



This is a repository copy of *Bacteremia following different oral procedures: systematic review and meta-analysis*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/194898/>

Version: Supplemental Material

Article:

Martins, C., Lockhart, P., Firmino, R. et al. (7 more authors) (2024) Bacteremia following different oral procedures: systematic review and meta-analysis. *Oral Diseases*, 30 (3). pp. 846-854. ISSN 1354-523X

<https://doi.org/10.1111/odi.14531>

This is the peer reviewed version of the following article: Martins, C.C., Lockhart, P.B., Firmino, R.T., Kilmartin, C., Cahill, T.J., Dayer, M., Occhi-Alexandre, I.G.P., Lai, H., Ge, L. and Thornhill, M.H. (2023), Bacteremia following different oral procedures: systematic review and meta-analysis. *Oral Dis*, which has been published in final form at <https://doi.org/10.1111/odi.14531>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited.

Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Table 1. Meta-analysis showing the overall incidence of bacteremia for nRCTs and RCTs with subgroup analysis by risk of bias, method of bacteremia detection and presence or absence of bacteremia at baseline.

nRCT	Overall Incidence of bacteremia								
	Number of studies % Blood samples positive for bacteremia i.e. <i>Effect Size (ES) (95%CI)</i> <i>I², p-value</i>								
Procedure Type	Overall Incidence*	Subgroup by risk of bias				Subgroup by method for detecting bacteremia		Subgroup by presence/absence of bacteremia at baseline	
		Low	Moderate	Serious	Critical	Culture	Molecular	Absent	Present
1. ADL-tooth-brushing ²	9 8% (1 to 19)^a 87.2%; <0.001	2 6% (2 to 11)^a Not estimated	6 11% (0 to 33)^a 91.0%; <0.001	-	1 3% (0 to 17)^a Not estimated	8 4% (0 to 9)^a 67.9%; <0.001	1 75% (48 to 93)^a Not estimated	all studies [†]	-
2. Other ADL ¹	9 16% (7 to 29)^a 88.0; <0.001	3 4% (0 to 25)^a Not estimated	5 24% (12 to 39)^a 82.1; <0.001	-	1 21% (11 to 33)^a Not estimated	8 13% (5 to 25)^a 85.0; <0.001	1 41% (28 to 54)^a Not estimated	7 18% (8 to 31)^a 85.7%; <0.001	2 7% (2 to 15)^a Not estimated
3. Dental extractions ³	23 66% (57 to 74)^a 90.8%; <0.001	2 45% (38 to 52)^a Not estimated	12 71% (59 to 82)^a 87.1%; <0.001	1 68% (54 to 79)^a Not estimated	8 64% (50 to 77)^a 91.7%; <0.001	all studies [†]	-	16 69% (62 to 74)^a 74.8%; <0.001	7 61% (36 to 84)^a 95.7%; <0.001
4. Oral surgery ⁴	7 27% (13 to 43)^a 79.9%; <0.001	2 33% (21 to 47)^a Not estimated	4 30% (11 to 53)^a 83.6; <0.001	-	1 0% (0 to 31)^a Not estimated	all studies [†]	-	all studies [†]	-
5. SRP ⁵	11 44% (31 to 58)^a 86.5%; <0.001	1 52% (37 to 68)^a Not estimated	8 49% (33 to 66)^a 86.3%; <0.001	-	2 22% (13 to 32)^a Not estimated	10 47% (33 to 61)^a 86.6%; <0.01	1 13% (2 to 40)^a Not estimated	8 40% (27 to 54)^a 80.6%; <0.001	3 53% (19 to 86)^a Not estimated
6. Orthodontic procedures ⁶	10 14% (6 to 24)^a 76.9%; <0.001	4 7% (0 to 21)^a 81.4%; <0.001	6 21% (10 to 34)^a 69.6%; 0.010	-	-	all studies [†]	-	6 15% (3 to 34)^a 85.0%; <0.001	4 14% (7 to 23)^a 45.3%; 0.140
7. OHP ⁷	3 27% (19 to 36)^a 0%; 0.520	-	2 30% (21 to 41)^a Not estimated	-	1 20% (8 to 39)^a Not estimated	all studies [†]	-	1 32% (19 to 49)^a Not estimated	2 25% (15 to 36)^a Not estimated
8. Other procedures ⁸	3 4% (0 to 17)^a 62.6%; 0.070	-	1 15% (2 to 45)^a Not estimated	-	2 1% (0 to 6)^a Not estimated	all studies [†]	-	2 1% (0 to 6)^a Not estimated	1 15% (2 to 45)^a Not estimated

RCT	Overall Incidence of bacteremia							
	Number of studies % Blood samples positive for bacteremia i.e. Effect Size (ES) (95%CI) <i>I², p-value</i>							
Procedure Type	Overall Incidence*	Subgroup by risk of bias			Subgroup by method for detecting bacteremia		Subgroup by presence/absence of bacteremia at baseline	
		Low	Some concerns	High	Culture	Molecular	Absent	Present
1. ADL-tooth-brushing ²	3 26% (13 to 41) ^a 80.3; 0.010	-	-	<i>all studies</i> [†]	<i>all studies</i> [†]	-	2 24% (16 to 33) ^a Not estimated	1 29% (20 to 39) ^a Not estimated
2. Other ADL ¹	-	-	-	-	-	-	-	-
3. Dental extractions ³	9 62% (44 to 78) ^a 87.3%; <0.001	-	3 58% (45 to 71) ^a Not estimated	6 63% (38 to 85) ^a 91.8; <0.001	<i>all studies</i> [†]	-	7 66% (44 to 85) ^a 89.2%; <0.001	2 50% (37 to 63) ^a Not estimated
4. Oral surgery ⁴	-	-	-	<i>all studies</i> [†]	<i>all studies</i> [†]	-	-	<i>all studies</i> [†]
5. SRP ⁵	3 36% (27 to 46) ^a 0%; 0.680	-	2 32% (19 to 46) ^a Not estimated	1 40% (26 to 55) ^a Not estimated	<i>all studies</i> [†]	-	<i>all studies</i> [†]	-
6. Orthodontic procedure ⁶	2 26% (20 to 33) ^a Not estimated	-	-	<i>all studies</i> [†]	<i>all studies</i> [†]	-	-	<i>all studies</i> [†]
7. OHP ⁷	3 28% (21 to 36) ^a 0; 0.40	-	-	<i>all studies</i> [†]	<i>all studies</i> [†]	-	2 25% (16 to 34) ^a Not estimated	1 37% (22 to 53) ^a Not estimated
9. Other procedures ⁸	4 25% (12 to 41) ^a 83.2; <0.001	-	1 20% (10 to 33) ^a Not estimated	3 27% (11 to 47) ^a Not estimated	<i>all studies</i> [†]	-	1 8% (1 to 26) ^a Not estimated	3 31% (18 to 45)

ES: effect size (% blood sample positive for bacteremia). ADL: activities of daily living. SRP: scaling and root planning. OHP: oral hygiene procedure.

*Overall incidence of bacteremia at the first time point after the procedure. Grey boxes indicate lack of robustness (i.e., the effect estimate fell outside the 95%CI of the overall incidence). [†] It means that all studies belonged to this subgroup and no subgroup analysis was therefore possible. ¹ With manual or powered

toothbrush; ²Dental floss, stimulents, toothpicks, oral irrigation devices, chewing apple or paraffin; ³Includes all extractions: single or multiple teeth, third molar; ⁴Cleft palate, piezoelectric surgery, periodontal surgery, osteosynthesis plate removal; implant surgery; ⁵ Manual scaling and/or root planning (SRP) or using ultrasonic device; ⁶ Banding or debanding orthodontic fixed or removable appliances, orthodontic archwire adjustment, orthodontic mini-implant removal, separator placement; ⁷ Dental prophylaxis using rubber cup and handpiece (without scaling), periodontal probing; ⁸ Restorative procedures with the use of slow or fast drill for dentine removal; endodontic treatment; suture removal, anesthetic injection; impression taking, minor dental procedures used before restorations or during orthodontic procedures with risk of gingival bleeding such as placement of rubber dam clamp or matrix band wedge. ^a Lower case letters indicate absence of statistically significant difference between groups.