

## Appendix

TABLE E-1 Comprehensive Search Strategy\*

1	knee
2	hip
3	arthroplasty
4	replacement
5	THA
6	TKA
7	1 or 2
8	3 or 4
9	7 and 8
10	5 or 6 or 9
11	"length of stay"
12	short
13	reduced
14	12 or 13
15	11 and 14
16	"outpatient surgery"
17	"ambulatory surgical procedure"
18	"ambulatory surgery"
19	"fast track"
20	"early discharge"
21	"rapid discharge"
22	"same day discharge"
23	"direct home"
24	"24 hour discharge"
25	"same day surgery"
26	"day case"
27	"day surgery"
28	15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27
29	10 and 28
30	Remove duplicates from 29

\*The terms were used in our comprehensive search strategy across 3 databases: MEDLINE, Embase, and HealthSTAR.

TABLE E-2 Risk-of-Bias Assessment of Comparative Studies

Study	Evidence of Selection Bias/Prognostic Imbalance	Bias Due to Confounding Factors?	Was Assessment of Outcomes Precisely Measured or Unbiased?	Was Follow-up of Participants Sufficiently Complete?	Bias Due to Selection of Reported Results or Due to Missing Data?	Comparability of Cohorts on Important Confounding Factors
Aynardi et al. <sup>3</sup>	High risk	High risk	Moderate risk	Low risk	Low risk	High risk
Bertin <sup>8</sup>	Moderate risk	High risk	Moderate risk	Low risk	Low risk	Low risk
Kolisek et al. <sup>13</sup>	High risk	High risk	Low risk	Low risk	Moderate risk	Moderate risk
Lovald et al. <sup>15</sup>	Low risk	Moderate risk	Low risk	Low risk	Low risk	Moderate risk

TABLE E-3 Quality Assessment of Non-Comparative Observational Studies

Study	Evidence of Selection Bias/Prognostic Imbalance	Study Design	Bias Due to Confounding Factors?	Was Assessment of Outcomes Precisely Measured or Unbiased?	Was Follow-up of Participants Sufficiently Complete?	Was There Blinding of the Outcome Assessor and Study Participants?
Berger <sup>16</sup>	Weak	Weak	Moderate	Moderate	Strong	Weak
Berger et al. <sup>17</sup>	Weak	Weak	Moderate	Strong	Strong	Weak
Berger et al. <sup>5</sup>	Weak	Weak	Moderate	Strong	Strong	Weak
Berger et al. <sup>7</sup>	Weak	Weak	Weak	Moderate	Strong	Weak
Berger et al. <sup>4</sup>	Moderate	Weak	Moderate	Strong	Strong	Weak
Berry et al. <sup>18</sup>	Weak	Weak	Weak	Strong	Strong	Weak
Chen and Berger <sup>9</sup>	Weak	Weak	Weak	Moderate	Strong	Weak
Cross and Berger <sup>10</sup>	Moderate	Weak	Moderate	Strong	Strong	Weak
Dervin et al. <sup>11</sup>	Weak	Weak	Weak	Strong	Strong	Weak
Dorr et al. <sup>12</sup>	Weak	Weak	Weak	Strong	Moderate	Weak
Gondusky et al. <sup>20</sup>	Weak	Weak	Weak	Strong	Strong	Weak
Lovald et al. <sup>14</sup>	Strong	Weak	Moderate	Strong	Strong	Weak
Mears et al. <sup>19</sup>	Strong	Weak	Strong	Weak	Strong	Weak

TABLE E-4 THA Study Functional Outcomes and Questionnaires\*

Study	Harris Hip Score†	SF-12 Physical Score†	SF-12 Mental Score†	Pain Post-Surgery‡	Discontinued Pain Medication	Satisfaction Rate	Self-Assessed Clinical Outcome
Non-comparative observational studies							
Berger <sup>16</sup>	NR	NR	NR	NR	NR	NR	NR
Berger et al. <sup>17</sup>	Preop., 56 (32 to 77); 3 wk, 91 (61 to 100)§; 6 wk, 94 (79 to 100)§; 3 mo, 96 (74 to 100)§	Preop., 35.1 (20.5 to 56.8); 3 wk, 48.5 (26.4 to 58.7)§; 6 wk, 49.1 (30.4 to 59.8)§; 3 mo, 52 (28.7 to 62.3)§	Preop., 59.2 (31.4 to 70.1); 3 wk, 60.2 (31.4 to 70.1)#; 6 wk, 60.5 (26.4 to 58.8)#; 3 mo, 59.9 (30.2 to 69.7)#	NR	NR	NR	NR
Berger et al. <sup>7</sup>	Preop., 51 (32 to 74); 6 wk, 91 (56 to 100)#; 3 mo, 95 (62 to 100)#	NR	NR	NR	NR	96% (144 of 150)	NR
Berry et al. <sup>18</sup> (Center 1: Dr. Duwelius)	NR	NR	NR	NR	NR	NR	NR
Berry et al. <sup>18</sup> (Center 2: Dr. Hartzband)	NR	NR	NR	NR	NR	NR	NR
Chen and Berger <sup>9</sup>	NR	NR	NR	NR	NR	NR	NR
Dorr et al. <sup>12</sup>	6 mo, 95.6 ± 5 (Converge cup), 80.6 ± 17.6 (Durom cup)	NR	NR	Postop., 3.1 ± 2.4; 1 wk, 2.8 ± 1.7; 2 wk, 2.5 ± 1.7; 3 wk, 1.9 ± 1.5	1 wk, 34% (15 of 44); 2 wk, 55% (24 of 44); 3 wk, 64% (28 of 44)	96% (50 of 52)	Excellent, 67%; good, 27%; fair, 1.9% (Durom cup); poor, 3.8% (Durom cup)
Comparative studies							
Aynardi et al. <sup>3</sup>	NR	NR	NR	NR	NR	NR	NR
Bertin <sup>8</sup>	NR	NR	NR	NR	NR	NR	NR

\*NR = not reported. †The values are given as the mean or the mean and the standard deviation, with or without the range in parentheses. ‡The values are given as the mean and the standard deviation. §P < 0.001. #P < 0.05.

TABLE E-5 TKA and UKA Study Functional Outcomes and Questionnaires\*

Study	Range of Motion† (deg)	WOMAC‡	KOOS‡	KSCRS‡	Pain Post-Surgery‡	Satisfaction
<b>Non-comparative observational studies</b>						
Berger et al. <sup>5</sup>	NR	NR	NR	NR	NR	NR
Berger et al. <sup>4</sup>	NR	NR	NR	NR	NR	NR
Cross and Berger <sup>10</sup>	NR	NR	NR	NR	NR	NR
Dervin et al. <sup>11</sup>	Preop. extension, 0 (-5 to 10); preop. flexion, 120 (105 to 140)	Pain: preop., 45.70 ± 16.09; 1 yr, 12.50 ± 14.38§; 2 yr, 8.13 ± 8.92§. Total: preop., 48.02 ± 12.89; 1 yr, 14.64 ± 13.23§; 2 yr, 12.12 ± 8.13§	Sport/recreation: preop., 25.15 ± 23.36; 1 yr, 55.56 ± 29.55§; 2 yr, 46.88 ± 23.09§. Quality of life: preop., 21.42 ± 14.62; 1 yr, 66.67 ± 26.34§; 2 yr, 66.80 ± 15.93§	NR	At rest: day 1, 1.4 (0 to 5); day 2, 2.1 (0 to 5); day 3, 1.8 (0 to 5). With activity: day 1, 3.3 (0 to 8); day 2, 4.9 (2 to 9); day 3, 3.1 (0 to 8)	NR
Gondusky et al. <sup>20</sup>	Extension: preop., 5.67; 1 yr, 0.84; final, 0.73§. Flexion: preop., 124.37; 1 yr, 132.65; final, 133.31§	NR	NR	Functional: preop., 65.28; 1 yr, 89.00; final, 88.23§. Knee: preop., 34.23; 1 yr, 92.74; final, 94.43§. Total: preop., 99.51; 1 yr, 181.74; final, 182.66§	NR	NR
Lovald et al. <sup>14</sup>	NR	NR	NR	NR	NR	NR
<b>Comparative studies</b>						
Kolisek et al. <sup>13</sup>	Inpatient flexion, 121 (105 to 140)	NR	NR	Inpatient knee, 93 (48 to 100); inpatient functional, 86 (50 to 100)	NR	4.8 (4 to 5)
	Outpatient flexion, 123 (100 to 140)	NR	NR	Outpatient knee, 94 (67 to 100); outpatient functional, 86 (50 to 100)	NR	4.7 (3 to 5)
Lovald et al. <sup>15</sup>	NR	NR	NR	NR	NR	NR

\*NR = not reported. †The values are given as the mean, with or without the range in parentheses. ‡The values are given as the mean and the standard deviation. §P < 0.001.

TABLE E-6 Surgical Data on THA\*

Study	Facility Type	Surgical Time† ( <i>min</i> )	Estimated Blood Loss† ( <i>mL</i> )	Required Transfusion† ( <i>mL</i> )	Anesthesia ( <i>no. of patients</i> )			
					Epidural	General	Epidural + General	Regional
Non-comparative observational studies								
Berger <sup>16</sup>	Outpatient arthroplasty center	First 12, 150 (94 to 255); last 88, 101 (80 to 120)	NR	NR	NR	NR	NR	NR
Berger et al. <sup>17</sup>	Outpatient arthroplasty center	101 (65 to 120)	291 (100 to 1300)	NR	96	4	0	0
Berger et al. <sup>7</sup>	Outpatient arthroplasty center	99 (66 to 141)	266 (100 to 1000)	NR	145	3	2	0
Berry et al. <sup>18</sup>								
Center 1: Dr. Duwelius	Medical center	90 (80 to 120)	NR	NR	NR	NR	NR	NR
Center 2: Dr. Hartzband	Medical center	62 (38 to 140)	NR	NR	NR	NR	NR	NR
Chen and Berger <sup>9</sup>	NR	59 (38 to 91)	250 (50 to 1500)	NR	86	0	0	0
Dorr et al. <sup>12</sup>	NR	79.9 ± 18.8 (55 to 133)	311.2 ± 102.9 (200 to 800)	NR	64	1	0	4
Mears et al. <sup>19</sup>	NR	NR	482.3 ± 375.1	NR	NR	NR	0	NR
Comparative studies								
Aynardi et al. <sup>3</sup>								
	Outpatient surgery center	NR	Outpatient, 328.6 ± 125	Outpatient, 90	0	0	0	119
	Inpatient hospital	NR	Inpatient, 352.9 ± 153	Inpatient, 73	0	0	0	78
Bertin <sup>8</sup>	NR	NR	NR	NR	NR	NR	NR	NR

\*NR = not reported. †The values are given as the mean or the mean and the standard deviation, with or without the range in parentheses.

TABLE E-7 Surgical Data on Total Knee Arthroplasty and UKA\*

Study	Facility Type	Surgical Time† (min)	Estimated Blood Loss	Anesthesia (no. of patients)				
				Other	Epidural	General	Epidural + General	Spinal
Non-comparative observational studies								
Berger et al. <sup>5</sup>	NR	104 (82 to 139)	NR	0	97	3	0	0
Berger et al. <sup>4</sup>	NR	103 (78 to 126)	NR	0	48	2	0	0
Cross and Berger <sup>10</sup>	NR	NR	NR	NR	NR	NR	NR	NR
Dervin et al. <sup>11</sup>	NR	65 (53 to 75)	NR	Local + continuous FNB	NR	NR	NR	NR
Gondusky et al. <sup>20</sup>	NR	81 ± 11 (58 to 115)	NR	160 FNB	0	158	0	2
Lovald et al. <sup>14</sup>	NR	NR	NR	20% received FNB	NR	NR	NR	NR
Comparative studies								
Kolisek et al. <sup>13</sup>	NR	Outpatient, 45 (36 to 62); inpatient, 45 (32 to 74)	NR	64 continuous FNB + single shot SNB + intravenous sedation	0	0	0	0
Lovald et al. <sup>15</sup>	NR	NR	NR	NR	NR	NR	NR	NR

\*NR = not reported, FNB = femoral nerve block, and SNB = sciatic nerve block. †The values are given as the mean or the mean and the standard deviation, with the range in parentheses.

TABLE E-8 Discharge Data for Included Studies\*

Study	Physical Therapy	Discharge Destination ( <i>no. of patients</i> )					Physical Milestones
		Home	Home + In-Home Care Visits	Rehab. Center	Nursing Facility	Other	
Studies including THA patients							
Non-comparative observational studies							
Berger <sup>16</sup>	Had to be able to independently transfer in and out of bed from a standing position, rise from a chair to standing, sit from standing, walk 100 ft, and ascend/descend full flight of stairs	100	0	0	0	0	NR
Berger et al. <sup>17</sup>	PT initiated 5 to 6 hr postop.; weight-bearing as tolerated; taught bed and chair transfers; taught to walk first with crutches, then with a cane, and then without assistive devices. Criteria for discharge: ability to independently transfer out of and into bed from standing, rise from chair to standing position, walk 100 ft, and ascend/descend full flight of stairs	100	0	0	0	0	Walk without assistive devices, 9 d (3 to 25 d); resume driving, 6 d (2 to 18 d); return to work, 8 d (1 to 20 d); resume daily living activities, 10 d (1 to 27 d)
Berger et al. <sup>7</sup>	PT initiated 5 to 6 hr postop.; patients allowed weight-bearing as tolerated and encouraged to rapidly advance to walking with cane or walking unassisted. Discharge: independently transfer out of bed to a standing position and transfer into bed from a standing position, independently rise from a chair to a standing position and sit from a standing position, able to walk 100 ft and ascend/descend full flight of stairs. Patients encouraged to resume activities as tolerated, no hip precautions, allowed to drive when narcotics complete, home PT utilized until patient could drive, when outpatient PT was started	NR	NR	NR	NR	0	NR
Berry et al. <sup>18</sup> (Center 1: Dr. Duwelius)	Seen by physical therapist immediately on return from recovery room, allowed to bear weight as tolerated with crutches	NR	NR	NR	NR	0	NR
Berry et al. <sup>18</sup> (Center 2: Dr. Hartzband)	Seen by physical therapist immediately on return from recovery room, allowed to bear weight as tolerated with crutches	NR	NR	NR	NR	0	NR
Chen and Berger <sup>9</sup>		86	0	0	0	0	NR
Dorr et al. <sup>12</sup>		49	0	0	0	4	Walk without assistive

						(hotel)	devices: 1 wk, 14% (6 of 44); 2 wk, 34% (15 of 44); 3 wk, 41% (18 of 44). Resume driving: 1 wk, 39% (17 of 44); 2 wk, 73% (32 of 44); 3 wk, 84% (37 of 44). Return to work: 1 wk, 42% (15 of 36); 2 wk, 64% (23 of 36); 3 wk, 69% (25 of 36). Resume daily living activities: 1 wk, 48% (21 of 44); 2 wk, 73% (32 of 44); 3 wk, 82% (36 of 44)
Mears et al. <sup>19</sup>	NR	264 (89%)	30 (11%)	0	1 (<1%)	0	NR
Comparative studies							
Aynardi et al. <sup>3</sup>	Preop.: educated on anterior hip precaution. Postop.: full weight-bearing as tolerated and walking with assistance. Criteria for discharge: independent transfers, ability to ascend/descend stairs, walk 100 ft	Outpatient, 119 (100%); inpatient, 60 (77%)	0	Outpatient, 0; inpatient, 18 (23%)	0	0	NR
Bertin <sup>8</sup>	Patients had to have the ability to transfer safely and ascend/descend stairs with crutches to be discharged	Outpatient, 10 (100%); inpatient, 8 (80%)	0	Outpatient, 0; inpatient, 1 (10%)	Outpatient, 0; inpatient, 1 (10%)	0	NR
Studies including TKA and UKA patients							
Non-comparative observational studies							
Berger et al. <sup>5</sup>	PT initiated 5 to 6 hr postop. Weight-bearing as tolerated. Criteria for discharge: ability to independently transfer out of and into bed to/from standing, rise from a chair to a standing position, walk 100 ft, and ascend/descend full flight of stairs. Home PT until patient can drive, then outpatient PT	100	0	0	0	0	NR
Berger et al. <sup>4</sup>	PT initiated 5 to 6 hr postop.; patients allowed weight-bearing as tolerated with assistive devices (cane or crutch) and then promptly advanced to no assistive devices. Discharge:	NR	NR	NR	NR	NR	NR

	independently transfer out of bed to a standing position and transfer into bed from a standing position, independently rise from a chair to a standing position and to sit from a standing position, able to walk 100 ft and ascend/descend full flight of stairs						
Cross and Berger <sup>10</sup>	NR	NR	NR	NR	NR	NR	NR
Dervin et al. <sup>11</sup>	NR	NR	NR	NR	NR	NR	NR
Gondusky et al. <sup>20</sup>	NR	160	0	0	0	0	NR
Lovald et al. <sup>14</sup>	NR	NR	NR	NR	NR	NR	NR
Comparative studies							
Kolisek et al. <sup>13</sup>	NR	NR	NR	NR	NR	NR	NR
Lovald et al. <sup>15</sup>	NR	NR	NR	NR	NR	NR	NR

\*NR = not reported, and PT = physical therapy.