonization: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate analysis
Souweine et al., 2000,[37] France	Screening of ICU Risk Pts Vs No Screening	12 (5.2%)	6 (1.7%)	p 0.018		Chi square or Fisher's exact test	

C: Control; Diff: Difference; I: Intervention; ICU: Intensive care unit; N: No

Appendix Table F14. Healthcare-Associated MRSA Infection: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Bowler et al., 2010,[17] USA	Screening of High Risk Pts Vs No Screening	0.64 per 10000 patient days	0.32 per 1000 patient days	p<0.01		Student's t test	
Boyce et al., 2004,[18] USA	Screening of Surgical Pts Vs No Screening	2.2%	0.7%	p=0.033		Chi-square	
Clancy et al., 2006,[19] USA	Screening of Surgical Pts Vs No Screening	SICU : 9.1 per 1000 patient days	SICU : 4.7 per 1000 patient days	p<0.002		Paired Student's t test	
		MICU: 4.0 per 1000 patient days	MICU : 3.3 per 1000 patient days	p=0.62		Paired Student's t test	
		Wards: 0.53 per 1000 patient days	Wards : 0.32 per 1000 patient days	p=0.17	1	Paired Student's t test	
		Pooled: 4.5 per 1000 patient days	Pooled : 2.8 per 1000 patient days	p<0.01		Paired Student's t test	
Kurup et al., 2010,[26] Singapore	Screening of Surgical Pts Vs No Screening	2.7 per 1000 patient days	2.4 per 1000 patient days	p=0.48	-0.3	Student t-test	
Sankar et al., 2005,[33] UK	Screening of Surgical Pts Vs No Screening	2.4%	0%	p<0.05	-2.4%	Fisher exact test, unpaired Student's t test	
Simmons et al., 2011,[35] USA	Screening of Surgical Pts Vs No Screening	Hospital-wide rates: 0.8 per 1000 patient days	Hospital-wide rates: 0.38 per 1000 patient days	p=0.0003		Nonparametric Wilcoxon test	
		ICU Rates : 3.19 per 1000 patient days	ICU Rates : 1.66 per 1000 patient days	p=0.005		Nonparametric Wilcoxon test	

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Wernitz et al., 2005,[43] Germany	Screening of High Risk Pts Vs No Screening	48/119	38/205				Standardized infection ratio: 0.52 (38/73.2), 95% CI: 0.37-0.71. (Calculated by dividing the number of observed patients with health care-associated MRSA infection in the screening period by the expected number of patients with health care-associated MRSA infection calculated from nosocomial infection rates during the control period.
West et al., 2006,[44] USA	Expanded Vs Limited Screening	Hospital 1: Tertiary Care: 0.76 per 1000 patient days	Hospital 1: Tertiary Care: 0.46 per 1000 patient days	p=0.05		Wilcoxon rank sum test	
		Hospital 2: Suburban: 0.72 per 1000 patient days	Hospital 2: Suburban: 0.57 per 1000 patient days	p=0.35		Wilcoxon rank sum test	

C: Control; CI: Confidence Interval; Diff: Difference; I: Intervention; ICU: Intensive Care Unit; MICU: Medical Intensive Care Unit; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No; SICU: Surgical Intensive Care Unit

Appendix Table F15. MRSA Infection: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate analysis
Souweine et al., 2000,[37] France	Screening of ICU Risk Pts Vs No Screening	12 (5.2%)	6 (1.7%)	p 0.018		Chi square or Fisher's exact test	

C: Control; Diff: Difference; I: Intervention; ICU: Intensive care unit; N: No

Appendix Table F16. Health Care-Associated MRSA Bacteremia or BSI: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
de la Cal et al., 2004,[20] Spain	Screening of ICU Risk Pts Vs No Screening	3.7 per 1000 patient days	0.9 per 1000 patient days	p<0.01		Chi square, Fisher exact test	
Pan et al., 2005,[30] Italy	Screening of High Risk Pts Vs No Screening	0.64 Per 1000 admissions Primary MRSA BSI 0.12	0.37 Per 1000 admissions Primary MRSA BSI 0.03	RR 0.57. 95% CI 0.35 to 0.92, P=0.0003 RR 0.29 95% CI 0.08-1.09, p=0.06		Chi-square or Fisher's exact test	
Thompson et al., 2009,[40] UK	Expanded Vs Limited Screening	3.7 (95% CI 2.6-4.8) % of those acquiring MRSA >/= 5 days after admission with subsequent MRSA bacteremia: 18.7 (12.2-25.2)	0.4 (95% CI 0-2.9) % of those acquiring MRSA >/= 5 days after admission with subsequent MRSA bacteremia: 3.8 (0-11.1)	Chi-square p=0.009 Not statistically significant			
Trautmann et al., 2007,[41] Germany	Expanded Vs Limited Screening	Incidence per 1000 device days of device-associated MRSA infections: Septicemia 0.4	Incidence per 1000 device days of IV catheter-associated septicemia 0	p<.0125 Incidence density test			
Wernitz et al., 2005,[43] Germany	Screening of High Risk Pts Vs No Screening	13/119	7/205	Standardized infection ratio: 0.35 (7/20.1), 95% CI: 0.14-0.71.			

C: Control; Diff: Difference; I: Intervention; ICU: Intensive care unit; N: No

Appendix Table F17. Health Care-Associated or Acquired MRSA Bacteremia or BSI: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Blumberg, et al., 1994,[16] South Africa	Screening of ICU Risk Pts Vs No Screening	Pediatric oncology ward 12/924 blood cultures performed = 1.3%	Pediatric oncology ward In intervention year: 0/1026 blood cultures performed = 0%	p=0.000123 p=0.06 compared with pre-treatment period		Two-tailed Fisher's exact test	
		ICU 14/1391 blood cultures performed = 1%	ICU In year following intervention year: 3/815 blood cultures performed 4/1579 blood cultures performed = 0.25% In year following intervention year: 10/1934 blood cultures performed = 0.5% 82/18784 blood cultures performed = 0.44%	p=0.016 p not specified p=0.047		Two-tailed Fisher's exact test	
		Non-targeted areas of the hospital 62/20068 blood cultures performed = 0.3%	Non-targeted areas of the hospital In year following intervention year: 112/18977 blood cultures performed = 0.59%	p=0.00004 compared with pre-treatment period		Two-tailed Fisher's exact test	

C: Control; Diff: Difference; I: Intervention; ICU: Intensive care unit; N: No

Appendix Table F18. MRSA BSI (Not Clearly Acquired): Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Schelenz et al., 2005,[34] UK	Expanded vs Limited Screening	1.1% (12/1075)	0.2% (2/956)		RR 5.34 (95% CI 1.20-23.78); p 0.014	RR 5.34 (95% CI 1.20-23.78); p 0.014	

BSI: Blood stream infection; CI: Confidence interval; C: Control; Diff: Difference; I: Intervention; ICU: Intensive care unit; N: No; RR: Relative Risk

Appendix Table F19. Healthcare Associated MRSA Surgical Site Infection: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Jog et al., 2008,[23] UK	Screening of Surgical Pts Vs No Screening	1.15%	0.26%	Relative risk reduction: 0.77, 95% CI: (0.056-0.95), p<0.05	0.89%	Chi square, Koopman's likelihood-based approximation for relative risk	
Keshtgar et al., 2008,[24] UK	Screening of High Risk Pts Vs No Screening	1.44 per 1000 patient-days	1.25 per 1000 patient-days	p=0.021		Fisher's exact test	1.44 per 1000 patient-days
Kim et al., 2010,[25] USA	Screening of Surgical Pts Vs No Screening	0.19%	0.06%	p=0.0315	-0.13%	Chi square, Fisher exact test	
Lipke et al., 2010,[27] USA	Screening of Surgical Pts Vs No Screening	0.73%	0.16%	p=0.0538	0.57%	Fisher exact test	
Malde et al., 2006,[28] UK	Screening of Surgical Pts Vs No Screening	Elective surgery: 55.6%	Elective surgery: 22.4%	p=0.002 for trend	33.2%	Chi square	
		Emergency surgery: 62.5%	Emergency surgery: 43.8%	p=0.042 for trend	18.7%	Chi square	
Nixon et al., 2006,[29] UK	Screening of Surgical Pts Vs No Screening	Trauma: 1.57%	Trauma:0.69%	p=0.035 for trend	0.88%	Chi square	
		Admissions: 0.56%	Admissions: 0.17%	p=0.06 for trend	0.39%	Chi square	
Pofahl et al., 2009,[31] USA	Screening of Surgical Pts Vs No Screening	0.23% per 100 procedures	0.09% per 100 procedures		0.14%	Chi-Square with Yate's continuity correction	Overall SSI, Non-significant p-value; Hysterectomy: Control= ~0.11 Intervention= ~0.08, Non-significant p-value; Orthopedics: Control= 0.30 Intervention= 0.00, p-value=0.04; Cardiac: Control= ~0.24 Intervention= ~0.19, Non-significant p-value;

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test	Multivariate Analysis
Schelenz et al., 2005,[34] UK	Expanded Vs Limited Screening	Sternal wound: 2.6% (28/1075) Leg wound: 1.5% (16/1075)	Sternal wound 1.4% (13/956) Leg wound 0.7% (7/956)	RR 1.92 (95% CI 1.00-3.68), p 0.057 RR 2.03 (95% CI 0.84-4.92), p 0.141			
Supriya et al., 2009,[38] Scotland	Screening of Surgical Pts Vs No Screening	28.57%	9.68%	p= 0.034	18.89%	Chi square	
Thomas et al., 2007,[39] UK	Screening of Surgical Pts Vs No Screening	19%	2%		17%	Chi square with Yates correction	MRSA PEG site infections by year for the control period: 12% (5 of 42) in 2002 20% (7 of 35) in 2003 29% (7 of 24) in 2004; an overall infection rate of 19%. Intervention period vs. overall rate chi-square= 5.16, P < 0.025; intervention period vs. 2004 chi-square= 6.76, P < 0.01; intervention period vs. 2003 chi-square= 4.35, P < 0.05
Walsh et al., 2011,[42] USA	Screening of Surgical Pts Vs No Screening	1.16%	0.08%	RR= 0.069; (95% CI: 0.016-0.286); P< 0.001)	1.08%	Chi square and relative risk reduction	

C: Control; CI: Confidence Interval; Diff: Difference; I: Intervention; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No; PEG: percutaneous endoscopic gastrostomy; RR: Relative risk; SSI: Surgical Site Infection

Appendix Table F20. MRSA Related Morbidity: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test
Malde et al., 2006,[28] UK	Screening of Surgical Pts Versus No Screening	Elective Admissions: Major limb amputation among MRSA positive (colonized and infected) in elective admissions 27.8%	Elective Admissions: Major limb amputation among MRSA positive (colonized and infected) in elective admissions 9.0%	p=0.026	18.8%	Chi square
		Emergency Admissions: Major limb amputation among MRSA positive (colonized and infected) in elective admissions 50.0%	Emergency Admissions: Major limb amputation among MRSA positive (colonized and infected) in elective admissions 38.8%	p=0.26	11.2%	Chi square

C: Control; Diff: Difference; I: Intervention; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No

Appendix Table F21. MRSA Related Mortality: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test
Malde et al., 2006,[28] UK	Screening of Surgical Pts Versus No Screening	Elective Admissions 16.7%	Elective Admissions 9.0%	p>0.05	7.7%	Chi square
		Emergency Admissions 25.0%	Emergency Admissions 12.4%	p=0.067	12.6%	Chi square

C: Control; Diff: Difference; I: Intervention; MRSA: Methicillin-resistant *Staphylococcus aureus;* N: No

Appendix Table F22. MRSA Resource Utilization: Studies that Did Not Use Statistical Methods to Attempt to Control for Confounding or Secular Trends

Author, Year, Country	MRSA Strategy	Control	Intervention	p value	Diff (I-C)	Statistical Test
Sankar et al., 2005,[20] UK	Screening of Surgical Pts Vs No Screening	10.43 days (SD 4.2 days, range 5-29 days)	9.47 days (SD 2.6 days, range 5-26 days)	p <0.05	0.96 days	Fisher's exact test, unpaired Student's t test

C: Control; Diff: Difference; I: Intervention; MRSA: Methicillin-resistant *Staphylococcus aureus;* SD: standard deviation; N: No

Appendix Table F23. USPSTF Study Quality Ratings

Study	MRSA Strategy	Assembled CG	Maintained CG	Minimal follow up loss	Measurements equal, valid & reliable	Interventions clearly defined	Important outcomes	Appropriate analysis of results	Funding Acknowledged	Overall USPSTF rating	Separate control group
Blumberg, et al., 1994[16]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	N	N	Y	Poor	N
Boyce et al., 2004[18]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	N	Poor	N
Chaberny, 2008[1]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	Y	Poor	Y
Chowers, 2009[2]	Screening of High Risk Pts Vs No Screening	U	U	U	Y	N	Y	N	N	Poor	N
Clancy et al., 2006[19]	Screening of ICU Risk Pts Vs No Screening	Y	N	U	Y	Y	Y	N	Y	Poor	N
de la Cal et al., 2004[20]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Ellingson, 2011[3]	Screening of High Risk Pts Vs No Screening	U	U	U	U	Y	N	N	N	Poor	N
Gould, 2007[4]	Screening of ICU Risk Pts Vs No Screening	Y	U	U	Y	Y	U	Y	Y	Fair	N
Harbarth, 2000[6]	Screening of High Risk Pts Vs No Screening	U	U	U	N	N	Y	N	Y	Poor	N
Harbarth, 2008[5]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	Y	Y	Good	Y
Holzmann-Pazgal, 2011[7]	Screening of ICU Risk Pts Vs No Screening	N	U	U	U	Y	Y	N	N	Poor	N
Huang, 2006[8]	Screening of ICU Risk Pts Vs No Screening	U	U	U	Y	Y	U	N	Y	Poor	N
Huskins, 2011[9]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	Y	Y	Good	Y
Jain, 2011[10]	Universal Vs No Screening	U	U	U	N	Y	Y	N	Y	Poor	N
Kurup et al., 2010,[26]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Leonhardt, 2011[11]	Universal Vs Screening of Selected Pts	Y	U	U	U	Y	Y	Y	Y	Good	Y
Muder, 2008[12]	Screening of Surgical Pts Vs No Screening	U	U	U	Y	Y	N	N	N	Poor	N
Raineri, 2007[13]	Screening of ICU Risk Pts Vs No Screening	N	N	U	U	Y	U	N	Y	Poor	N
Robicsek, 2008[14]	Universal Vs No Screening	Y	U	Y	Y	Y	Y	Y	Y	Good	N

Study	MRSA Strategy	Assembled CG	Maintained CG	Minimal follow up loss	Measurements equal, valid & reliable	Interventions clearly defined	Important outcomes	Appropriate analysis of results	Funding Acknowledged	Overall USPSTF rating	Separate control group
Robicsek, 2008[14]	Universal Vs Screening of Selected Pts	Y	U	Y	Y	Y	Y	Y	Y	Good	Y
Robicsek, 2008[14]	Screening of ICU Risk Pts Vs No Screening	Y	U	Y	Y	Y	Y	Y	Y	Good	N
Rodriguez-Bano, 2010[15]	Screening of High Risk Pts Vs No Screening	N	U	U	Y	Y	N	Y	Y	Fair	N
Rodriguez-Bano, 2010[15]	Expanded Vs Limited Screening	N	U	U	Y	Y	N	Y	Y	Fair	N
Simmons et al., 2011[35]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	N	N	N	Poor	N
Souweine et al., 2000[37]	Screening of ICU Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Thomas et al., 2007[39]	Screening of Surgical Pts Vs No Screening	Y	Y	U	U	Y	Y	N	Y	Poor	N
Malde et al., 2006[28]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Nixon et al., 2006[29]	Screening of Surgical Pts Vs No Screening	Y	Y	Y	Y	Y	Y	N	N	Poor	N
Sankar et al., 2005[33]	Screening of Surgical Pts Vs No Screening	Y	Y	U	U	Y	Y	N	N	Poor	N
Sott et al., 2001[36]	Screening of Surgical Pts Vs No Screening	Y	Y	U	U	Y	Y	N	N	Poor	N
Jog et al., 2008[23]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Pofahl et al., 2009[31]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	N	Poor	N
Supriya et al., 2009[38]	Screening of Surgical Pts Vs No Screening	Y	Y	U	U	Y	N	N	Y	Poor	N
Kim et al., 2010[25]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	Y	Poor	N
Lipke et al., 2010[27]	Screening of Surgical Pts Vs No Screening	Y	Y	U	U	Y	Y	N	N	Poor	N
Walsh et al., 2011[42]	Screening of Surgical Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	N	Poor	N
Wernitz et al., 2005[43]	Screening of High Risk Pts Vs No Screening	Y	Y	U	Y	Y	Y	N	N	Poor	N
Pan et al., 2005[30]	Screening of High Risk Pts Vs No Screening	U	U	U	Y	Y	Y	N	N	Poor	N
Salaripour et al., 2006[32]	Screening of High Risk Pts Vs No Screening	U	U	U	Y	Y	Y	N	N	Poor	N

Study	MRSA Strategy	Assembled CG	Maintained CG	Minimal follow up loss	Measurements equal, valid & reliable	Interventions clearly defined	Important outcomes	Appropriate analysis of results	Funding Acknowledged	Overall USPSTF rating	Separate control group
Bowler et al., 2010[17]	Screening of High Risk Pts Vs No Screening	U	U	U	Y	Y	Y	N	Y	Poor	N
Keshtgar et al., 2008[24]	Screening of High Risk Pts Vs No Screening	U	U	U	Y	Y	Y	N	Y	Poor	N
Eveillard et al., 2006[21]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	N	Poor	N
West et al., 2006[44]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	N	Poor	N
Girou et al., 2000[22]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	N	Poor	N
Thompson et al., 2009[40]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	Y	Poor	N
Trautmann et al., 2007[41]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	N	Poor	N
Schelenz et al., 2005[34]	Expanded Vs Limited Screening	U	U	U	Y	Y	Y	N	N	Poor	N

CG: comparable groups; ICU: Intensive Care Unit; N:No; U: Unknown; USPSTF: United States Preventive Services Task Force; Y: Yes

APPENDIX F Reference Citations

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