

Table D10: Tumor Characteristics Table for KQs 3a and 3b

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Antonelli, 2011 ⁵⁴	RN-cT1a (919)	T1a: 919(100) T1b: 0(0)	NR	Mean: 3.3 SD: 0.7	NR	NR	NR	8(0.9)
Antonelli, 2011 ⁵⁴	PN-cT1a (1068)	T1a: 1068(100) T1b: 0(0)	NR	Mean: 2.8 SD: 0.7	NR	NR	NR	18(1.7)
Antonelli, 2011 ⁵⁴	RN-cT1b (1426)	T1a: 0(0) T1b: 1426(100)	NR	Mean: 5.7 SD: 0.8	NR	NR	NR	3(0.2)
Antonelli, 2011 ⁵⁴	PN-cT1b (198)	T1a: 0(0) T1b: 198(100)	NR	Mean: 5.1 SD: 0.7	NR	NR	NR	5(2.5)
Antoniewicz, 2011 ⁵⁵	RN (33)	T1: 19(NR) T1a: 2(NR) T1b: 17(NR) T2: 10(NR)	NR	NR	NR	NR	NR	NR
Antoniewicz, 2011 ⁵⁵	PN (18)	T1 and T2: NR	NR	NR	NR	NR	NR	NR
Badalato, 2011 ⁵⁶	PN pre-propensity (1047)	T1: 1047(100) T1a: 0(0) T1b: 1047(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 4.86 SD: 8.3	NR	NR	NR	NR
Badalato, 2011 ⁵⁶	RN pre-propensity (10209)	T1: 10209(100) T1a: 0(0) T1b: 10209(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.27 SD: 9.5	NR	NR	NR	NR
Barbalias, 1999 ⁴⁵	Partial nephrectomy (41)	T1: 10(24.4)	NR	Mean: 3.5 Range: 1.2-4.5	BIL: 8(19.5)	Hilar: 13(31.7)	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
		T2: 28(68.3)						
Barbalias, 1999 ⁴⁵	Radical nephrectomy (48)	T1: 9(18.7) T2: 35(72.9)	NR	Mean: 3.8 Range: 1.6-4.8	BIL: 0(0)	Hilar: 17(35.4)	NR	NR
Becker, 2014 ¹⁰⁴	PN (1251)	T1: 1251(100)	CC: 938(75) Others: 313(25)	Mean: 2.9 Range: 0.1-7 IQR: 2.0-3.5 SD: 2.5	NR	NR	NR	NR
Becker, 2014 ¹⁰⁴	Overall (2277)	T1: 2277(100)	CC: 1721(75.6) Others: 556(24.4)	Mean: 3.3 Range: 0.1-7 IQR: 2.2-4.1 SD: 3	NR	NR	NR	NR
Becker, 2014 ¹⁰⁴	LRN (1066)	T1: 1066(100)	CC: 783(76.3) Others: 243(23.7)	Mean: 3.8 Range: 0.1-7 IQR: 2.7-5.0 SD: 3.7	NR	NR	NR	NR
Bedke, 2008 ⁵⁷	RN (398)	T1: 331(83.2) T2: 67(16.8) T1 and T2: 398(100)	CC: 318(82.4) Pap: 47(12.2) Chro: 21(5.4)	NR	NR	NR	NR	NR
Bedke, 2008 ⁵⁷	PN (66)	NR	CC: 53(80.3) Pap: 9(13.6) Chro: 4(6.1)	NR	NR	NR	NR	NR
Bensalah, 2007 ¹¹¹	LPN (50)	NR	NR	Mean: 2.6 SD: 0.9	NR	NR	NR	NR
Bensalah, 2007 ¹¹¹	LRFA (38)	NR	NR	Mean: 2.3 SD: 0.7	NR	NR	NR	NR
Brewer, 2012 ⁹⁸	MPN (45)	T1 and T2: 45(100)	CC: 29(64.4) Others: 16(35.5)	Mean: 5.3 SD: 1.3	RT: 21(46.7) BIL: 0(0)	NR	Mean: 23.6	2(4.4)
Brewer, 2012 ⁹⁸	MRN (108)	T1 and T2: 108(100)	CC: 91(84.3) Others: 17(15.7)	Mean: 6.8 SD: 1.7	RT: 51(47.2) BIL: 0(0)	NR	NR	1(0.9)
Chang, 2014 ¹¹⁸	RFA (27)	T1a: 0(0) T1b: 27(100) T2: 0(0)	CC: 24(88.9) Pap: 1(3.7) Chro: 1(3.7) Others: 1(3.7)	NR	RT: 14(51.9) LT: 13(48.1)	NR	NR	NR
Chang, 2014 ¹¹⁸	PN (29)	T1a: 0(0) T1b:	CC: 24(82.8) Pap: 2(6.9)	NR	RT: 17(58.6) LT: 12(41.4)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
		29(100) T2: 0(0)	Chro: 3(10.3) Others: 0(0)					
Choueiri, 2011 ¹³⁷	TA (578)	T1: 578(100) T1a: 537(93.4) T1b: 38(6.6)	CC: 246(42.6) Pap: 76(13.2) Chro: 15(2.6) Others: 241(41.7)	NR	NR	NR	NR	NR
Choueiri, 2011 ¹³⁷	PN (4402)	T1: 4402(100) T1a: 3763(85.9) T1b: 618(14.1)	CC: 2409(54.7) Pap: 789(17.9) Chro: 301(6.8) Others: 903(20.5)	NR	NR	NR	NR	NR
Choueiri, 2011 ¹³⁷	RN (10165)	T1: 10165(100) T1a: 5453(53.8) T1b: 4693(46.3)	CC: 6322(62.2) Pap: 1050(10.3) Chro: 560(5.5) Others: 2233(22)	NR	NR	NR	NR	NR
Crepel, 2010 ⁵⁸	PN-Matched for Age, Tumor Size, and Year of Surgery (1564)	T1a: 1564(100)	CC: 1282(82) Pap: 192(12.3) Chro: 58(3.7) Others: 32(2)	Mean: 2.5 Median: 2.5	NR	NR	NR	NR
Crepel, 2010 ⁵⁸	RN-Matched for Age, Tumor Size, and Year of Surgery (3955)	T1a: 3955(100)	CC: 3273(87.8) Pap: 331(8.4) Chro: 106(2.7) Others: 45(1.1)	Mean: 2.8 Median: 2.8	NR	NR	NR	NR
Crepel, 2010 ⁵⁸	PN-Matched for Age, Tumor Size, Year of Surgery, and Furhman Grade (961)	T1a: 961(100)	CC: 806(83.9) Pap: 107(11.1) Chro: 35(3.6) Others: 13(1.4)	Mean: 2.5 Median: 2.5	NR	NR	NR	NR
Crepel, 2010 ⁵⁸	RN-Matched for Age, Tumor Size, Year of Surgery, and	T1a: 2341(100)	CC: 2058(87.9) Pap: 210(9) Chro: 53(2.3) Others: 20(0.9)	Mean: 2.8 Median: 3	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
	Furhman Grade (2341)							
Crepel, 2010 ⁵⁹	PN (275)	T1b: 275(100)	CC: 214(77.8) Pap: 46(16.7) Chro: 11(4)	Mean: 5.2 Median: 5	NR	NR	NR	NR
Crepel, 2010 ⁵⁹	RN (1100)	T1b: 1100(100)	CC: 1001(91) Pap: 60(5.5) Chro: 24(2.2)	Mean: 5.2 Median: 5	NR	NR	NR	NR
Dash, 2006 ⁶⁰	PN (45)	T1b: 45(100) T2: 0(0) T1 and T2: 0(0)	CC: 45(100)	Mean: 4.85 SD: 0.94	NR	NR	NR	0(0)
Dash, 2006 ⁶⁰	RN (151)	T1b: 151(100) T2: 0(0) T1 and T2: 0(0)	CC: 151(100)	Mean: 5.42 SD: 0.89	NR	NR	NR	NR
Daugherty, 2014 ⁶¹	Radical Nephrectomy (494)	T1a: 494(100)	CC: 211(42.7) Pap: 21(4.3) Chro: 13(2.6) Sac: 0(0) RC: 249(50.4) Others: 0(0)	NR	NR	NR	NR	NR
Daugherty, 2014 ⁶¹	Partial Nephrectomy (222)	T1a: 222(100)	CC: 95(42.8) Pap: 19(8.6) Chro: 5(2.3) Sac: 0(0) RC: 102(45) Others: 0(0)	NR	NR	NR	NR	NR
Deklaj, 2010 ⁹⁹	Partial nephrectomy (33)	T1a: 8(NR) T1b: 12(NR) T2: 2(NR)	CC: 13(NR) Pap: 9(NR) Chro: 3(NR)	Mean: 4.8 Range: 4.1-7	NR	NR	Mean: 34 Range: IQR: 28.7-38.2	NR
Deklaj, 2010 ⁹⁹	Radical nephrectomy (52)	T1a: 6(NR) T1b: 31(NR) T2: 1(NR)	CC: 35(NR) Pap: 9(NR) Chro: 3(NR)	Mean: 5.2 Range: 4.1-7	NR	NR	NR	NR
Deklaj, 2010 ¹⁴²	LRN (19)	T1a: 19(100)	NR	Mean: 3.3 SD: 0.6	RT: 13(68.4)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Deklaj,2010 ¹⁴²	LPN (28)	T1a: 28(100)	NR	Mean: 2.4 SD: 0.8	RT: 18(64.3)	NR	Mean: 28	0(0)
Deklaj,2010 ¹⁴²	LAT (19)	T1a: 19(100)	NR	Mean: 2.7 SD: 0.9	RT: 11(57.9)	NR	NR	NR
Desai, 2005 ¹¹²	Laparoscopic PN (153)	T1a: 153(100) T1b: 0(0)	CC: 0.7(64) Pap: 61(32) Chro: 31(NR) RC: NR(104) Others: 68(NR)	Mean: 2.25 Range: 0.7 - 3 SD: 0.67	RT: NR(93) LT: 61(NR)	Hilar: NR(0) Exophytic: 0(NR)	Mean: 30.2	8.5(1)
Desai, 2005 ¹¹²	Cryoablation (89)	T1a: 89(100) T1b: 0(0)	CC: 0(28) Pap: 56(19) Chro: 38(NR) RC: NR(50) Others: 56(NR)	Mean: 2.05 Range: 0.6 - 3 SD: 0.56	RT: NR(45) LT: 51(NR)	Hilar: NR(0) Exophytic: 0(NR)	Mean: 0	NR(0)
Emara, 2014 ¹¹³	Cryoablation (56)	NR	CC: 27(48.2) Pap: 7(12.5) Chro: 5(8.9) Sac: 0(0) RC: 39(69) Others: 17(30.4)	Mean: 2.56	RT: 21(NR) LT: 35(NR)	NR	NR	NR
Emara, 2014 ¹¹³	Robot assisted partial nephrectomy (47)	NR	CC: 19(40.4255319148936) Pap: 9(19.1489361702128) Chro: 3(6.38297872340426) Sac: 0(0) RC: 33(70.2127659574468) Others: 14(29.7872340425532)	Mean: 3.28	RT: 24(NR) LT: 23(NR)	NR	NR	NR
Faddegon, 2013 ¹¹⁹	PN (142)	NR	NR	Median: 2.31 SD: 0.78	NR	NR	NR	NR
Faddegon, 2013 ¹¹⁹	RFA (205)	NR	NR	Median: 3.1 SD: 2.8	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Ficarra, 2003 ⁴⁶	RN (88)	T1: 88(100)	NR	NR	NR	NR	NR	NR
Ficarra, 2003 ⁴⁶	NSS (56)	T1: 56(100)	NR	NR	NR	NR	NR	NR
Foyil, 2008 ¹⁴³	LPN-Non (55)	NR	NR	Mean: 2.4 Range: 0.7-9.0	NR	NR	NR	NR
Foyil, 2008 ¹⁴³	LPN-Warm ischemia (37)	NR	NR	Mean: 3.1 Range: 1.4-7.0	NR	NR	Mean: 27	NR
Foyil, 2008 ¹⁴³	LPN-Cold ischemia (6)	NR	NR	Mean: 2.9 Range: 2.0-3.6	NR	NR		NR
Foyil, 2008 ¹⁴³	LRN (50)	NR	NR	Mean: 5.9 Range: 1.7-15.9	NR	NR	NR	NR
Foyil, 2008 ¹⁴³	Cryo (49)	NR	NR	Mean: 2.5 Range: 1.3-6.0	NR	NR	NR	NR
Gratzke, 2009 ¹¹⁰	Retroperitoneoscopic radical nephrectomy (36)	T1a: 15(NR) T1b: 21(NR) T2: 0(NR)	NR	NR	NR	NR	NR	NR
Gratzke, 2009 ¹¹⁰	Open radical nephrectomy (37)	T1a: 9(NR) T1b: 20(NR) T2: 8(NR)	NR	NR	NR	NR	NR	NR
Gratzke, 2009 ¹¹⁰	Nephron-sparing surgery (44)	T1a: 35(NR) T1b: 6(NR) T2: 1(NR)	NR	NR	NR	NR	NR	NR
Guillotreau, 2012 ¹¹⁴	RPN (210)	T1a: 210(100) T1b: 0(0)	NR	Mean: 2.4 SD: 0.8	RT: 108(51)	NR	Median: 17 IQR:100-300	3(1.9)
Guillotreau, 2012 ¹¹⁴	LCA (226)	T1a: 226(100) T1b: 0(0)	NR	Mean: 2.2 SD: 0.9	RT: 119(51)	NR	NR	NR
Haramis, 2012 ¹¹⁵	LCA (75)	T1a: 75(100)	CC: 33(NR) Pap: 16(NR) Chro: 2(NR)	Mean: 2 Range: 0.4-7.5	RT: 36(39.6) LT: 55(60.4)	Hilar: 5(5.5) Exophytic: 42(46.1) Endophytic: 16(17.6)	NR	0(NR)

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Haramis, 2012 ¹¹⁵	LPN (92)	T1a: 92(100)	CC: 40(NR) Pap: 15(NR) Chro: 11(NR)	Mean: 1.9 Range: 0.3-4.5	RT: 46(48.4) LT: 49(51.6)	Hilar: 5(5.3) Exophytic: 48(50.5) Endophytic: 15(15.8)	Mean: 24.5 Range: 11-40	2(NR)
Houston, 2009 ⁶²	RN (873)	T1b: 873(100)	CC: 629(72) Pap: 100(12) Chro: 50(6) Others: 94(11)	NR	NR	NR	NR	NR
Houston, 2009 ⁶²	PN (286)	T1b: 286(100)	CC: 155(54) Pap: 60(21) Chro: 32(11) Others: 39(13.4)	NR	NR	NR	NR	NR
Huang, 2006 ⁶³	GFR>60 radical (204)	NR	CC: 127(62) Chro: 16(8) Others: 61(29)	Median: 3 IQR: 2.5-3.5	NR	NR	NR	NR
Huang, 2006 ⁶³	GFR>60 partial (287)	NR	CC: 160(56) Chro: 32(11) Others: 95(33)	Median: 2.4 IQR: 1.8-3	NR	NR	NR	NR
Huang, 2006 ⁶³	GFR>45 partial (385)	NR	CC: 206(54) Chro: 44(11) Others: 135(35)	Median: 2.5 IQR: 1.8-3	NR	NR	NR	NR
Huang, 2006 ⁶³	GFR>45 radical (262)	NR	CC: 161(61) Chro: 19(7) Others: 82(32)	Median: 3 IQR: 2.5-3.5	NR	NR	NR	NR
Huang, 2009 ⁶⁴	PN (556)	T1a: 556(100)	NR	NR	NR	NR	NR	NR
Huang, 2009 ⁶⁴	RN (2435)	T1a: 2435(100)	NR	NR	NR	NR	NR	NR
Iizuka, 2012 ¹⁰⁷	T1b-Partial Nephrectomy (67)	T1a: 0(0) T1b: 67(100) T2: 0(0)	NR	Mean: 48.9 Median: 47 Range: 41-68	NR	NR	NR	NR
Iizuka, 2012 ¹⁰⁷	T1b-Radical Nephrectomy (195)	T1a: 0(0) T1b: 195(100) T2: 0(0)	NR	Mean: 52.7 Median: 50 Range: 41-70	NR	NR	NR	NR
Iizuka, 2012 ¹⁰⁷	T1a-Partial Nephrectomy (324)	T1a: 324(100) T1b: 0(0) T2: 0(0)	NR	Mean: 24.8 Median: 24 Range: 8-40	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Indudhara,1997 ⁴⁷	nephron sparing surgery (35)	T1 and T2: 35(100)	RC: 31(88.5714285714286) Others: 4(11.4285714285714)	NR	BIL: 3(8.57142857142857) MUL: 3(8.57142857142857)	NR	NR	NR
Indudhara,1997 ⁴⁷	radical nephrectomy (72)	T1 and T2: 71(100)	RC: 68(95.7746478873239) Others: 3(4.22535211267606)	NR	BIL: 2(2.8169014084507) MUL: 3(4.22535211267606)	NR	NR	NR
Janetschek, 2000 ¹⁰⁰	Partial nephrectomy (25)	T1: 18(NR)	NR	Mean: 1.9 Range: 1-5	RT: 10(NR) LT: 15(NR)	NR	NR	NR
Janetschek, 2000 ¹⁰⁰	Radical nephrectomy (73)	T1: 59(NR)	NR	Mean: 3.8 Range: 3-6	RT: 39(NR) LT: 34(NR)	NR	NR	NR
Jeon,2009 ¹⁰⁹	PN (96)	NR	NR	Mean: 2.2 Median: 2.2 Range: 0.7-4.0 SD: 0.08	NR	NR	NR	NR
Jeon,2009 ¹⁰⁹	RN (129)	NR	NR	Mean: 2.9 Median: 3 Range: 1.0-4.0 SD: 0.08	NR	NR	NR	NR
Kaowalczyk, 2013 ¹⁴⁴	Ablation (211)	T1a: 211(100)	CC: 71(33.7) Others: 110(52.1)	NR	NR	NR	NR	NR
Kaowalczyk, 2013 ¹⁴⁴	MIPN (160)	T1a: 160(100)	CC: 74(46.3) Pap: 32(20) Chro: 13(8.1) Others: 41(25.6)	NR	NR	NR	NR	NR
Kaowalczyk, 2013 ¹⁴⁴	OPN (330)	T1a: 330(100)	CC: 156(47.3) Pap: 54(16.4) Chro: 29(8.8) Others: 91(27.6)	NR	NR	NR	NR	NR
Kaowalczyk, 2013 ¹⁴⁴	MIRN (535)	T1a: 535(100)	CC: 311(58.1) Pap: 62(11.6) Chro: 31(5.8)	NR	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
			Others: 131(24.5)					
Kaowalczyk, 2013 ¹⁴⁴	ORN (404)	T1a: 404(100)	CC: 227(56.2) Pap: 51(12.6) Chro: 25(6.2) Others: 101(25)	NR	NR	NR	NR	NR
Kates, 2011 ⁶⁵	PN (2301)	T1a: 2301(100)	NR	Mean: 1.57	NR	NR	NR	NR
Kates, 2011 ⁶⁵	RN (1915)	T1a: 1915(100)	NR	Mean: 1.61	NR	NR	NR	NR
Kim, 2003 ¹⁰¹	Partial nephrectomy (79)	T1: 56(94.9) T2: 0(0)	CC: 44(74.6) Pap: 10(16.9) Chro: 3(5.1) RC: 59(NR) Others: 2(3.4)	Mean: 2.58 Median: Range: 1.1-4.5 IQR: SD: 0.9	BIL: 0(0) MUL: 0(0)	NR	Mean: 26.7 Range: 13-42	2(4.7)
Kim, 2003 ¹⁰¹	Radical nephrectomy (35)	T1: 23(79.3) T2: 4(13.8)	CC: 21(72.4) Pap: 5(17.2) Chro: 2(6.9) RC: 29(NR) Others: 1(3.4)	Mean: 2.78 Range: 0.9-4.5 SD: 1.2	BIL: 0(0) MUL: 0(0)	NR	NR	0(0)
Kim, 2010 ⁴⁸	PN (18)	T1a: 0(0) T1b: 18(100) T2: 0(0)	CC: 13(72.2) Pap: 3(16.7) Others: 2(11.1)	NR	NR	NR	NR	NR
Kim, 2010 ⁴⁸	RN (52)	T1a: 0(0) T1b: 52(100) T2: 0(0)	CC: 43(82.7) Pap: 6(11.5) Others: 3(5.8)	NR	NR	NR	NR	NR
Kiriluk, 2011 ¹¹⁶	LPN (51)	T1: 51(100)	CC: 31(NR) Pap: 6(NR) Chro: 3(NR) RC: 40(NR) Others: 11(NR)	Mean: 2.27 Range: 0.80-5.10	RT: 24(47.1)	Hilar: 4(7.8) Exophytic: 39(76.5) Endophytic: 6(11)	Mean: 29.3 Range: 13-55	NR
Kiriluk, 2011 ¹¹⁶	LAT (51)	T1: 51(100)	CC: 11(NR) Pap: 10(NR) Chro: 2(NR) RC: 23(NR) Others: 28(NR)	Mean: 2.35 Range: 0.99-4.90	RT: 26(53)	Hilar: 2(4) Exophytic: 45(88.2) Endophytic: 0(0)	NR	NR
Klatte, 2011 ¹²⁸	Cryoablation (41)	T1a: 41(100)	CC: 27(77) Pap: 3(9) Chro: 5(14)	Median: 2.5 Range: 1-4	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Klatte, 2011 ¹²⁸	PN (82)	T1a: 82(100)	CC: 50(72) Pap: 11(16) Chro: 8(12)	Median: 2.5 Range: 1-4	NR	NR	NR	NR
Kopp, 2014 ⁶⁶	RN (122)	T1: 0(0) T2: 122(100)	CC: 94(79.7) Pap: 18(15.3) Chro: 6(5.1) Sac: 7(5.9)	Mean: 10.2 SD: 2.7	NR	NR	NR	NR
Kopp, 2014 ⁶⁶	PN (80)	T1: 0(0) T2: 80(100)	CC: 57(82.6) Pap: 11(15.9) Chro: 1(1.4) Sac: 4(5.8)	Mean: 8.8 SD: 1.6	NR	NR	NR	NR
Kyung, 2014 ⁶⁷	Radical Nephrectomy (82)	T1: 82(100) T1a: 33(40.2) T1b: 49(59.8)	CC: 72(87.8) Pap: 4(4.9) Others: 6(7.3)	Mean: 4.44 SD: 1.3	NR	NR	NR	NR
Kyung, 2014 ⁶⁷	Partial Nephrectomy (53)	T1: 53(100) T1a: 51(96.2) T1b: 2(3.8)	CC: 44(84.9) Pap: 6(9.4) Others: 3(4.7)	Mean: 2.42 SD: 0.89	NR	NR	NR	NR
Lane, 2010 ⁶⁸	PN Limited ischemia (804)	T1: 804(NR) T1b: 154(19)	NR	Median: 2.8 IQR: 2-3.7	NR	NR	Range: 0-30	NR
Lane, 2010 ⁶⁸	PN Unknown ischemia (546)	T1: 546(NR) T1b: 143(26)	NR	Median: 3 IQR: 2.2-4.2	NR	NR	NR	NR
Lane, 2010 ⁶⁸	PN Extended ischemia (483)	T1: 483(NR) T1b: 72(15)	NR	Median: 2.9 IQR: 2.2-3.6	NR	NR	Range: >=30	NR
Lane, 2010 ⁶⁸	RN (569)	T1: 569(NR) T1b: 362(64)	NR	Median: 4.7 IQR: 3.6-5.9	NR	NR	NR	NR
Lane, 2010 ¹³⁶	Active surveillance (105)	T1: 105(100) T1a:	RC: 2(1.9) Others: 103(97.8)	Median: 2.3 IQR: 1.6-3.3	BIL: 5(5)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
		90(86) T1b: 15(14) T2: 0(0) T1 and T2: 105(100)						
Lane, 2010 ¹³⁶	Radical Nephrectomy (146)	T1: 146(100) T1a: 60(41) T1b: 86(59) T2: 0(0) T1 and T2: 146(100)	RC: 88(60) Others: 58(39)	Median: 4.6 IQR: 3.5-5.8	BIL: 9(6)	NR	NR	NR
Li, 2007 ⁶⁹	PN (35)	T1a: 16(NR) T1b: 17(NR) T2: 2(NR)	CC: 28(79.5) Pap: 3(8.8) Chro: 2(5.9) Others: 2(5.8)	Mean: 3.8 Range: 1.5-7 SD: 1.3	NR	NR	NR	NR
Li, 2007 ⁶⁹	RN (128)	T1: 128(100)	CC: 109(85.1) Pap: 6(4.7) Chro: 10(7.8) Others: 3(2.4)	Mean: 4.5 Range: 1-6.5 SD: 1.4	NR	NR	NR	NR
Li, 2010 ⁷⁰	mm-NSS (135)	T1a: 135(100)	CC: 105(77.8) Pap: 18(13.3) Chro: 9(6.7) Others: 3(2.2)	Mean: 3.3 Median: 3.5 Range: 1-4	BIL: 0(0) MUL: 0(0)	NR	Mean: 16	0(0)
Li, 2010 ⁷⁰	1cm-NSS (98)	T1a: 98(100)	CC: 78(79.6) Pap: 15(15.3) Chro: 4(4.1) Others: 1(1)	Mean: 2.9 Median: 3.2 Range: 1-4	BIL: 0(0) MUL: 0(0)	NR	NR	0(0)
Li, 2010 ⁷⁰	RN (156)	T1a: 156(100)	CC: 125(80.1) Pap: 23(14.7) Chro: 8(5.1)	Mean: 3 Median: 3.3 Range: 1.5-4	BIL: 0(0) MUL: 0(0)	NR	NR	NR
Lowrance, 2010 ⁷¹	PN (61)	NR	NR	Median: 2.8 IQR: 2.0,3.8	NR	NR	NR	NR
Lowrance, 2010 ⁷¹	RN (63)	NR	NR	Median: 5.7 IQR: 4.0,7.5	NR	NR	NR	NR
Lucas, 2007 ¹³⁸	RFA (86)	T1a: 86(100)	CC: 36(73.5) Pap: 6(12.2)	Mean: 2.34	BIL: 0(0)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
		T1b: 0(0) T2: 0(0)	Chro: 7(14.3) Others: 0(0)					
Lucas, 2007 ¹³⁸	PN (85)	T1a: 85(100) T1b: 0(0) T2: 0(0)	CC: 44(68.8) Pap: 12(18.8) Chro: 4(6.3) Others: 4(6.3)	Mean: 2.63	BIL: 0(0)	NR	NR	7(8.2)
Lucas, 2007 ¹³⁸	RN (71)	T1a: 71(100) T1b: 0(0) T2: 0(0)	CC: 48(77.3) Pap: 6(9.7) Chro: 4(6.5) Others: 4(6.5)	Mean: 3.16	BIL: 0(0)	NR	NR	NR
Mariusdottir, 2013 ⁴⁹	Partial nephrectomy (44)	T1: 39(87) T2: 2(4)	CC: 37(84) Pap: 5(11) Chro: 2(5)	Mean: 3 Range: 0.8-7.0	NR	NR	NR	NR
Mariusdottir, 2013 ⁴⁹	Radical nephrectomy (44)	T1: 41(93) T2: 0(0)	CC: 37(84) Pap: 4(9) Chro: 3(7)	Mean: 3.3 Range: 1.8-5.0	NR	NR	NR	NR
Matin, 2002 ¹⁰⁵	Nephron sparing surgery (82)	T1a: 82(100)	NR	Mean: 2.6	RT: (52.5) LT: (47.5)	NR	NR	NR
Matin, 2002 ¹⁰⁵	Laparoscopic radical nephrectomy (35)	T1a: 35(100)	CC: NR Pap: NR Chro: NR Sac: NR RC: NR Others: NR	Mean: 3.1	RT: (62.9) LT: (37.1)	NR	NR	NR
McKiernan, 2002 ⁷²	Partial nephrectomy (117)	T1a: 117(100)	CC: 72(0.615384615384615) Pap: 21(0.179487179487179) Chro: 14(0.11965811965812) Others: 10(0.0854700854700855)	Mean: 2.3 Range: 0.9-4.0	NR	NR	NR	NR
McKiernan, 2002 ⁷²	Radical nephrectomy (173)	T1a: 173(100)	CC: 106(0.61271676300578) Pap:	Mean: 2.9 Range: 1.1-4.0	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
			27(0.156069364 16185) Chro: 10(0.057803468 2080925) Others: 30(0.173410404 624277)					
Medina-Polo, 2011 ⁷³	NSS (116)	T1a: (59) T1b: (41)	CC: (53) Pap: (8) Chro: (10) Others: (29)	Mean: 36.8 SD: 18.3	NR	NR	NR	(3.4)
Medina-Polo, 2011 ⁷³	Radical nephrectomy (174)	T1a: (51) T1b: (49)	CC: (56) Pap: (14) Chro: (9) Others: (21)	Mean: 42.9 SD: 14.2	NR	NR	Mean: 19.7	NR
Meskawi, 2013 ⁷⁴	PN pre-propensity (1526)	T1: 1526(100) T1a: 0(0) T1b: 1526(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.14 Median: 5 IQR: 4.5-5.5	NR	NR	NR	NR
Meskawi, 2013 ⁷⁴	RN pre-propensity (14807)	T1: 14807(100) T1a: 0(0) T1b: 14807(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.48 Median: 5.5 IQR: 4.8-6	NR	NR	NR	NR
Meskawi, 2013 ⁷⁴	PN post-propensity (1525)	T1: 1525(100) T1a: 0(0) T1b: 1525(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.14 Median: 5 IQR: 4.5-5.5	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Meskawi, 2013 ⁷⁴	RN post-propensity (6104)	T1: 6104(100) T1a: 0(0) T1b: 6104(100) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.15 Median: 5 IQR: 4.5-5.5	NR	NR	NR	NR
Milonas, 2013 ⁵⁰	NSS (34)	T1: 34(100) T1b: 34(100)	CC: NR(85.3) Pap: NR(11.8) Chro: NR(2.9)	Mean: 4.67 SD: 0.72	BIL: 0(0) MUL: 0(0)	NR	NR	NR
Milonas, 2013 ⁵⁰	RN (317)	T1: 317(100) T1b: 317(100)	CC: NR(86.8) Pap: NR(4.7) Chro: NR(1.3) Others: NR(7.3)	Mean: 5.25 SD: 0.95	BIL: 0(0) MUL: 0(0)	NR	NR	NR
Minervini, 2012 ¹⁰⁸	RN (143)	T1: 143(100)	CC: 124(86.7) Pap: 7(4.9) Chro: 11(7.7) Others: 1(0.7)	Mean: 4.9 SD: 1.4	NR	NR	NR	NR
Minervini, 2012 ¹⁰⁸	TE (332)	T1: 332(100) NR	CC: 261(78.6) Pap: 39(11.8) Chro: 27(8.1) Others: 5(1.5)	Mean: 3.2 SD: 1.1	NR	NR	NR	NR
Mitchell, 2006 ⁷⁵	PN (33)	NR	CC: 24(72.7) Pap: 6(18.2) Chro: 3(9.1)	Mean: 5.2 Range: 4.0-15 SD: 2.2	NR	NR	NR	2(6.1)
Mitchell, 2006 ⁷⁵	RN (66)	NR	CC: 58(87.8) Pap: 4(6.1) Chro: 4(6.1)	Mean: 5.2 Range: 4.0-15 SD: 2.2	NR	NR	NR	5(7.6)
Mitchell, 2011 ¹²⁹	Ablation (50)	NR	NR	Median: 3.5 Range: 0.7-13	NR	NR	NR	NR
Mitchell, 2011 ¹²⁹	PN (62)	NR	NR	Median: 2.5 Range: 1.2-7.3	NR	NR	Mean: 18 Range: 13-22	NR
Miyamoto, 2012 ⁷⁶	RN (152)	NR	NR	Mean: 4.56 SD: 2.29	BIL: NR(0) MUL: 0(NR)	NR	NR	NR
Miyamoto, 2012 ⁷⁶	PN (59)	NR	NR	Mean: 2.22 SD: 0.59	BIL: NR(0) MUL: 0(NR)	NR	NR	NR
Miyamoto, 2012 ⁷⁶	RN (152)	NR	NR	Mean: 4.56 SD: 2.29	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Miyamoto, 2012 ⁷⁶	PN (59)	NR	NR	Mean: 2.22 SD: 0.59	NR	NR	NR	NR
Mues, 2012 ¹²⁰	Thermal Ablation (98)	NR	CC: 51(48.6) Pap: 5(4.8) Chro: 0(0) RC: 56(53.3) Others: 49(46.7)	Mean: 2.5 Range: 1-4.4	RT: 50(48) LT: 48(46) BIL: 0(0)	NR	NR	NR
Mues, 2012 ¹²⁰	Partial nephrectomy (PN) (100)	NR	CC: 70(70) Pap: 18(18) Chro: 3(3) RC: 94(94) Others: 6(6)	Mean: 3.9 Range: 1.0-10.0	RT: 56(56) LT: 42(42) BIL: 0(0)	NR	Mean: 28.5 Range: 0-91	9(18)
Olweny, 2012 ¹²⁵	RFA (37)	T1a: 37(100)	CC: 25(67.6) Pap: 9(24.3) Chro: 1(2.7) Others: 2(5.6)	Median: 2.1 IQR: 1.8-2.8	NR	NR	NR	NR
Olweny, 2012 ¹²⁵	PN (37)	T1a: 37(100)	CC: 28(77.8) Pap: 3(8.3) Chro: 3(8.3) Others: 2(5.6)	Median: 2.5 IQR: 1.7-3.1	NR	NR	NR	NR
Pascal, 2011 ¹¹⁷	LPN (48)	T1: 47(98) T1a: 38(79) T1b: 9(19) T2: 1(2) T1 and T2: 48(100)	CC: 30(62.5) Pap: 4(8.3) Chro: 2(4.2) Sac: 0(0) RC: 36(75) Others: 12(25)	Mean: 3.2 SD: 1.33	RT: 26(54.2) LT: 22(45.8) BIL: 0(0) MUL: 0(0)	Hilar: 5(10.7)	Mean: 24	2(4.2)
Pascal, 2011 ¹¹⁷	Laparoscopic Renal cryoablation (30)	T1: 30(100) T1a: 24(80) T1b: 6(20) T2: 0(0) T1 and T2: 30(100)	CC: 20(66.7) Pap: 2(6.7) Chro: 0(0) Sac: 0(0) RC: 25(83.3) Others: 5(16.7)	Mean: 2.6 SD: 1.08	RT: 14(46.7) LT: 16(53.3) BIL: 0(0) MUL: 5(16.7)	Hilar: 2(6.7)	Mean: 0	0(0)
Patard, 2004 ⁷⁷	PN (379)	T1: 379(100) T2: 0(0) T1 and T2: 0(0)	CC: 310(82.7) Pap: 46(12.3) Chro: 19(5) RC: 379(100) Others: 0(0)	NR	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Patard, 2004 ⁷⁷	RN (1075)	T1: 1075(100) T2: 0(0) T1 and T2: 0(0)	CC: 909(85.8) Pap: 123(11.6) Chro: 27(2.6) RC: 1075(100) Others: 0(0)	NR	NR	NR	NR	NR
Patard, 2004 ⁷⁷	PN-T1a (314)	T1: NR T1a: 314(21.6) T1b: 0(0) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 2.5 SD: 0.8	NR	NR	NR	NR
Patard, 2004 ⁷⁷	RN T1a (499)	T1a: 499(78.4) T1b: 0(0) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 3.2 SD: 0.8	NR	NR	NR	NR
Patard, 2004 ⁷⁷	PN-T1b (65)	T1a: 0(0) T1b: 65(10.1) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.3 SD: 0.8	NR	NR	NR	NR
Patard, 2004 ⁷⁷	RN T1b (576)	T1a: 0(0) T1b: 576(89.9) T2: 0(0) T1 and T2: 0(0)	NR	Mean: 5.6 SD: 0.8	NR	NR	NR	NR
Patel, 2014 ¹³²	DT(Deferred Treatmet) (754)	T1a: 754(100)	NR	NR	BIL: 0(0)	NR	NR	NR
Patel, 2014 ¹³²	PN (1849)	T1a: 1849(100)	NR	NR	BIL: 0(0)	NR	NR	NR
Patel, 2014 ¹³²	RN (4574)	T1a: 4574(100)	NR	NR	BIL: 0(0)	NR	NR	NR
Patel, 2014 ¹³¹	Non Surgical Management (754)	T1a: 754(100)	NR	NR	BIL: 0(0)	NR	NR	NR
Patel, 2014 ¹³¹	PN (1849)	T1a: 1849(100)	NR	NR	BIL: 0(0)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Patel, 2014 ¹³¹	RN (4574)	T1a: 4574(100)	NR	NR	BIL: 0(0)	NR	NR	NR
Permpongkosal, 2007 ¹³⁹	laproscopic radical nephrectomy (549)	NR	NR	NR	NR	NR	NR	NR
Permpongkosal, 2007 ¹³⁹	laproscopic partial nephrectomy (345)	NR	NR	NR	NR	NR	NR	NR
Permpongkosal, 2007 ¹³⁹	laproscopic tumor ablation (81)	NR	NR	NR	NR	NR	NR	NR
Roos, 2010 ¹⁰⁶	Partial nephrectomy (NSS), for young (<55 years old) (36)	NR	NR	Median: 5.7 Range: 4.2-11.0	NR	NR	Median: 20 IQR: 10-28	NR
Roos, 2010 ¹⁰⁶	Radical nephrectomy (NSS), for young (<55 years old) (45)	NR	NR	Median: 6 Range: 4.3-14.0	NR	NR	NR	NR
Roos, 2010 ¹⁰⁶	Partial nephrectomy, for old (>65 years old) (33)	NR	NR	Median: 4.8 Range: 4.2-16.0	NR	NR	Median: 14	NR
Roos, 2010 ¹⁰⁶	Radical nephrectomy, for old (>65 years old) (52)	NR	NR	Median: 5 Range: 4.3-11.0	NR	NR	NR	NR
Roos, 2012 ⁵¹	NSS (101)	T1b: 85(NR) T2: 16(NR) T1 and T2: 101(100)	NR	Mean: 5.7 Median: 5 Range: 4.2 - 16	NR	NR	NR	NR
Roos, 2012 ⁵¹	RN (146)	T1b: 118(NR) T2: 28(NR)	NR	Mean: 6.1 Median: 5.5 Range: 4.3 - 14	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
		T1 and T2: 146(100)						
Scosyrev, 2014 ⁷⁸	RN (259)	T1: 259(100)	NR	NR	NR	NR	NR	NR
Scosyrev, 2014 ⁷⁸	NSS (255)	T1: 255(100)	NR	NR	NR	NR	NR	NR
Shinohara, 2001 ⁵²	NSS (15)	T1: 15(100)	NR	NR	NR	NR	NR	NR
Shinohara, 2001 ⁵²	RN (51)	T1: 51(100)	NR	NR	NR	NR	NR	NR
Smaldone, 2012 ⁷⁹	Overall (5496)	T1a: 5496(100)	CC: NR(83)	Median: 2.8 SD: 0.9	NR	NR	NR	NR
Smaldone, 2012 ⁷⁹	PN (1665)	T1a: 1665(100)	NR	NR	NR	NR	NR	NR
Smaldone, 2012 ⁷⁹	RN (3831)	T1a: 3831(100)	NR	NR	NR	NR	NR	NR
Snow, 2008 ¹⁰²	LPN (48)	T1a: 48(100) T1b: 0(0) T2: 0(0)	NR	Mean: 2.8 SD: 0.8	NR	NR	Mean: 26	NR
Snow, 2008 ¹⁰²	LRN (37)	T1a: 37(100) T1b: 0(0) T2: 0(0)	NR	Mean: 2 SD: 1	NR	NR	Mean: 26	NR
Stern, 2007 ¹²¹	RFA (40)	T1a: 40(100)	CC: 24(NR) Pap: 5(NR) Chro: 1(NR) Others: 10(NR)	Mean: 2.41 SD: 0.7	NR	NR	NR	NR
Stern, 2007 ¹²¹	PN (37)	T1a: 37(100)	CC: 23(NR) Pap: 3(NR) Chro: 4(NR) Others: 7(NR)	Mean: 2.43 SD: 0.8	NR	NR	NR	NR
Sun, 2012 ¹⁵²	PN (924)	T1: 924(100) T1a: 784(85) T1b: 140(15) T2: 0(0) T1 and T2: 924(100)	RC: 924(100) Others: 0(0)	Mean: 2.9 Median: 2.7 IQR: 2.0-3.5	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Sun, 2012 ¹⁵²	RN (6600)	T1: 6600(100) T1a: 3752(57) T1b: 2848(43) T2: 0(0) T1 and T2: 6600(100)	RC: 6600(100) Others: 0(0)	Mean: 4 Median: 4 IQR: 3.0-5.0	NR	NR	NR	NR
Sun, 2012 ¹⁵²	post-propensity RN (924)	T1: 924(100) T1a: 775(84) T1b: 149(16) T2: 0(0) T1 and T2: 924(100)	RC: 924(100) Others: 0(0)	Mean: 2.9 Median: 2.8 IQR: 2.0-3.6	NR	NR	NR	NR
Sun, 2012 ⁸⁰	PN (840)	NR	NR	Mean: 2.4 Median: 2.5 IQR: 1.8-3	NR	NR	NR	NR
Sun, 2012 ⁸⁰	RN (840)	NR	NR	Mean: 2.5 Median: 2.5 IQR: 2-3	NR	NR	NR	NR
Sun, 2013 ¹³³	NSM (3271)	T1: 3271(100)	CC: 1033(31.6) Pap: 179(5.5) Chro: 98(3) Others: 77(2.4)	Mean: 3.8 Median: 3.5 IQR: 2.6-5	NR	NR	NR	NR
Sun, 2013 ¹³³	PN (1051)	T1: 1051(100)	CC: 394(37.5) Pap: 154(14.7) Chro: 68(6.5) Others: 42(4)	Mean: 2.9 Median: 2.7 IQR: 2-3.5	NR	NR	NR	NR
Sun, 2013 ¹³³	RN (6273)	T1: 6273(100)	CC: 2289(36.5) Pap: 372(5.9) Chro: 189(3) Others: 202(3.2)	Mean: 4.1 Median: 4 IQR: 3-5	NR	NR	NR	NR
takagi, 2011 ⁸¹	PN-eGFR 45 - 59 (30)	T1 and T2: 30(100)	NR	Mean: 2.88 Median: 2.5 Range: 10-60 SD: 1.2	BIL: 0(0)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
takagi, 2011 ⁸¹	RN-eGFR 45 - 59 (38)	T1 and T2: 38(100)	NR	Mean: 6.12 Median: 6 Range: 20-224 SD: 3.55	BIL: 0(0)	NR	NR	NR
takagi, 2011 ⁸¹	PN-eGFR 30 - 44 (14)	T1 and T2: 14(100)	NR	Mean: 3.04 Median: 2.9 Range: 17-44 SD: 0.87	BIL: 0(0)	NR	NR	NR
takagi, 2011 ⁸¹	RN-eGFR 30 - 44 (13)	T1 and T2: 13(100)	NR	Mean: 5.84 Median: 5.7 Range: 36-110 SD: 2.42	BIL: 0(0)	NR	NR	NR
Takaki, 2010 ¹⁴⁰	RFA (51)	T1a: 51(100)	NR	Mean: 2.4 SD: 0.7	RT: 31(60.8) LT: 20(39.2)	NR	NR	NR
Takaki, 2010 ¹⁴⁰	RN (54)	T1a: 54(100)	NR	Mean: 2.8 SD: 0.7	RT: 20(37) LT: 34(63)	NR	NR	NR
Takaki, 2010 ¹⁴⁰	PN (10)	T1a: 10(100)	NR	Mean: 1.9 SD: 0.7	RT: 7(70) LT: 3(30)	NR	NR	NR
Takaki, 2014 ¹³⁵	RFA (21)	T1b: 25(100)	NR	Mean: 4.6 Range: 4.1 - 6.5 SD: 0.5	RT: 8(38) LT: 13(62) BIL: 0(0) MUL: 0(0)	Hilar: 19(90)	NR	NR
Takaki, 2014 ¹³⁵	RN (39)	T1b: 39(100)	NR	Mean: 5.2 Range: 4.1 - 7 SD: 0.9	RT: 23(59) LT: 16(41) BIL: 0(0) MUL: 0(0)	Hilar: 33(85)	NR	NR
Tan, 2012 ⁸²	PN (1925)	T1a: 1925(100) T1b: 0(0) T2: 0(0) T1 and T2: 0(0)	CC: 1421(73.8) Pap: 282(14.7) Chro: 126(6.5) Others: 96(5)	NR	BIL: 0(0) MUL: 0(0)	NR	NR	NR
Tan, 2012 ⁸²	RN (5213)	T1a: 5213(100) T1b: 0(0) T2: 0(0) T1 and T2: 0(0)	CC: 4391(84.2) Pap: 404(7.7) Chro: 192(3.7) Others: 226(4.4)	NR	BIL: 0(0) MUL: 0(0)	NR	NR	NR
Tanagho, 2013 ¹²⁶	Cryoablation (267)	NR	NR	Mean: 2.5 SD: 1	RT: 138(51.7) LT: 127(47.6) BIL: 2(0.7)	Hilar: 36(13.5) Exophytic:	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
					MUL: 23(8.6)	133(49.8) Endophytic: 41(267)		
Tanagho, 2013 ¹²⁶	Robot assisted partial nephrectomy (233)	NR	NR	Mean: 2.9 SD: 1.5	RT: 116(48.3) LT: 116(51.7) BIL: 0(0) MUL: 4(1.7)	Hilar: 26(13.3) Exophytic: 80(36) Endophytic: 142(64)	NR	NR
Thompson, 2008 ⁸³	PN (358)	T1a: 358(100)	CC: 186(52) Pap: 75(21) Chro: 16(4.5) Others: 81(22.4)	Median: 2.5 Range: 0.2-4	NR	NR	NR	NR
Thompson, 2008 ⁸³	RN (290)	T1a: 290(100)	CC: 191(65.9) Pap: 41(14.1) Chro: 10(3.5) Others: 48(16.5)	Median: 3 Range: 0.2-4	NR	NR	NR	NR
Thompson, 2008 ⁸³	PN-<65years (187)	T1a: 187(100)	CC: 111(59.4) Pap: 30(16) Chro: 11(5.9) Others: 35(18.1)	Median: 2.5 Range: 0.6-4	NR	NR	NR	NR
Thompson, 2008 ⁸³	RN-<65years (140)	T1a: 140(100)	CC: 102(72.9) Pap: 19(13.6) Chro: 4(2.9) Others: 15(10.7)	Median: 3 Range: 0.2-4	NR	NR	NR	NR
Thompson, 2014 ¹²²	cT1a-Partial Nephrectomy (1057)	T1a: 1057(100) T1b: 0(0) T2: 0(0)	NR	Mean: 2.5 Median: 2.4 IQR: 1.8-3.1	NR	NR	NR	NR
Thompson, 2014 ¹²²	cT1a-Radiofrequency Ablation (180)	T1a: 180(100) T1b: 0(0) T2: 0(0)	NR	Mean: 2.1 Median: 1.9 IQR: 1.5-2.5	NR	NR	NR	NR
Thompson, 2014 ¹²²	cT1a-Cryoablation (187)	T1a: 187(100) T1b: 0(0) T2: 0(0)	NR	Mean: 2.9 Median: 2.8 IQR: 2.4-3.4	NR	NR	NR	NR
Thompson, 2014 ¹²²	cT1b-Partial Nephrectomy (326)	T1a: 0(0) T1b: 326(100) T2: 0(0)	NR	Mean: 5.1 Median: 5 IQR: 4.5-5.5	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Thompson, 2014 ¹²²	cT1b-Cryoablation (53)	T1a: 0(0) T1b: 53(100) T2: 0(0)	NR	Mean: 5 Median: 4.8 IQR: 4.4-5.4	NR	NR	NR	NR
Tomaszewski, 2014 ⁸⁴	Overall (1092)	T1: 967(88.6) T2: 125(11.5)	NR	Mean: 4.2 SD: 2.9	BIL: 126(11.5)	Hilar: 149(13.6)	NR	NR
Turna, 2009 ¹²³	Laparoscopic partial nephrectomy (36)	T1a: 36(100)	CC: (19) Pap: (4)	Mean: 3.7 Range: 1.4-10.7 SD: 1.9	NR	NR	Mean: 31.3 Range: 14-55	2(5.5)
Turna, 2009 ¹²³	Cryoablation (36)	T1a: 36(100)	NR	Mean: 2.5 Range: 1.1-5.0 SD: 1.1	NR	NR	Mean: 17.5 Median: 17.5 Range: 9-45	NR
Turna, 2009 ¹²³	Radiofrequency ablation (29)	NR	NR	Mean: 2.6 Median: 2.6 Range: 0.9-42 SD: 1	RT: 20NR LT: 12(NR)	NR	Mean: 33.5 Median: 33.5 Range: 8-67	NR
Uchida, 2004 ⁸⁵	PN (54)	T1a: 54(NR) T1b: 0(NR) T2: 0(0)	NR	NR	BIL: 8(14.8)	NR	NR	NR
Uchida, 2004 ⁸⁵	RN (51)	T1a: 51(NR) T1b: 0(NR) T2: 0(0)	NR	NR	NR	NR	NR	NR
Uzzo, 1999 ⁸⁶	RN (28)	T1: NR T1a: 28(100)	NR	Median: 3.1 Range: 1.5 - 3.8	BIL: NR(0) MUL: 0(0)	Hilar: 0(NR)	NR	NR
Uzzo, 1999 ⁸⁶	NSS (52)	T1a: 52(100)	NR	Median: 2.4 Range: 0.6 - 3.8	BIL: NR(0) MUL: 0(0)	Hilar: 0(NR)	NR	NR
Van Poppel, 2011 ⁸⁷	NSS (268)	T1: 127(47.4) T2: 137(51.1)	CC: 177(66) RC: 50(18.7) Others: 37(13.8)	Median: 3 Range: 1-9	NR	NR	Median: 20	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Van Poppel, 2011 ⁸⁷	Radical nephrectomy (273)	T1: 139(50.9) T2: 130(47.6)	CC: 163(59.7) RC: 69(25.3) Others: 34(12.5)	Median: 3 Range: 0.8-7.5	NR	NR	NR	NR
Weight, 2010 ⁸⁹	PN-High Grade cohort (52)	T1: 52(100)	NR	Mean: 3.5 Range: 2.9-4.7	RT: 27(52) LT: 25(48)	NR	NR	NR
Weight, 2010 ⁸⁹	RN-Upstaged Cohort (117)	T1: 117(100)	NR	Mean: 6 Range: 5-6	RT: 58(50) LT: 59(50)	NR	NR	NR
Weight, 2010 ⁸⁹	PN-Upstaged Cohort (96)	T1: 96(100)	NR	Mean: 4 Range: 2.6-5.2	RT: 50(52) LT: 46(48)	NR	NR	NR
Weight, 2010 ⁸⁹	RN-High Grade cohort (43)	T1: 43(100)	NR	Mean: 5.8 Range: 5-6	RT: 22(51) LT: 21(49)	NR	NR	NR
Weight, 2010 ⁸⁸	RN (298)	T1b: 298(100)	CC: 211(79) Pap: 32(12) Chro: 14(5.2) Others: 11(4.1)	Median: 5.6 IQR: 4.8-6.3	NR	NR	NR	NR
Weight, 2010 ⁸⁸	PN (212)	T1b: 212(100)	CC: 126(75) Pap: 28(17) Chro: 14(8.2) Others: 1(0.1)	Median: 4.8 IQR: 4.4-5.5	NR	NR	NR	NR
Weight, 2010 ⁹⁰	RN (480)	T1b: 480(100)	CC: 340(79.2) Pap: 53(12.4) Chro: 17(4) Others: 19(4.4)	Mean: 5.6 IQR: 5.0-6.4	NR	NR	NR	NR
Weight, 2010 ⁹⁰	PN (524)	T1b: 524(100)	CC: 327(74.5) Pap: 77(17.6) Chro: 24(5.4) Others: 10(3.1)	Mean: 5 IQR: 4.5-5.6	NR	NR	NR	NR
Whitson, 2012 ¹²⁴	NSS (7704)	T1: 7704(100) T2: 0(0) T1 and T2: 7704(100)	CC: 3794(71) Pap: 1141(21) Chro: 419(8) Sac: 25(0.5) RC: 7704(100) Others: 0(0)	Mean: 2.4 SD: 0.8	NR	NR	NR	NR
Whitson, 2012 ¹²⁴	Ablation (1114)	T1: 1114(100) T2: 0(0) T1 and T2: 1114(100)	CC: 421(72) Pap: 124(21) Chro: 36(6) Sac: 1(0.2) RC: 1114(100) Others: 0(0)	Mean: 2.6 SD: 0.8	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Woldu, 2014 ⁹¹	CKD 1 NSS (185)	T1: NR(84.5) T2: NR(1.6)	NR	Mean: 2.7 SD: 1.6	NR	NR	Mean: 23.1	NR
Woldu, 2014 ⁹¹	CKD 1 RN (179)	T1: NR(41.5) T2: NR(13.1)	NR	Mean: 6.8 SD: 4	NR	NR	NR	NR
Woldu, 2014 ⁹¹	CKD 2 NSS (261)	T1: NR(82.9) T2: NR(0.5)	NR	Mean: 2.9 SD: 1.6	NR	NR	Mean: 21	NR
Woldu, 2014 ⁹¹	CKD 2 RN (419)	T1: NR(44.5) T2: NR(15.8)	NR	Mean: 6.2 SD: 3.9	NR	NR	NR	NR
Woldu, 2014 ⁹¹	CKD 3 NSS (94)	T1: NR(80) T2: NR(3.8)	NR	Mean: 3.8 SD: 2.2	NR	NR	Mean: 24.1	NR
Woldu, 2014 ⁹¹	CKD 3 RN (168)	T1: NR(37.9) T2: NR(14.5)	NR	Mean: 6.7 SD: 4.2	NR	NR	NR	NR
Woldu, 2014 ⁹¹	Cohort (1306)	NR	NR	NR	NR	NR	NR	NR
Xu, 2014 ⁵³	LRN (88)	NR	CC: 67(76.14) Pap: 5(5.68) Chro: 4(4.55) Sac: 0(0) RC: 5(5.68) Others: see table 2(see table 2)	Mean: 4.6 SD: 1.9	RT: 49(NR) LT: 39(NR)	NR	NR	NR
Xu, 2014 ⁵³	ORN (526)	NR	CC: 399(75.86) Pap: 19(3.61) Chro: 13(2.47) Sac: 1(0.19) RC: 33(6.27) Others: see table 2(see table 2)	Mean: 5.3 SD: 2.3	RT: 263(NR) LT: 263(NR)	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Xu, 2014 ⁵³	LPN (42)	NR	CC: 21(50) Pap: 3(7.14) Chro: 0(0) Sac: 0(0) RC: 0(0) Others: see table 2(see table 2)	Mean: 3.3 SD: 2.2	RT: 21(NR) LT: 21(NR)	NR	NR	NR
Xu, 2014 ⁵³	OPN (187)	NR	CC: 110(58.82) Pap: 8(8) Chro: 5(2.67) Sac: 1(0.53) RC: 6(3.21) Others: see table 2(see table 2)	Mean: 3.6 Median: NR SD: 1.4	RT: 89(NR) LT: 98(NR)	NR	NR	NR
Yasuda, 2012 ⁹²	NSS (97)	T1: 97(100)	NR	Median: 2.5 IQR: 1.8-3.2 SD: NR	NR	Endophytic: 7(NR)	NR	NR
Yasuda, 2012 ⁹²	RN (103)	T1: 103(100)	NR	Median: 4.4 IQR: 3.5-5.3	NR	Endophytic: 18(NR)	NR	NR
Youn, 2013 ¹³⁰	Open PN (14)	NR	RC: 12(85.71) Others: 2(14.29)	Mean: 2.3 IQR: 1.27	RT: 10(NR) LT: 4(NR) BIL: 0(0) MUL: 0(0)	Hilar: 10(NR) Exophytic: 14(100)	NR	NR
Youn, 2013 ¹³⁰	Laparoscopic RFA (41)	NR	RC: 13(75.61) Others: 10(24.39)	Mean: 2.4 IQR: 0.79	RT: 27(NR) LT: 14(NR) BIL: 0(0) MUL: 0(0)	Hilar: 26(NR) Exophytic: 41(100)	NR	NR
Zini, 2009 ⁹³	Partial nephrectomy (matched for age, tumor size, year of surgery, not by Furhman grade) (2153)	T1a: 2153(100)	CC: 1719(79.8) Pap: 199(9.2) Others: 235(10.9)	Mean: 2.4	NR	NR	NR	NR
Zini, 2009 ⁹³	Radical nephrectomy (matched for age, tumor size, year of surgery,	T1a: 5616(100)	CC: 4749(84.6) Pap: 295(5.3) Others: 572(10.2)	Mean: 2.7	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
	not by Furhman grade) (5616)							
Zini, 2009 ⁹³	Partial nephrectomy (matched for age, tumor size, year of surgery, Furhman grade) (1283)	T1a: 1283(100)	CC: 1047(81.6) Pap: 104(8.1) Others: 132(10.3)	Mean: 2.5	NR	NR	NR	NR
Zini, 2009 ⁹³	Radical nephrectomy (matched for age, tumor size, year of surgery, Furhman grade) (3166)	T1a: 3166(100)	CC: 2699(85.2) Pap: 152(4.8) Others: 315(9.9)	Mean: 2.8	NR	NR	NR	NR
Zorn, 2007 ¹⁰³	LPN (42)	T1: 42(100)	RC: 30(71)	Mean: 2.4 Range: 1-6	RT: 20(48) LT: 22(52)	NR	Mean: 37 Range: 15-43	NR
Zorn, 2007 ¹⁰³	LRN (55)	T1: 55(100)	RC: 55(83)	Mean: 5.4 Range: 3.2-9	RT: 28(51) LT: 27(49)	NR	NR	NR
ACTIVE SURVEILLANCE (UNCONTROLLED STUDIES)								
Abouassaly, 2008 ¹⁴⁵	Active Surveillance (110)	NR	NR	Median: 2.5 Range: 0.9-11.2	MUL: 22(20)	NR	NR	NR
Crispen, 2008 ¹⁴⁶	Active Surveillance (109)	NR	CC: 24(NR) Pap: 9(NR) Chro: 1(NR)	Mean: 2.61 Median: 2 Range: 0.4-12	NR	NR	NR	NR
Crispen, 2009 ¹⁴⁷	Active Surveillance (173)	NR	CC: 39(68) Pap: 15(26) Chro: 2(4)	Mean: 2.45 Median: 2 Range: 0.4-12	NR	NR	NR	NR
Jewett, 2011 ¹⁴⁸	Active Surveillance (178)	T1a: 179(100)	NR	Mean: 2.1 Median: 2.1 Range: 0.4-4	NR	NR	NR	NR
Kunkle, 2007 ¹⁴⁹	Active Surveillance (89)	NR	NR	Median: 2 Range: 0.0-12	MUL: 11(12)	NR	NR	NR
Leonard, 2013 ⁴²	Active surveillance (133)	T1a: 133(100)	NR	Mean: 2.36 Range: 0.6-4 SD: 1.19	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Rosales, 2010 ¹⁵⁰	Active Surveillance (212)	NR	Pap: 4(NR) Chro: 1(NR) RC: 32(NR)	Median: 2.8 Range: 0.5-13.1	RT: 137(59) BIL: 5(2)	NR	NR	NR
O'Malley,2014 ⁹⁷	PN (1893)	NR	CC: 1404(10.1) Pap: 345(18.2) Chro: 129(6.8) Sac: 9(0.5) RC: NR Others: 6(0.4)	Mean: 3.2 Median: NR Range: NR IQR: NR SD: 1.36	NR	NR	NR	NR
O'Malley,2014 ⁹⁷	RN (10864)	NR	CC: 9698(26.6) Pap: 703(6.5) Chro: 310(2.9) Sac: 84(0.8) RC: NR Others: 69(0.7)	Mean: 4.7 Median: NR Range: NR IQR: NR SD: 1.53	NR	NR	NR	NR
Cooper, 2015 ¹⁴¹	RFA (9)	T1: 9(NR) T1a: NR T1b: NR T2: NR T1 and T2: NR	CC: 8(88.9) Pap: 0(0) Chro: NR Sac: 1(11.1) RC: NR Others: NR	NR	NR	Hilar: NR Exophytic: 9(100) Endophytic: NR	NR	NR
Cooper, 2015 ¹⁴¹	PN (9)	T1: 9(NR) T1a: NR T1b: NR T2: NR T1 and T2: NR	CC: 9(100) Pap: 0(0) Chro: NR Sac: 0(0) RC: NR Others: NR	NR	NR	Hilar: NR Exophytic: 9(100) Endophytic: NR	NR	NR
Cooper, 2015 ¹⁴¹	RN (31)	T1: 31(NR) T1a: NR T1b: NR T2: NR T1 and T2: NR	CC: 30(96.8) Pap: 1(3.2) Chro: NR Sac: 0(0) RC: NR Others: NR	NR	NR	Hilar: NR Exophytic: 24(77) Endophytic: NR	NR	NR
Chang, 2015 ¹²⁷	RFA (27)	T1: NR T1a: NR T1b: 27(100) T2: NA(NA) T1 and T2: NA(NA)	CC: 24(88.9) Pap: 1(3.7) Chro: 1(3.7) Sac: NR RC: NR Others: NR	Mean: 4.7 Median: NR Range: NR IQR: NR SD: 0.5	RT: 14(51.9) LT: 13(48.1) BIL: NR MUL: NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Chang, 2015 ¹²⁷	PN (29)	T1: NR T1a: NR T1b: 29(100) T2: NA(NA) T1 and T2: NA(NA)	CC: 24(82.8) Pap: 2(6.9) Chro: 3(10.3) Sac: NR RC: NR Others: NR	Mean: 5.2 Median: NR Range: NR IQR: NR SD: 0.6	RT: 17(58.6) LT: 12(41.4) BIL: NR MUL: NR	NR	NR	NR
Danzig, 2015 ¹³⁴	RN (15)	T1: NR T1a: 15(100) T1b: 0(0) T2: NA(NA) T1 and T2: NA(NA)	CC: NR(79) Pap: NR(14) Chro: NR(0) Sac: NR RC: NR Others: NR(7)	Mean: 3.1 Median: 3.1 Range: NR IQR: NR SD: 0.58	NR	NR	NR	NR
Danzig, 2015 ¹³⁴	PN (65)	T1: NR T1a: 65(100) T1b: 0(0) T2: NA(NA) T1 and T2: NA(NA)	CC: NR(49) Pap: NR(25) Chro: NR(9) Sac: NR RC: NR Others: NR(5)	Mean: 2.48 Median: 2.3 Range: NR IQR: NR SD: 0.88	NR	NR	NR	NR
Danzig, 2015 ¹³⁴	AS (68)	T1: NR T1a: 68(100) T1b: 0(0) T2: NA(NA) T1 and T2: NA(NA)	CC: NR(NA) Pap: NR(NA) Chro: NR(NA) Sac: NR RC: NR Others: NR(NA)	Mean: 2.04 Median: 2 Range: NR IQR: NR SD: 0.87	NR	NR	NR	NR
Danzig, 2015 ¹³⁴	Cryoablation (14)	T1: NR T1a: 14(100) T1b: 0(0) T2: NA(NA) T1 and T2: NA(NA)	CC: NR(50) Pap: NR(7) Chro: NR(0) Sac: NR RC: NR Others: NR(7)	Mean: 2.08 Median: 2 Range: NR IQR: NR SD: 0.5	NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Chung, 2014 ⁹⁴	RN(>/=65years) (170)	NR	CC: 160(94.1) Pap: 3(1.8) Chro: 5(2.9) Sac: NR RC: NR Others: 2(1.2)	Mean: 3 Median: 2.9 Range: NR IQR: 2.2-3.8 SD: 1.2	NR	NR	NR	NR
Chung, 2014 ⁹⁴	PN(>/=65years) (170)	NR	CC: 158(92.9) Pap: 3(1.8) Chro: 5(2.9) Sac: NR RC: NR Others: 4(2.4)	Mean: 3 Median: 2.8 Range: NR IQR: 2.1-3.7 SD: 1.2	NR	NR	NR	NR
Chung, 2014 ⁹⁴	RN(<65years) (452)	NR	CC: 386(85.4) Pap: 8(1.8) Chro: 38(8.4) Sac: NR RC: NR Others: 20(4.4)	Mean: 3.2 Median: 3 Range: NR IQR: 2.4-3.8 SD: 1.2	NR	NR	NR	NR
Chung, 2014 ⁹⁴	PN(<65years) (452)	NR	CC: 384(85) Pap: 10(2.2) Chro: 38(8.4) Sac: NR RC: NR Others: 20(4.4)	Mean: 3.2 Median: 3 Range: NR IQR: 2.3-3.9 SD: 1.3	NR	NR	NR	NR
Chang, 2014 ⁹⁵	RN (339)	T1: 339(100) T1a: NR T1b: NR T2: NA(NA) T1 and T2: NA(NA)	CC: 270(79.9) Pap: 20(5.9) Chro: 29(8.6) Sac: NR RC: NR Others: 19(5.6)	NR	RT: 174(51.3) LT: 165(48.7) BIL: 0(0) MUL: NR	NR	NR	NR
Chang, 2014 ⁹⁵	PN (218)	T1: 218(100) T1a: NR T1b: NR T2: NA(NA) T1 and T2: NA(NA)	CC: 167(77.5) Pap: 27(12.4) Chro: 14(6.5) Sac: NR RC: NR Others: 8(3.7)	NR	RT: 111(50.9) LT: 107(49.1) BIL: 0(0) MUL: NR	NR	NR	NR

Author, year	Arm (n)	Clinical stage: n(%)	Tumor type:n(%)	Tumor size	Tumor side:N(%)	Tumor location	Warm Ischemia time	Positive margins
Van Poppel, 2006 ⁹⁶	RN (273)	T1: 138(50.5) T1a: NR T1b: NR T2: 130(47.6) T1 and T2: 265(49)	CC: 174(63.7) Pap: NR Chro: 13(4.8) Sac: 2(0.7) RC: NR Others: 39(14.3)	NR	RT: 142(52) LT: 125(45.8) BIL: 2(0.7) MUL: 4(1.5)	Hilar: 107(39.2) Exophytic: NR Endophytic: NR	NR	NR
Van Poppel, 2006 ⁹⁶	PN (268)	T1: 127(47.4) T1a: NR T1b: NR T2: 136(50.7) T1 and T2: 266(49.2)	CC: 193(72) Pap: NR Chro: 7(2.6) Sac: 2(0.7) RC: NR Others: 25(9.3)	NR	RT: 131(48.9) LT: 134(50) BIL: 0(0) MUL: 3(1.1)	Hilar: 104(38.8) Exophytic: NR Endophytic: NR	NR	NR

IQR= Interquartile range; LPN= Laparoscopic partial nephrectomy; LTA= Laparoscopic Thermal Ablation; NA= Not Applicable; NR= Not reported; NSM= Non surgical Management; NSS= Nephron-sparing surgery; OPN= Open partial nephrectomy; ORN= Open Radical Nephrectomy; PN= Partial Nephrectomy; RFA= Radio frequency ablation; RN Radical nephrectomy; SD= Standard deviation; RT=Right; LT= Left; BIL= Bilateral; MUL= Multiple; RC= Renal Cell; Sac= Sarcomatoid; Chro= Chromophobe; CC=Clear Cell