

Appendix Table 1 Search Strategy

MEDLINE=581	1. (arthroplast\$ or hemiarthroplast\$).tw. or (joint\$ adj2 replace\$).tw. 2. (surgery\$ or surgeries or surgical).tw. or operat\$.tw. 3. Orthopedics/ 4. (arthroplast\$ or hemiarthroplast\$).tw. or (joint\$ adj2 replace\$).tw. 5. exp ARTHROPLASTY, REPLACEMENT, SHOULDER/ 6. su.fs. 7. exp surgical Procedures, Operative/ 8. Joint Prosthesis/ 9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 10. exp Shoulder/ 11. exp Shoulder Joint/ 12. shoulder\$.tw. 13. Glenoid Cavity/ 14. glenoid.tw. 15. 10 or 11 or 12 or 13 or 14 16. Imaging, Three-Dimensional/ 17. Computer-Aided Design/ 18. ((3D or 3-D or three dimension\$ or three-dimension\$ or 3-dimension\$) adj3 preoperative plan\$).tw. 19. ((3D or 3-D or three dimension\$ or three-dimension\$ or 3-dimension\$) adj3 (reconstruct\$ or model\$)).tw. 20. (virtual adj3 (plan\$ or reconstruc\$ or model\$)).tw. 21. 16 or 17 or 18 or 19 or 20 22. 9 and 15 and 21
EMBASE=446	1. exp surgery/ 2. su.fs. 3. (surgery\$ or surgeries or surgical or operat\$).tw. 4. (arthroplast\$ or hemiarthroplast\$).mp. or (joint\$ adj2 replace\$).tw. 5. shoulder replacement/ or shoulder arthroplasty/ or exp arthroplasty/ or total shoulder arthroplasty/ or arthroplasty.mp. 6. exp orthopedics/ 7. exp surgical Procedures, Operative/

	8. exp shoulder surgery/ or shoulder replacement/ 9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 10. shoulder\$.tw. 11. shoulder/ or shoulder muscle/ 12. glenoid cavity/ 13. glenoid.tw. 14. ((3D or 3-D or three dimension\$ or three-dimension\$ or 3-dimension\$) adj3 (reconstruct\$ or model\$)).tw. 15. ((3D or 3-D or three dimension\$ or three-dimension\$ or 3-dimension\$) adj3 preoperative plan\$).tw. 16. (virtual adj3 (plan\$ or reconstruc\$ or model\$)).tw. 17. 10 or 11 or 12 or 13 18. 14 or 15 or 16 19. 9 and 17 and 18		
CENTRAL=25	#1	MeSH descriptor: [Orthopedics] explode all trees	325
	#2	MeSH descriptor: [Arthroplasty] explode all trees	4300
	#3	(surgery* or surgeries or surgical or operat*):ti,ab	166168
	#4	(arthroplast* or hemiarthroplast* or (joint* near/2 replace*)):ti,ab	7580
	#5	MeSH descriptor: [Shoulder] explode all trees	454
	#6	shoulder* ti, ab	252
	#7	MeSH descriptor: [Glenoid Cavity] explode all trees	6
	#8	MeSH descriptor: [Shoulder Joint] explode all trees	689
	#9	MeSH descriptor: [Imaging, Three-Dimensional] explode all trees	1150
	#10	3D or three-dimension* or three dimension* ti,ab	6422
	#11	(3D or three-dimension* or three dimension*) near/4 (preoperative* reconstruct* or model* or plan*)	4066
	#12	virtual near/3 (plan* or reconstruct* or model*)	151
	#13	{OR #1-#4}	169557
	#14	{OR #5-#8}	1356
	#15	{OR #9-#12}	9528
	#16	{AND #13-#15}	25
ClinicalTrials.gov=0	1. shoulder replacement AND 3D 2. arthroplasty AND shoulder AND 3D		
EBSCO=262	S15	S12 AND S13 AND S14	

	S14	S8 OR S9 OR S10 OR S11
	S13	S6 OR S7
	S12	S1 OR S2 OR S3 OR S4 OR S5
	S11	TI (virtual N4 (plan* OR reconstruct* OR model*)) OR AB (virtual N4 (plan* OR reconstruct* OR model*))
	S10	TI (3D OR "3-D" OR three dimension* OR three-dimension* OR 3-dimension*) OR AB (3D OR "3-D" OR three dimension* OR three-dimension* OR 3-dimension*)
	S9	(MH "Image Processing, Computer Assisted+")
	S8	(MH "Imaging, Three-Dimensional+")
	S7	TI shoulder* OR AB shoulder* OR TI glenoid OR AB glenoid
	S6	(MH "Shoulder") OR (MH "Shoulder Joint") OR (MH "Shoulder Pain")
	S5	TI (arthroplast* OR hemiarthroplast* OR (joint* N2 replace*)) OR AB (arthroplast* OR hemiarthroplast* OR (joint* N2 replace*))
	S4	TI (surgery* OR surgeries OR surgical OR operat*) OR AB (surgery* OR surgeries OR surgical OR operat*)
	S3	(MH "Surgery, Operative+")
	S2	(MH "Arthroplasty, Replacement, Shoulder") OR (MH "Arthroplasty+") OR (MH "Arthroplasty, Reverse Total, Shoulder") OR (MH "Arthroplasty, Replacement") OR (MH "Hemiarthroplasty")
	S1	(MH "Orthopedic Surgery+") OR (MH "Surgery, Computer-Assisted+") OR (MH "Orthopedic Prosthesis") OR (MH "Ambulatory Surgery") OR (MH "Orthopedic Technologists") OR (MH "Orthopedics")
PubMed=658		Search (((((((("shoulder"[MeSH Terms] OR "shoulder joint"[MeSH Terms]))) OR shoulder*[Title/Abstract]) OR "glenoid cavity"[MeSH Terms]) OR glenoid[Title/Abstract])) AND (((("imaging, three dimensional"[MeSH Major Topic] OR "imaging, three dimensional/instrumentation"[MeSH Major Topic])) OR (3-D [Title/Abstract] OR 3D[Title/Abstract] OR three-dimension*[Title/Abstract] OR three dimension*[Title/Abstract]) OR virtual plan*[Title/Abstract])) AND (((((((((arthroplast*[Title/Abstract] OR hemiarthroplast*[Title/Abstract])) OR joint*

replace*[Title/Abstract]) OR (surgery*[Title/Abstract] OR
 surgeries[Title/Abstract] OR surgical*[Title/Abstract] OR
 surgical[Title/Abstract] OR operat*[Title/Abstract])) OR
 (("orthopedic procedures/therapy"[MeSH Terms] OR "orthopedic
 surgeons/trends"[MeSH Terms] OR "orthopedic
 surgeons/utilization"[MeSH Terms] OR "orthopedics"[MeSH
 Terms] OR "orthopedics/surgery"[MeSH Terms])) OR
 (("arthroplasty, replacement"[MeSH Terms] OR "arthroplasty,
 replacement, shoulder"[MeSH Terms])) OR "surgical procedures,
 operative"[MeSH Terms]) OR ((pre-operative
 planning[Title/Abstract] OR preoperative planning[Title/Abstract]))

Search (((((((arthroplast*[Title/Abstract] OR
 hemiarthroplast*[Title/Abstract])) OR joint*
 replace*[Title/Abstract]) OR (surgery*[Title/Abstract] OR
 surgeries[Title/Abstract] OR surgical*[Title/Abstract] OR
 surgical[Title/Abstract] OR operat*[Title/Abstract])) OR
 (("orthopedic procedures/therapy"[MeSH Terms] OR "orthopedic
 surgeons/trends"[MeSH Terms] OR "orthopedic
 surgeons/utilization"[MeSH Terms] OR "orthopedics"[MeSH
 Terms] OR "orthopedics/surgery"[MeSH Terms])) OR
 (("arthroplasty, replacement"[MeSH Terms] OR "arthroplasty,
 replacement, shoulder"[MeSH Terms])) OR "surgical procedures,
 operative"[MeSH Terms]) OR ((pre-operative
 planning[Title/Abstract] OR preoperative planning[Title/Abstract]))

Search (((("imaging, three dimensional"[MeSH Major Topic] OR
 "imageries, three dimensional/instrumentation"[MeSH Major
 Topic])) OR (3-D [Title/Abstract] OR 3D[Title/Abstract] OR three-
 dimension*[Title/Abstract] OR three dimension*[Title/Abstract]))
 OR virtual plan*[Title/Abstract]

Search (((("shoulder"[MeSH Terms] OR "shoulder joint"[MeSH
 Terms])) OR shoulder*[Title/Abstract]) OR "glenoid cavity"[MeSH
 Terms]) OR glenoid[Title/Abstract]

