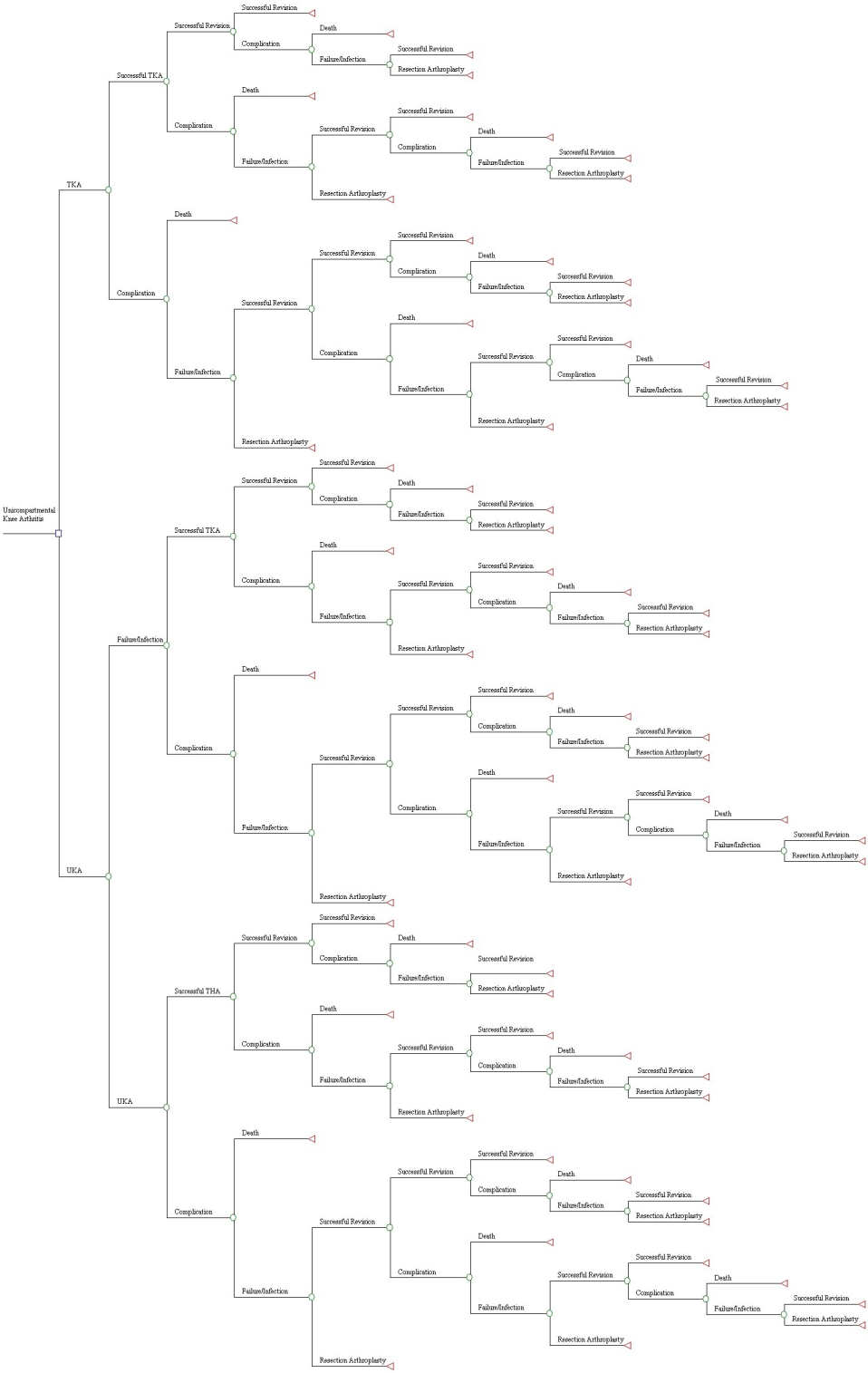
TABLE E-1 Summary of the Literature Review on Outcomes of Unicompartmental Knee Arthroplasty.

Study	Study Design	Number of Subjects	Mean Follow-up	Mean Age at Operation	Survivorship	Rate of Infection and Mortality
Newman et al.[2] (1998)	Randomized, Controlled Trial	102 (45 randomized to UKA)	5 years	69 years	96% at 5 years	Not reported
Murray et al.[3] (1998)	Prospective	143	7.6 years	70.7 years	98% at 10 years	1% Infection
Berger et al.[4] (1999)	Prospective	62	7.5 years	68 years	98% at 10 years	Not reported
Argenson et al.[5] (2002)	Prospective	160	5.5 years	66 years	94% at 10 years	Not reported
Weale et al.[6] (1999)	Prospective	56	11.4 years	71 years	Not reported	Not reported
Squire et al.[7] (1999)	Prospective	140	18 years	70.9 years	95% at 15 years	Not reported
Kumar and Fiddian[8] (1999)	Prospective	83	5.6 years	71 years	85% at 11 years	Not reported
Svard and Price[9] (2001)	Retrospective	124	12.5 years	69.6 years	95% at 15 years	1% Infection
Lewold et al.[10] (1998)	Retrospective	14,772	Not reported	70 years	Not reported	0.3% Infection

Fig. E-1

Complete decision model for treatment of unicompartmental arthritis of the knee. TKA = total knee arthroplasty, UKA = unicompartmental knee arthroplasty.


Unicompartmental Knee Arthritis
TKA
Successful TKA
Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Complication
Death
Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Failure/Infection
Resection Arthroplasty
Death
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Complication
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Failure/Infection
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Resection Arthroplasty
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Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Failure/Infection
Resection Arthroplasty
UKA
Failure/Infection
Successful TKA
Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Complication
Death
Successful Revision
Successful Revision
Complication
Death
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Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Failure/Infection
Resection Arthroplasty
UKA
Successful THA
Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
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Successful Revision
Resection Arthroplasty
Complication
Death
Successful Revision
Successful Revision
Complication
Death
Failure/Infection
Successful Revision
Resection Arthroplasty
Failure/Infection
Resection Arthroplasty

Appendix E-1
Search Strategy and Abstracted Data

Keywords (in permutation):	unicompartmental unicondylar knee arthroplasty results outcomes
Dates:	1975-2004
Total articles	345
- Articles Not Relevant	263
Relevant Articles Analyzed	82

Relevant Articles Analyzed:	82
- Excluded reviews	5
- Excluded articles fewer than 50 subjects	23
- Excluded articles which failed criteria	45
Articles remaining from 82	9

Articles used for model's data

Randomized, controlled trial (RCT)

[1]Newman, J. H., C. E. Ackroyd, et al. (1998). "Unicompartmental or total knee replacement? Five-year results of a prospective, randomised trial of 102 osteoarthritic knees with unicompartmental arthritis." J Bone Joint Surg Br **80**(5): 862-5.

Prospective more than 50 Subjects:

[2]Murray, D. W., J. W. Goodfellow, et al. (1998). "The Oxford medial unicompartmental arthroplasty: a ten-year survival study." J Bone Joint Surg Br **80**(6): 983-9.

[3]Berger, R. A., D. D. Nedeff, et al. (1999). "Unicompartmental knee arthroplasty. Clinical experience at 6- to 10-year followup." Clin Orthop(367): 50-60.

[4]Argenson, J. N., Y. Chevrol-Benkeddache, et al. (2002). "Modern unicompartmental knee arthroplasty with cement: a three to ten-year follow-up study." J Bone Joint Surg Am **84-A**(12): 2235-9.

[5]Weale, A. E., D. W. Murray, et al. (1999). "Does arthritis progress in the retained compartments after 'Oxford' medial unicompartmental arthroplasty? A clinical and radiological study with a minimum ten-year follow-up." J Bone Joint Surg Br **81**(5): 783-9.

[6]Squire, M. W., J. J. Callaghan, et al. (1999). "Unicompartmental knee replacement. A minimum 15 year followup study." Clin Orthop(367): 61-72.

[7]Kumar, A., and N.J. Fiddian. (1999). "Medial unicompartmental arthroplasty of the knee." The Knee **6**: 21-23.

Retrospective more than 50 Subjects

[8]Svard, U. C. and A. J. Price (2001). "Oxford medial unicompartmental knee arthroplasty. A survival analysis of an independent series." J Bone Joint Surg Br **83**(2): 191-4.

[9]Lewold, S., O. Robertsson, et al. (1998). "Revision of unicompartmental knee arthroplasty: outcome in 1,135 cases from the Swedish Knee Arthroplasty study." Acta Orthop Scand **69**(5): 469-74.

Appendix: Article data

Randomized, Controlled Trial (RCT) data

Newman, J. H., C. E. Ackroyd, et al. (1998). "Unicompartmental or total knee replacement? Five-year results of a prospective, randomised trial of 102 osteoarthritic knees with unicompartmental arthritis." J Bone Joint Surg Br **80**(5): 862-5.

Study Design	Knees in Article	Mean f/u	Max f/u
RCT	102	5 years	5 years

Survivorship

Not reported

Outcomes

Measured with Bristol Knee Score

Unicompartmental Knee Arthroplasty (UKA) and Total Knee Arthroplasty (TKA)

Variable	UKA Probability	TKA Probability
Excellent	0.77	0.57
Good	0.11	0.26
Fair	0.06	0.11
Poor	0.06	0.06

Complications

Revision

Complication	UKA (n=45)	TKA (n=46)
Deep venous thrombosis	0.02	0.11
Aseptic loosening	0.02	0.02
Other mechanical problems*	0	0.09
Progress of osteoarthritis	Not reported	Not reported
Infection	Not reported	Not reported

*Other mechanical problems include wear, settling/subsidence, technical error, fracture of the prosthesis, luxation of a meniscal bearing, and fracture of the plastic component.

Prospective data

Murray, D. W., J. W. Goodfellow, et al. (1998). "The Oxford medial unicompartmental arthroplasty: a ten-year survival study." J Bone Joint Surg Br **80**(6): 983-9.

Study Design	Knees in Article	Mean f/u	Max f/u
Prospective	143	7.6 years	13.8 years

Survivorship

Reported annually from year 1 to year 14.

% Survival		
5 year	*10 year*	*15 year*
98.5%	97.7%	

Outcomes

Not reported

Complications

Revision

Complication	UKA (n=45)
Deep venous thrombosis	Not reported
Aseptic loosening	Not reported
Other mechanical problems	Not reported
Progress of osteoarthritis	Not reported
Infection	0.01

Berger, R. A., D. D. Nedeff, et al. (1999). "Unicompartmental knee arthroplasty. Clinical experience at 6- to 10-year followup." Clin Orthop(367): 50-60.

Study Design	Knees in Article	Mean f/u	Max f/u
Prospective	62	7.5 years	10 years

Survivorship

% Survival		
5 year	*10 year*	*15 year*
100%	98.0%	98.0%

Outcomes

Measured with Hospital for Special Surgery Score

UKA

Variable	Probability
Excellent	0.78
Good	0.20
Fair	0.02
Poor	0

Complications

Revision

Complication	UKA
Deep venous thrombosis	0.032
Aseptic loosening	0
Other mechanical problems*	0.097
Progress of osteoarthritis	0.016
Infection	0

*4 fractures, 1 avulsion, 1 poor ROM

Argenson, J. N., Y. Chevrol-Benkeddache, et al. (2002). "Modern unicompartmental knee arthroplasty with cement: a three to ten-year follow-up study." J Bone Joint Surg Am **84-A**(12): 2235-9.

Study Design	Knees in Article	Mean f/u	Max f/u
Prospective	160	5.5 years	9.3 years

Survivorship

% Survival
10 year
94.0%

Outcomes

Measured with Hospital for Special Surgery Score

Variable	Probability
Excellent	0.92
Good	0.05
Fair	0.02
Poor	0.01

Complications

Revision

Complication	UKA
Deep venous thrombosis	0.03
Aseptic loosening	Not reported
Other mechanical problems	Not reported
Progress of osteoarthritis	.01
Infection	Not reported

Weale, A. E., D. W. Murray, et al. (1999). "Does arthritis progress in the retained compartments after 'Oxford' medial unicompartmental arthroplasty? A clinical and radiological study with a minimum ten-year follow-up." J Bone Joint Surg Br **81**(5): 783-9.

Study Design	Knees in Article	Mean f/u	Max f/u
Prospective	56	11.4 years	14 years

Survivorship

Not reported

Outcomes

Measured with Hospital for Special Surgery Score and American Knee society Score. (HSS score is displayed here.)

Variable	Probability
Excellent	0.61
Good	0.29
Fair	0.07
Poor	0.036

Complications

Revision

Complication	UKA
Deep venous thrombosis	Not reported
Aseptic loosening	Not reported
Other mechanical problems	Not reported
Progress of osteoarthritis	Not reported
Infection	Not reported

Squire, M. W., J. J. Callaghan, et al. (1999). "Unicompartmental knee replacement. A minimum 15 year followup study." Clin Orthop(367): 61-72.

Study Design	Knees in Article	Mean f/u	Max f/u
Prospective	140	18 years	21.8 years

Survivorship

% Survival		
5 year	*10 year*	*15 year*
97%	95.0%	95.0%

Outcomes

Not reported

Complications

Revision

Complication	**UKA**
Deep venous thrombosis	Not reported
Aseptic loosening	0.05
Other mechanical problems	Not reported
Progress of osteoarthritis*	0.086
Infection	Not reported

*For this particular article, eleven knees were revised for osteoarthritis and one knee was revised for rheumatoid arthritis.

Kumar, A., and N.J. Fiddian. (1999). "Medial unicompartmental arthroplasty of the knee." The Knee **6**: 21-23.

Study Design	**Knees in Article**	**Mean f/u**	**Max f/u**
Prospective	83	5.6 years	11 years

Survivorship

Reported annually from year 1 to year 12.

% Survival		
5 year	*10 year*	*15 year*
95.0%	85.0%	

Outcomes

Measured with Knee Society Score.

Variable	**Probability**
Excellent	0.75
Good	0.15
Fair*	0.08
Poor	0.02

*The percentage of Fair results was actually not reported. We assume it was 8% since Excellent, Good, and Poor results were reported as shown.

Complications

Revision

Complication	**UKA**
Deep venous thrombosis	Not reported
Aseptic loosening	0.048
Other mechanical problems*	0.012
Progress of osteoarthritis	0.024
Infection	Not reported

*The mechanical problem in this case was one fracture due to medial tibial plateau.

Retrospective data

Svard, U. C. and A. J. Price (2001). "Oxford medial unicompartmental knee arthroplasty. A survival analysis of an independent series." J Bone Joint Surg Br **83**(2): 191-4.

Study Design	**Knees in Article**	**Mean f/u**	**Max f/u**
Retrospective	124	12.5 years	15.6 years

Survivorship
Reported annually from year 1 to year 16.

% Survival		
5 year	*10 year*	*15 year*
95.8%	95.0%	95.0%

Outcomes
Not reported

Complications
Revision

Complication	**UKA**
Deep venous thrombosis	Not reported
Aseptic loosening	0.02
Other mechanical problems	Not reported
Progress of osteoarthritis	Not reported
Infection	0.01

Lewold, S., O. Robertsson, et al. (1998). "Revision of unicompartmental knee arthroplasty: outcome in 1,135 cases from the Swedish Knee Arthroplasty study." Acta Orthop Scand **69**(5): 469-74.

Study Design	**Knees in Article**	**Mean f/u**	**Max f/u**
Retrospective	14772	1 years	20 years

Survivorship
Not reported on annual basis.

Outcomes
Not reported

Complications
Revision

Complication	**UKA**
Deep venous thrombosis	Not reported
Aseptic loosening	0.03
Other mechanical problems	0.01
Progress of osteoarthritis	0.02
Infection	0.003

Rerevision

Complication	**UKA**
Deep venous thrombosis	Not reported
Aseptic loosening	0.033
Other mechanical problems	0.01
Progress of osteoarthritis	0.007
Infection	0.002