

**Table S1: Characteristics of 30 included studies**

<b>Study characteristics</b>	<b>N (%)</b>
<b>Country income level†</b>	
High	27 (90.0)
Middle	3 (10.0)
Low	0 (0)
<b>Study type</b>	
Prospective cohort	4 (13.3)
Retrospective cohort	24 (80.0)
other (cross sectional, retrospective case control)	2 (6.7)
<b>Anatomical Location‡</b>	
Knee PJI	20 (66.7)
Hip PJI	20 (66.7)
Other (shoulder/all arthroplasty)	3 (10.0)
<b>Outcomes addressed†</b>	
Mortality rate	9 (30.0)
Patient reported outcome measures (PROMS)	8 (26.7)
Cost	18 (60.0)
Length of stay (LOS)	13 (43.3)
<b>Total</b>	<b>N=30</b>

†As per the New World Bank current 2022 fiscal year

‡Some studies contained more than one infection type/outcome addressed

PJI=prosthetic joint infection

**Table S2: Mortality rate for infected and uninfected cohorts**

Author	Year	Infection type	Surgery	Mortality rate for infected (%)	Mortality rate for uninfected (%)	Cause of mortality	Time of mortality
Boddapati <sup>1</sup>	2018	Knee PJI	TKA followed by either PJI revision or aseptic revision if needed	0.16 in revision	0.16 in revision and 0.11 in primary TKA	Unspecified	Within 30 days
Choi <sup>2</sup>	2014	Knee PJI	TKA followed by septic or aseptic revision	18	3	Unspecified	At a median of 4 years
Gundtoft <sup>3</sup>	2017	Hip PJI	TKA followed by either PJI revision or aseptic revision if needed	7.64	Aseptic revision: 4.89 Primary THA: 2.86	Unspecified	Within 1 year of primary THA
Hotchen <sup>4</sup>	2021	Knee, hip, elbow and shoulder PJI	TKA followed by either PJI or aseptic revision if needed	3.6	N/A	PJI-related	N/A
Kapadia <sup>5</sup>	2014	Knee PJI	TKA followed by 2 stage revision for PJI	0	0	N/A	N/A
Kapadia <sup>6</sup>	2016	Hip PJI	THA followed by 2 stage revision for PJI	0	0	N/A	N/A
Shahi <sup>7</sup>	2017	Knee and hip PJI	Primary followed by revision THA, TKA	0.77	0.38	Unspecified	In hospital mortality
Wildeman <sup>8</sup>	2021	Hip PJI	THA followed by revision, DAIR if needed.	45	29	Unspecified	10 year mortality rate
Zmistowski <sup>9</sup>	2013	Knee and hip PJI	TKA, THA followed by PJI revision or aseptic revision	90 days: 3.7 1 year: 10.6 2 year: 13.6 5 year: 25.9	90 days: 0.8 1 year: 2.0 2 year: 3.9 5 year: 12.9	Unspecified	Within 90 days, 1 year, 2 years and 5 years

N/A = not applicable

**Table S3: Overview of assessment tools used in included studies**

Questionnaire	Domain	Aim	Number of Questions	Subdomains	Number of Studies
Ambulatory outcome	(HR)QoL	Assess ability to walk independently	4	Ambulate without assistive device Able to walk with one crutch/stick Able to walk with two crutches/sticks Unable to walk	1
EuroQoL-5D (EQ-5D)	QoL	General health	6	Self-care Mobility Activities Pain/discomfort Anxiety/Depression	4
Harris Hip Score (HHS)	(HR)QoL	Hip dysfunction	10	Pain Function Absence of deformity Range of motion	2
ICD-10-based symptom rating (ISR)	(HR)QoL	Psychiatric disorder severity	29	Depressive syndrome Anxiety syndrome Obsessive-compulsive syndrome Somatoform syndrome Eating disorder syndrome	1
Oxford Hip Score (OHS)	(HR)QoL	Assess hip disability following arthroplasty	12	Pain and function	3
Oxford Knee Score (OKS)	(HR)QoL	Assess knee disability following arthroplasty	12	Pain and function	1
Short Form 36 (SF-36)	QoL	General health	36	<u>Physical Component Score (PCS)</u> Physical functioning Bodily pain Physical role functioning General health perceptions  <u>Mental Component Score (MCS)</u> Vitality Social role functioning Mental health Emotional role functioning	1
Short Form 12 (SF-12)	QoL	General health	12	<u>Physical Component Score (PCS)</u> Physical functioning Bodily pain Physical role functioning General health perceptions  <u>Mental Component Score (MCS)</u> Vitality Social role functioning Mental health Emotional role functioning	3
Western Ontario and MacMasters Universities Osteoarthritis Index (WOMAC)	(HR)QoL	Disease specific (osteoarthritis)	24	Pain Function Stiffness	1

**Table S4: Questionnaires used in each study**

<b>Author</b>	<b>Year</b>	<b>Infection Type</b>	<b>Sample size of infected cohort (n)</b>	<b>Sample size of uninfected cohort (n)</b>	<b>Questionnaire</b>
Mur <sup>10</sup>	2020	Hip and knee PJI	109	218	Ambulatory outcome
Wildeman <sup>8</sup>	2021	Hip PJI	215	659	Ambulatory outcome, EQ-5D-5L, OHS
Poulsen <sup>11</sup>	2018	Hip PJI	45	1408	EQ-5D, OHS
Hotchen <sup>4</sup>	2021	Hip, shoulder, knee, and elbow PJI	220	Unspecified	EQ-5D-3L, OHS, OKS
Romano <sup>12</sup>	2010	Hip PJI	40	40	HHS, SF-12, WOMAC
Aboltins <sup>13</sup>	2013	Hip PJI	19	76	HHS, SF-12
Aboltins <sup>14</sup>	2016	Hip and knee PJI	41	2093	SF-12
Walter <sup>15</sup>	2021	Knee PJI	36	7124	EQ-5D, IRS, SF-36

**Table S5: Overview of hospital cost and projected cost for PJI patients and uninfected patients**

Author	Year	Country/ country income level	Infection type	Sample size of infected cohort	Sample size of uninfected cohort	Cost perspective	Cost measured	Cost in infected cohort	Cost in uninfected cohort	Most costly component in infected cohort
Akindolire <sup>16</sup>	2019	Canada/high	Hip PJI	50	50	Total hospital cost per case	operation cost, hospital bed, investigation, medication, physical therapy	CA\$38107	CA\$6764	Hospital bed charges: CA\$17423
Alp <sup>17</sup>	2016	Turkey/middle	Hip, shoulder and knee PJI	16	654	Total hospital cost per case	antibiotics, laboratory, radiology, prosthesis, operation, hospital bed	US\$16999	US\$5937	Prosthesis: USD\$3872 Antibiotics: USD\$1373
Brochin <sup>18</sup>	2018	US/high	Knee PJI	70011§	395198§	Total hospital cost per case for arthroplasty revision	N/A	adjusted median cost increased from USD\$28240 to \$31529 from 2003 to 2013	adjusted median increased from USD\$18984 to \$19879 from 2003 to 2013	N/A
Iqbal <sup>19</sup>	2020	Pakistan/middle	Knee PJI	27	27	Total hospital cost per case	hospital stay cost: ward stay, ICU, meal, diagnostic test, medication. operating room cost: equipment, medical staff	US\$12,277	US\$2,690	Clinical material including prosthesis: \$9481
Kapadia <sup>5</sup>	2014	US/high	Knee PJI	21	21	Total hospital cost per case	fixed direct medical cost: hospital bed charge, clinic visit. Variable direct charge: pharmaceutical, diagnostic test, radiology etc. Operating room cost: implants, iv solution, surgical supply etc	US\$116383	US\$28249	Operating room services: US\$64675 Bed charge: US\$25914
Kapadia <sup>6</sup>	2016	US/high	Hip PJI	16	32	Total hospital cost per case	fixed direct medical cost: hospital bed	US\$88623	US\$25659	Operating room service: \$46520

							charge, clinic visit. Variable direct charge: pharmaceutical, diagnostic test, radiology etc. Operating room cost: implants, iv solution, surgical supply etc			Bed charge: \$22359
Kasch <sup>20</sup>	2017	Germany/high	Knee PJI	35	71	Total hospital cost per case	Operation procedure, diagnostic cost, drugs, physiotherapy, ward cost	US\$12223	US\$6749.43	Operating room service: \$5847
Kurtz <sup>21</sup>	2008	US/high	Hip and knee PJI	NIS data§	NIS data§	Total hospital cost per case	N/A	Hip: US\$67415 in 1990, US\$70378 in 2004. Knee: US\$59491 in 1990, US\$56275 in 2004	Hip: US\$39057 in 1990, US\$39654 in 2004. Knee: US\$35578 in 1990, US\$35769 in 2004	N/A
Morcos <sup>22</sup>	2020	Canada/high	Knee PJI	73	73	Total hospital cost per case	OR, Implants, hospital bed, medication, phyiotherapy	CA\$35 430	CA\$6810	Hospital bed charges: CA\$14236
Padegimas <sup>23</sup>	2015	US/high	Shoulder PJI	808§	81690§	Total hospital cost per case	N/A	median charges were US\$42,248	median charges for total shoulder arthroplasty, hemi-arthroplasty, reverse shoulder were US\$40,823, US\$34,428, US\$57,390	N/A
Peel <sup>24</sup>	2013	Australia/high	Any PJI	21	42	Total cost per case paid by the Victorian government	Inpatient: medical, nursing, operating theatre, prosthesis, ICU, coronary care unit, allied health, medical	AU\$69 414	AU \$22 085	Inpatient nursing cost AU\$25 817

							imaging, pathology, pharmacy, hospital-in-home. Outpatient: medical, nursing, allied health, medical imaging, pathology, pharmacy, emergency			
Puhto <sup>25</sup>	2019	Finland/high	Hip and knee PJI	42	1708	Total hospital cost	Ward care cost, ICU cost, procedure cost, costs for consultation, laboratory services, radiology, outpatient visits	Excess cost for treating a PJI was euro25,843	mean cost of a total joint arthroplasty was euro7200, the excess cost of an aseptic revision was euro10900	Procedure: euro12908 Ward care: e7132
Romano <sup>12</sup>	2010	Italy/high	Hip PJI	40	40	Total hospital cost per case	operating room, hospital stay, material services, pharmacy	euro60394	euro27194	Hospital stay: euro21442 Operating room: euro18367
Stambough <sup>26</sup>	2017	US/high	Any PJI	N/A	N/A	Total hospital cost per case	operative and variable hospital related costs	US\$41,495 for treating PJI	median cost of US\$9500 for a primary TJA	N/A
Kurtz <sup>27</sup>	2012	US/high	Hip and knee PJI	NIS data§	NIS data§	Projected hospital cost, cost per case during the study period	N/A	The future PJI cases are expected to incur a cost to US hospitals around \$785 million in 2010 and \$1.62 billion in 2020	N/A	N/A
Chang <sup>28</sup>	2020	Taiwan/middle	Knee and hip PJI	N/A	N/A	Projected cost	N/A	Estimated hospital costs in will increase from NT\$117,000,000 in 2013 to NT\$569,000,000 in 2035	N/A	N/A
Kim <sup>29</sup>	2020	Korea/high	Any PJI	N/A	N/A	Projected hospital cost	N/A	Total annual cost of PJI		

						per case		increased from US\$8.0 million in 2010 to US\$18.0 million in 2018 and was projected to exceed US\$57.0 million by 2030.		
Premkumar <sup>30</sup>	2022	US/high	Knee and hip PJI	NIS data§	NIS data§	Projected cost	N/A	the combined annual hospital costs were estimated to be US\$1.85 billion by 2030. This includes US\$753.4 million for THA PJI and US\$1.1 billion for TKA PJI	N/A	N/A

§Data derived from the United States National Inpatient Sample (NIS) database

N/A=non-applicable, ICU=intensive care unit, THA=total hip arthroplasty, TKA= total knee arthroplasty

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