Supplementary Data

Search Strategy:

Pubmed/Medline/Embase query

(hemodialysis) OR (haemodialysis) AND (infection) AND (catheter)

(hemodialysis) OR (haemodialysis) AND (bacteremia) OR (bacteraemia) AND (catheter)

(hemodialysis) OR (haemodialysis) AND (bacteremia) OR (bacteraemia)

Supplementary Table 1: The overall risk of bias for each study included in the meta-analysis is assessed via the Newcastle-Ottawa Quality Assessment Scale for Cohort Studies. A study can be awarded a maximum of 4 stars in the “selection” category, 2 stars in the “comparability” category and 3 stars in the “outcome category”. If no stars are awarded, it is denoted by “-“.

Study	Study Design	Selection	Comparability	Outcome	Overall Risk of Bias
Moss et al, 1990	Chart review	***	-	***	Moderate
Swartz et al, 1994	Prospective cohort	***	*	***	Low
Lund et al, 1996	Chart review	***	-	**	Moderate
Marr et al, 1997	Prospective cohort	****	**	***	Low
Saad TF, 1999	Prospective cohort	****	*	***	Low
Chawla et al, 2000	Chart review	***	-	***	Moderate
Jean et al, 2002	Prospective cohort	****	**	***	Low
Lee et al, 2005	Prospective cohort	****	-	**	Moderate
Mokrzycki et al, 2006	Prospective cohort	****	**	***	Low
Troidle et al, 2008	Prospective cohort	****	-	***	Moderate
Ashby et al, 2009	Prospective cohort	****	*	***	Low
Onder et al, 2012 (1/97-12/98)	Chart review	***	-	**	Moderate
*Onder et al, 2012,2008, 2007 (1/99-12/03)	Chart review	***	-	**	Moderate
Capdevila et al, 1993	Prospective cohort	***	-	***	Moderate
Bailey et al, 2002	Prospective cohort	***	-	***	Moderate
Krishnasami et al, 2002	Prospective cohort	***	**	***	Low
Vardhan et al, 2002	Observational cohort	***	-	***	Moderate
Poole et al, 2004	Prospective	***	**	***	Low
Lee et al, 2005	Prospective cohort	****	-	**	Moderate
Maya et al, 2007	Retrospective	***	-	***	Moderate
Peterson et al, 2009	Retrospective	***	-	***	Moderate

*Onder et al, 2012, 2010 (1/04-6/06)	Chart review	****	-	**	Moderate
Joshi et al, 2012	Prospective cohort	***	-	***	Moderate
Shaffer et al, 1995	Observational	***	-	***	Moderate
Robinson et al, 1998	Prospective observational study	***	-	***	Moderate
Saad TF, 1999	Prospective cohort	****	*	***	Low
Beathard, 1999	Prospective cohort	****		***	Moderate
Tanriover et al, 2000		****	**	***	Low
Mokrzycki et al, 2006	Prospective cohort	****	**	***	Low
Troidle et al, 2008	Prospective cohort	****	-	***	Moderate
Langer et al, 2011	Retrospective chart review	****	*	***	Low

Supplementary Table 2. Microbiological details from individual studies for each treatment group. We only collected details for three main organism categories – coagulase negative staphylococci (CNS), *Staphylococcus aureus* (*S. aureus*), and gram negative rods (GNR). Organisms that do not fall into one of these three categories were classified as "other" and not listed here for the sake of simplicity.

Study	**No. of CRB cases**	**CNS (n)**	**CNS cure (n)**	***S. aureus* (n)**	***S. aureus* cure (n)**	**GNR (n)**	**GNR cure (n)**
SYSTEMIC ANTIBIOTICS ALONE							
Moss et al, 1990	16						
Swartz et al, 1994	29	7	3	13	6	8	0
Lund et al, 1996	22						
Marr et al, 1997	38	9		27		15	
Saad TF, 1999	25			6	4	7	3
Chawla et al, 2000	18	7	3	6	1	2	1
Jean et al, 2002	56	11		31		12	
Lee et al, 2005	11					2	2
Mokrzycki et al, 2006	49			15	7	5	4
Troidle et al, 2008	35	17	13	2	1	12	6
Ashby et al, 2009	115			18	11	33	21
Onder et al, 2012 (1/97-12/98)	95	36		10		14	
*Onder et al, 2012,2008, 2007 (1/99-12/03)	188	67		14		26	
Total	*697*	*154*		*142*		*136*	
ANTIBIOTIC LOCK SOLUTION							
Capdevila et al, 1993	11**	5	5	2	2	3	1
Bailey et al, 2002	10	2	2	0	0	5	1
Krishnasami et al, 2002	62	25	19	2	0	34	20
Vardhan et al, 2002	26	8	6	11	6	2	2
Poole et al, 2004	47	16	12	10	4	15	13
Lee et al, 2005	18					7	7
Maya et al, 2007	113			113	46		
Peterson et al, 2009	64						
*Onder et al, 2012, 2010 (1/04-6/06)	149	60		16		40	
Joshi et al,	46	4	3	7	2	22	14

2012							
Total	*546*	*120*		*161*		*128*	
GUIDEWIRE EXCHANGE							
Shaffer et al, 1995	12	7	6	1	1	2	1
Robinson et al, 1998	23	3	2	8	7	2	2
Saad TF, 1999	43			6	4	13	13
Beathard, 1999	77						
Tanriover et al, 2000	31						
Mokrzycki et al, 2006	35			7	7	13	13
Troidle et al, 2008	36	9	6	4	1	11	7
Langer et al, 2011	96	31		30			
Total	*353*	*50*		*56*		*41*	

Supplementary Table 3. MOOSE Checklist:

Reporting of background should include:	**Relevant page of manuscript**
Problem definition	Page 4, last paragraph
Hypothesis statement	Page 4, last paragraph
Description of study outcomes	Page 4, last paragraph
Type of exposure or intervention used	Page 4, last paragraph
Type of study designs used	Page 4, last paragraph
Study population	Page 4, last paragraph
Reporting of search strategy should include:	
Qualifications of searchers (eg librarians and investigators)	Page 13, second paragraph
Search strategy, including time period included in the synthesis and keywords	Page 13, first paragraph
Effort to include all available studies, including contact with authors	Page 13, first paragraph
Databases and registries searched	Page 13, first paragraph
Search software used, name and version, including special features used (e.g., explosion)	No search software used
Use of hand searching (e.g., reference lists of obtained articles)	Page 13, first paragraph
List of citations located and those excluded, including justification	Figure 1
Method of addressing articles published in languages other than English	Page 13, first paragraph
Method of handling abstracts and unpublished studies	Page 13, second paragraph
Description of any contact with authors	Page 13, first paragraph
Reporting of methods should include:	
Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	Page 13, second paragraph
Rationale for the selection and coding of data (e.g., sound clinical principles or convenience)	Page 13, last paragraph
Documentation of how data were classified and coded (e.g., multiple raters, blinding, and inter-rater reliability)	Page 14
Assessment of confounding (e.g., comparability of cases and controls in studies where appropriate)	N/A
Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results	Page 14
Assessment of heterogeneity	Page 14
Description of statistical methods (e.g., complete description of fixed or random effects models)	Pages 15-17
Justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	Pages 15-16
Provision of appropriate tables and graphics	Supplementary Table 1, Appendix 1

Reporting of results should include:	
Graphical summary of individual study estimates and the overall estimate of effect	Figure 3
A table giving descriptive information for each study included	Table 1
Results of sensitivity testing (e.g., subgroup analysis)	Pages 7-9
Indication of statistical uncertainty of findings	95% confidence intervals were reported with all point estimates
Reporting of discussion should include:	
Quantitative assessment of bias (e.g., publication bias)	Page 11
Justification for exclusion (e.g., exclusion of non-English-language citations)	N/A
Assessment of quality of included studies	Page 11
The discussion should also include discussion of issues related to bias including publication bias, confounding, and quality	Page 11-12
Reporting of conclusions should include:	
Consideration of alternative explanations for observed results	N/A
Generalizability of the conclusions (i.e., appropriate to the data presented)	Page 12
Guidelines for future research	Page 12
Disclosure of funding source	Page 18

Appendix 1: NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE
COHORT STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability.

Selection

1) Representativeness of the exposed cohort

a) truly representative of the average hemodialysis patient with bacteremia in the community *

b) somewhat representative of the average hemodialysis patient with bacteremia in the community *

c) selected group of users eg nurses, volunteers

d) no description of the derivation of the cohort

2) Selection of the non-exposed cohort

a) drawn from the same community as the exposed cohort *

b) drawn from a different source

c) no description of the derivation of the non-exposed cohort

3) Ascertainment of exposure

a) secure record (eg surgical records) *****

b) structured interview *****

c) written self report

d) no description

4) Demonstration that outcome of interest was not present at start of study

a) yes *

b) no

Comparability

1) Comparability of cohorts on the basis of the design or analysis

a) study controls for follow-up time *****

b) study controls for any additional factor ***** (multivariate analysis, pathogen)

Outcome

1) Assessment of outcome

a) independent blind assessment *****

b) record linkage *****

c) self report

d) no description

2) Was follow-up long enough for outcomes to occur

a) yes *****

b) no

3) Adequacy of follow up of cohorts

a) complete follow up - all subjects accounted for *****

b) subjects lost to follow up unlikely to introduce bias - small number lost - > 85% follow up, or description provided of those lost *****

c) follow up rate < 85% and no description of those lost

d) no statement