

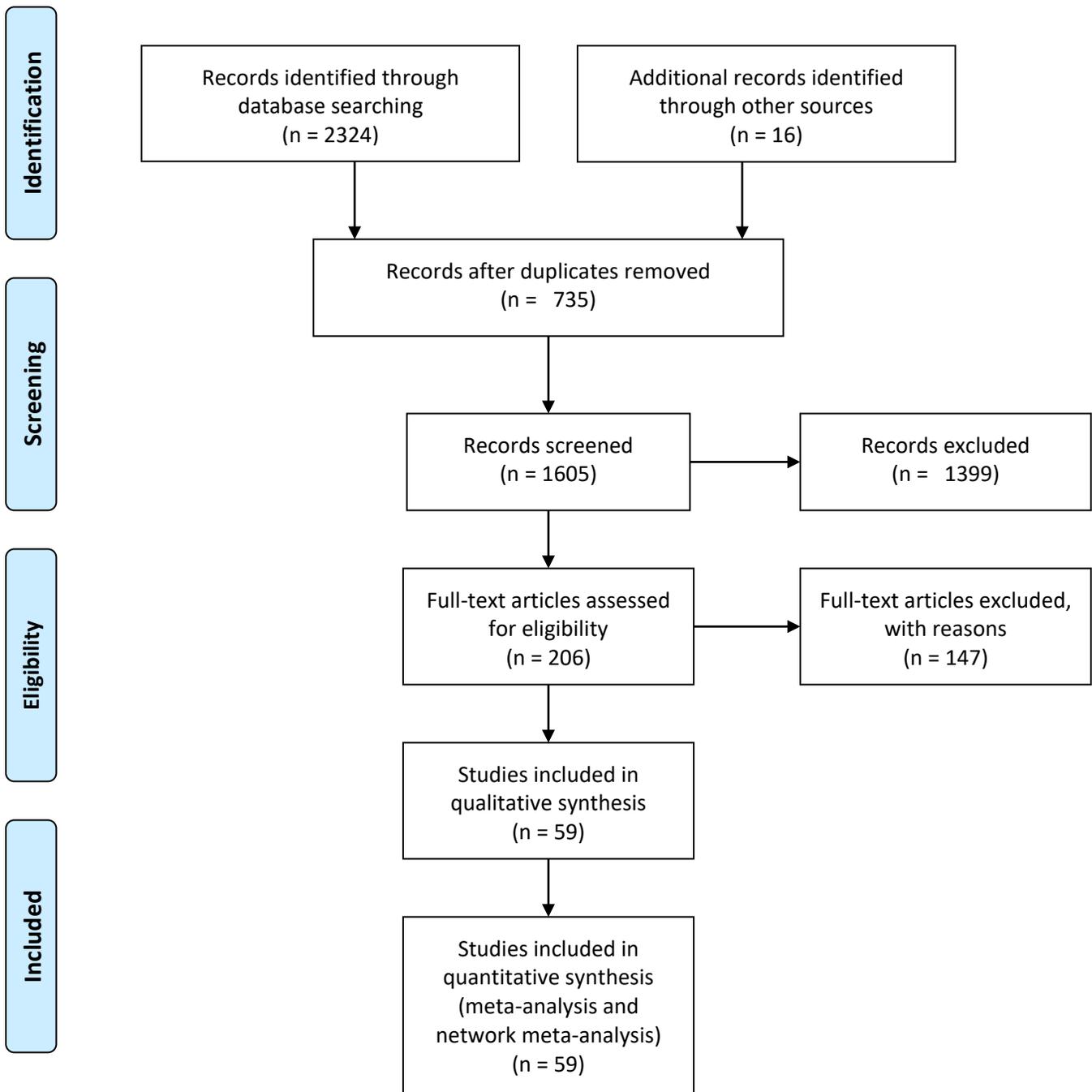
Table 1

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist:
recommended items to address in a systematic review protocol.

| Section and topic | Item No | Checklist item | Yes/No/ Mention (Reported on Page No.) |
|-----------------------------------|---------|---|--|
| ADMINISTRATIVE INFORMATION | | | |
| Title: | | | |
| Identification | 1a | Identify the report as a protocol of a systematic review | Yes (1) |
| Update | 1b | If the protocol is for an update of a previous systematic review, identify as such | No |
| Registration | 2 | If registered, provide the name of the registry (such as PROSPERO) and registration number | No |
| Authors: | | | |
| Contact | 3a | Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author | Yes (1) |
| Contributions | 3b | Describe contributions of protocol authors and identify the guarantor of the review | Yes (1) |
| Amendments | 4 | If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments | No |
| Support: | | | |
| Sources | 5a | Indicate sources of financial or other support for the review | Yes (10) |
| Sponsor | 5b | Provide name for the review funder and/or sponsor | Yes (10) |
| Role of sponsor or funder | 5c | Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol | Yes (10) |
| INTRODUCTION | | | |
| Rationale | 6 | Describe the rationale for the review in the context of what is already known | Yes (3) |
| Objectives | 7 | Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) | Yes (3,4) |
| METHODS | | | |
| Eligibility criteria | 8 | Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review | Yes (3,4) |
| Information sources | 9 | Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage | Yes (3,4) |
| Search strategy | 10 | Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated | Yes (4, Search Strategy) |
| Study records: | | | |

| | | | |
|------------------------------------|-----|--|--------------|
| Data management | 11a | Describe the mechanism(s) that will be used to manage records and data throughout the review | Yes (5) |
| Selection process | 11b | State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis) | Yes (4) |
| Data collection process | 11c | Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators | Yes (4) |
| Data items | 12 | List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications | Yes (3,4,10) |
| Outcomes and prioritization | 13 | List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale | Yes (3,4) |
| Risk of bias in individual studies | 14 | Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis | No |
| Data synthesis | 15a | Describe criteria under which study data will be quantitatively synthesized | Yes (5-7) |
| | 15b | If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ) | Yes (5-7) |
| | 15c | Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression) | Yes (5-7) |
| | 15d | If quantitative synthesis is not appropriate, describe the type of summary planned | No |
| Meta-bias(es) | 16 | Specify any planned assessment of meta-biases (such as publication bias across studies, selective reporting within studies) | No |
| Confidence in cumulative evidence | 17 | Describe how the strength of the body of evidence will be assessed (such as GRADE) | No |

Table 2



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2015). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Table 3: The main characteristics of included studies.

| Author | Year | Exclusion criteria | Median Age | | | Matching | Study interval | Cases | | | Country | Type of study | Study quality |
|---------------|------|---|------------|-------|-------|---------------|---------------------|-------|-----|-----|---------|---------------|---------------|
| | | | RARC | LRC | ORC | | | RARC | LRC | ORC | | | |
| Bochner et al | 2018 | Patients who had a prior history of pelvic radiation, prior extensive open abdominal surgery, clinical stage T4, or any clinical contraindication to minimally invasive surgery were excluded. | 66 | | 65 | 1,2,3,6,7 | 2010-2013 | 60 | 58 | | USA | RCT | ***** |
| Parekh DJ | 2018 | Patients who previously had pelvic surgery or open abdominal or any pre-existing health conditions that would preclude safe initiation or maintenance of pneumoperitoneum were excluded. | 70 | | 67 | 1,2,5,6,7 | 2011-2014 | 150 | | 152 | USA | RCT | ***** |
| Yong | 2017 | NR | | 78 | 77 | 1,2,3,5,6,7 | 2012-2015 | | 29 | 28 | China | RCT | ***** |
| Khan | 2016 | Patients were severe cardiorespiratory comorbidities or extensive abdominopelvic surgery or radiation were excluded. | 68.6 | 68.6 | 66.6 | 1,2,3,5,6,7 | 2009-2012 | 20 | 19 | 20 | UK | RCT | ***** |
| Bochner et al | 2015 | Patients who refuse to participate were excluded | 66 | | 65 | 1,2,3,5,6,7 | 2010-2013 | 60 | | 58 | USA | RCT | ***** |
| Lin | 2014 | The patients was for tumour invasion of the urethra were excluded | | 63.2 | 63.6 | 1,2,3,5,6 | 2008-2011 | | 35 | 35 | China | RCT | ***** |
| Parekh DJ | 2013 | 1) cystectomy due to clinical T4 disease 2) desire for robotic surgery 3) declined participation | 69.5 | | 64.5 | 1,2,3,5,6 | 2009-2011 | 20 | | 19 | USA | RCT | ***** |
| Nix | 2010 | 1) not surgical candidates, 2) not allowing randomization 3) those with preference for specific surgical modality | 69.2 | | 67.4 | 1,2,3,5,6,7 | 2008-2009 | 21 | | 20 | USA | RCT | **** |
| Su | 2019 | NR | 63 | 64 | | 1,2,3,5,6,7 | 2011-2016 | 189 | 126 | | China | R | **** |
| Matsumoto | 2019 | Patients who had other diseases were excluded | 67.3 | 67 | 69.2 | 1,2,3,5,6,7 | 2008-2017 | 10 | 10 | 16 | Japan | P | **** |
| Lenfant | 2019 | Patients who planned to receive RARC and converted to ORC were excluded | 66 | | 68 | 1,2,3,5,6,7 | 2010-2016 | 124 | | 118 | France | P | ***** |
| Khan | 2019 | NR | 68 | 71 | 68 | 1,2,3,5,6,7 | 2015-2019 | 20 | 19 | 20 | UK | P | **** |
| Flamiatos | 2019 | Patients who received partial cystectomy or other surgery performed concurrently with radical cystectomy were excluded 1) incomplete data 2) previously received to radical prostatectomy 3) undergone salvage radical cystectomies with palliative intent 4) with severe liver, coagulation disorders or kidney impairment | N | N | N | 1,2,3,4,5,6,7 | 2009-2015 | 100 | | 149 | USA | R | **** |
| Borghesi | 2019 | Patients who had distant metastases were excluded | 70 | | 70 | 1,2,3,4,5,6,7 | 2015-2016 | 17 | | 33 | Italy | P | ***** |
| Dosis | 2018 | Patients who had distant metastases were excluded | | 69.58 | 69.52 | 1,5,7 | 2010-2016 | | 127 | 92 | UK | R | **** |
| Sharma | 2017 | Patients who knew metastatic disease prior to surgery or non-bladder primary tumors were excluded. | 70.9 | | 70.2 | 1,2,3,5,6,7 | 2010-2014 | 65 | | 407 | USA | P | ***** |
| Winters | 2016 | NR | 79.2 | | 79.6 | 1,2,5,6,7 | 2004-2015 | 29 | | 58 | USA | R | **** |
| Tan | 2016 | Patients who were lack of histopathological data were excluded. | 64.3 | | 66.4 | 1,5,6,7 | 2005-2014 | 90 | | 94 | UK | R | **** |
| Kim | 2016 | Patients who were pathologic cell types other than urothelial cell carcinoma and had salvage or palliative indication were excluded | 61.5 | 65 | 68 | 1,2,3,5,6,7 | 2011-2014 | 58 | 22 | 150 | Korea | R | ***** |
| Gandaglia | 2016 | Patients who were missing data or unavailable follow-up information were excluded | 70 | | 70.9 | 1,2,3,4,5,6,7 | 2004-2013 | 138 | | 230 | Belgium | R | ***** |
| Cusano | 2016 | NR | 65.9 | | 67.8 | 1,2,3,5,6,7 | 2003-2013 | 121 | | 92 | USA | R | **** |
| Zhao | 2015 | patients who had undergone RARC were excluded | | 65.5 | 66.2 | 1,2,3,5,6 | 2009-2014 | | 41 | 53 | China | R | ***** |
| Yasui | 2015 | NR | | 78 | 79 | 1,2,3,5,6,7 | 2010-2014 | | 8 | 8 | Japan | R | **** |
| Nguyen | 2015 | Patients who were with non-bladder primary tumors or had only palliative indication were excluded | 72 | | 69 | 1,2,3,5,6,7 | 2001-2014 | 263 | | 120 | USA | R | **** |
| Atmaca | 2015 | Patients who had a history of abdominopelvic radiotherapy or major abdominal surgery were excluded | 62.2 | | 61.4 | 1,2,3,4,5,6 | 2009-2013 | 32 | | 42 | Turkey | R | *** |
| Agarwal | 2014 | Patients who had extensive liver infiltration on CT, extrahepatic adjacent organ involvement, IGBC detected after an open cholecystectomy or any systemic illness which contraindicated a laparoscopic procedure were excluded | 44 | | 49 | 1,5,6 | 2011-2013 | | 24 | 46 | India | R | ***** |
| Zeng | 2014 | Patients who were not contacted in LRC group and ORC group were excluded | | 77 | 78 | 1,2,3,5,6,7 | 2009-2013 | | 21 | 25 | China | R | **** |
| Pai | 2014 | NR | 67 | | 69 | 1,4,5,6,7 | 2009-2013 | 50 | | 50 | UK | P | *** |
| Niegsch | 2014 | Patients who had ORCs that were performed in combination with other surgical interventions were excluded | 68 | | 71 | 1,2,3,5,6,7 | 2010-2013,2008-2013 | 64 | | 79 | Germany | P | **** |
| Messer | 2014 | NR | 69.5 | | 64.5 | 1,2,3,5,6,7 | 2009-2011 | 20 | | 20 | USA | P | **** |
| Wang1 | 2010 | Patients who could not tolerate pneumoperitoneum or modified lithotomy were excluded | | 63.7 | 58 | 1,2,3,5,6,7 | 2006-2008 | | 14 | 24 | China | P | ***** |
| Wang2 | 2010 | Patients who could not tolerate pneumoperitoneum or alter lithotomy position were excluded | 61.3 | 55.7 | | 1,2,5,6,7 | 2004-2007 | | 31 | 39 | China | P | ***** |
| Akin | 2013 | NR | 62.2 | 64 | | 1,2,5,6,7 | 2008-2011 | | 15 | 15 | Turkey | P | *** |
| Basillote | 2004 | NR | 66.8 | 68.9 | | 1,2,3,5,7 | 2001-2003 | | 13 | 11 | USA | R | **** |
| Hemal | 2007 | NR | 58.2 | 58.9 | | 1,2,3,5,6,7 | 1999-2005 | | 30 | 35 | India | P | **** |
| Porciglia | 2007 | NR | NR | 63.5 | 71 | 1,2,3,5,6,7 | 2002-2005 | | 20 | 22 | Italy | P | *** |
| Gan | 2013 | NR | NR | NR | NR | NA | NA | 20 | 19 | 20 | UK | p | *** |
| Ha | 2010 | | 67.5 | 55.9 | | 1,2,5,6 | 2003-2008 | | 36 | 34 | Korea | R | ***** |
| Haber | 2008 | | 66 | 67 | | 1,2 | NA | | 50 | 50 | USA | R | **** |
| Khan | 2012 | NR | 66.5 | 69.8 | 65 | 1,2,3,5,6,7 | 2003-2008 | 48 | 58 | 52 | UK | p | **** |
| Taylor | 2004 | NR | 66.4 | 66.3 | | 1,2,3,5,6,7 | 2002-2003 | | 8 | 8 | USA | p | **** |
| Abaza | 2012 | Undergoing lesser node dissection due to a history of radiation, aortic/aortic grafting or significant comorbidity | 67.3 | | 69.8 | 1,2,6 | 2006-2008 | 35 | | 120 | USA | R | ***** |
| Abraham | 2007 | NR | 76.5 | 77.6 | NR | 1,2,3,5,7 | 2005-2006 | 14 | 20 | NR | USA | p | **** |
| Galich | 2006 | Morbid obesity (generally BMI 35), prior pelvic radiation, or significant medical comorbidities including pulmonary obstructive airway disease | 70 | NR | 70.5 | 1,2,3,6 | 2000 | 13 | | 24 | USA | P | **** |
| Gondo | 2012 | NR | 68.9 | NR | 69.7 | 1,2,4,5,6,7 | 2008-2011 | 11 | | 15 | Japan | P | **** |
| Guillotreau | 2009 | | 67.9 | 64.9 | | 1,2,3,5,6,7 | 2003-2007 | | 38 | 30 | France | P | ***** |
| Kader | 2013 | NR | 67 | NR | 66 | 1,2,3,5,6,7 | 2006-2010 | 103 | | 100 | USA | R | ***** |
| Knox | 2013 | NR | 65.9 | NR | 67.07 | 1,2,3,5,6,7 | 2008-2010 | 58 | | 84 | USA | R | **** |
| Martin | 2010 | NR | 74 | NR | 68 | 1,2,3,5,6 | NA | 19 | | 14 | USA | P | *** |
| Musch | 2014 | | 71.4 | | 69 | 1,2,3,4,5,6,7 | RARC 2009-2012; C | 100 | | 42 | Germany | p | ***** |
| Nepple | 2013 | Contraindication to robotic surgery | 72 | NR | 67 | 1,2,5,6,7 | 2007-2010 | 36 | | 29 | USA | R | ***** |
| Ng | 2010 | NR | 70.9 | NR | 67.2 | 1,2,3,5,6,7 | 2002-2008 | 83 | | 104 | USA | R | ***** |
| Pruthi | 2007 | NR | 62.3 | NR | 68.2 | 1,2,3,5,6,7 | 2006-2007 | 20 | | 24 | USA | R | **** |
| Rhee | 2006 | | 60 | | 67 | 1,6,7 | 2003-2005 | 7 | | 23 | USA | P | *** |
| Richards | 2010 | NR | 65 | NR | 66 | 1,2,3,5,6,7 | 2007-2009 | 35 | | 35 | USA | R | **** |
| Styn | 2012 | NR | 66.6 | NR | 65.6 | 1,2,3,5,6,7 | 2007-2010 | 50 | | 100 | USA | P | **** |
| Sung | 2012 | Had undergone radiotherapy before operation or for whom palliative treatment was the primary aim | 62.2 | NR | 65.9 | 1,2,3,5,6 | 2008-2011 | 35 | | 104 | Korea | R | ***** |
| Ram | 2018 | 1) no willing for RARC 2) Cystectomy or palliative cystectomy for benign conditions | 61.76 | | 60.07 | 1,2,3,5,6,7 | 2014-2015 | 125 | | 45 | India | P | ***** |
| Panwar | 2018 | NR | 57 | 54 | 58 | 1,2,5,6,7 | 2014-2016 | 24 | 54 | 5 | India | P | **** |

Matching: 1 - Age, 2 - BMI, 3 - ASA, 4 - Charlson, 5 - Gender, 6 - Pathological stage, 7 - Urinary diversion type. RARC, robot-assisted radical cystectomy, ORC, open radical cystectomy, LRC, laparoscopic radical cystectomy, RCT, randomized controlled trial, R, Retrospective, P, Prospective, NA, data not available.
*Grade A, if all quality criteria were adequately met, the study was deemed to have a low risk of bias

Table 4: Pair-wise meta-analyses of direct comparisons between the three surgical approaches for BCa.

| End points | Direct comparisons | I ² | PH values | OR (95% CI) | POR values |
|------------------------------------|--------------------|----------------|-----------|--------------------|--------------|
| the recurrence rate | RARC VS ORC | 0% | 0.687 | 0.92(0.75,1.14) | 0.452 |
| | RARC VS LRC | 60.50% | 0.055 | 0.78(0.37,1.64) | 0.518 |
| | LRC VS ORC | 0% | 0.911 | 0.73(0.44,1.22) | 0.232 |
| Morbidity | RARC VS ORC | 0% | 0.81 | 0.76(0.53,1.10) | 0.151 |
| | RARC VS LRC | 63.20% | 0.066 | 0.70(0.26,1.89) | 0.48 |
| | LRC VS ORC | 10% | 0.35 | 0.53(0.27,1.06) | 0.073 |
| positive surgical margins | RARC VS ORC | 34.50% | 0.142 | 0.41(0.28,0.60) | <.0001 |
| | RARC VS LRC | 0% | 0.724 | 0.99(0.56,1.73) | 0.967 |
| | LRC VS ORC | 0% | 0.791 | 0.41(0.22,0.77) | 0.006 |
| lymph node yield | RARC VS ORC | 78.60% | <.0001 | 0.04(-0.06,0.14) | 0.425 |
| | RARC VS LRC | 74.90% | 0.008 | 0.58(0.29,0.87) | <.0001 |
| | LRC VS ORC | 40.80% | 0.086 | 0.00(-0.16,0.16) | 0.998 |
| positive lymph node | RARC VS ORC | 0% | 0.985 | 0.88(0.63,1.24) | 0.467 |
| | RARC VS LRC | 0% | 0.654 | 0.88(0.53,1.48) | 0.631 |
| | LRC VS ORC | 0% | 0.951 | 0.85(0.62,1.17) | 0.318 |
| operating time | RARC VS ORC | 96.50% | <.0001 | 0.70(0.60,0.79) | <.0001 |
| | RARC VS LRC | 96.30% | <.0001 | 0.39(0.13,0.65) | 0.003 |
| | LRC VS ORC | 88.60% | <.0001 | 0.68(0.56,0.80) | <.0001 |
| estimated blood loss | RARC VS ORC | 94.60% | <.0001 | -1.12(-1.22,-1.02) | <.0001 |
| | RARC VS LRC | 92.60% | <.0001 | -0.20(-0.44,-0.04) | 0.104 |
| | LRC VS ORC | 86.50% | <.0001 | -1.14(-1.28,-1.00) | <.0001 |
| length of hospital stay | RARC VS ORC | 95.30% | <.0001 | -0.62(-0.72,-0.51) | <.0001 |
| | RARC VS LRC | 92.80% | <.0001 | -0.07(-0.34,-0.21) | 0.622 |
| | LRC VS ORC | 73.80% | <.0001 | -0.42(-0.54,-0.30) | <.0001 |
| blood transfusion rate | RARC VS ORC | 0% | 0.948 | 0.81(0.64,1.03) | 0.093 |
| | RARC VS LRC | 0% | 0.611 | 1.30(0.48,3.70) | 0.626 |
| | LRC VS ORC | 0% | 0.901 | 0.63(0.33,1.17) | 0.142 |
| the time to regular diet | RARC VS ORC | 0% | 0.97 | 0.82(0.69,0.97) | 0.018 |
| | RARC VS LRC | 68.50% | 0.075 | 0.85(0.26,2.78) | 0.793 |
| | LRC VS ORC | 0% | 0.922 | 0.83(0.62,1.09) | 0.184 |
| Postoperative 90-day complications | RARC VS ORC | 0% | 0.86 | 0.80(0.57,1.12) | 0.194 |
| | RARC VS LRC | - | - | - | - |
| | LRC VS ORC | 0% | 0.632 | 0.91(0.41,2.02) | 0.815 |

*H: heterogeneity; OR: odds ratio; CI: confidence interval; RARC: Robot-assisted Radical cystectomy, LRC: laparoscopic radical cystectomy, ORC: open radical cystectomy, BCa: bladder cancer.

| The efficacy of three surgical methods according to the network meta-analysis using odds ratios (ORs) and corresponding 95% credible intervals (CrIs) | | |
|---|--------------------------------|-----------------------------------|
| Consistent model | | |
| The recurrence rate | | |
| LRC | 0.98 (0.51, 1.95) | 0.76 (0.39, 1.55) |
| 1.02 (0.51, 1.95) | ORC | |
| 1.31 (0.65, 2.54) | | RARC |
| Morbidity | | |
| LRC | 1.30 (0.53, 2.99) | 0.73 (0.30, 1.71) |
| 0.77 (0.33, 1.87) | ORC | 0.56 (0.28, 1.13) |
| 1.38 (0.59, 3.38) | 1.80 (0.88, 3.53) | RARC |
| positive surgical margins | | |
| LRC | 2.09 (0.71, 5.65) | 0.62 (0.19, 1.86) |
| 0.48 (0.18, 1.40) | ORC | 0.30 (0.13, 0.68) |
| 1.61 (0.54, 5.14) | 3.35 (1.48, 7.62) | RARC |
| lymph node yield | | |
| LRC | 0.63 (-1.79, 3.06) | 0.78 (-2.06, 3.66) |
| -0.63 (-3.06, 1.79) | ORC | 0.15 (-1.78, 2.09) |
| -0.78 (-3.66, 2.06) | -0.15 (-2.09, 1.78) | RARC |
| positive lymph node | | |
| LRC | 1.22 (0.89, 1.70) | 0.98 (0.68, 1.50) |
| 0.82 (0.59, 1.12) | ORC | 0.82 (0.58, 1.15) |
| 1.02 (0.67, 1.48) | 1.21 (0.87, 1.74) | RARC |
| Operating time | | |
| LRC | -46.28 (-66.92, -27.08) | 19.26 (-6.51, 44.71) |
| 46.28 (27.08, 66.92) | ORC | 65.71 (46.51, 84.76) |
| -19.26 (-44.71, 6.51) | -65.71 (-84.76, -46.51) | RARC |
| Estimated blood loss | | |
| LRC | 414.44 (289.22, 538.67) | -143.25 (-303.80, 19.08) |
| -414.44 (-538.67, -289.22) | ORC | -556.12 (-681.33, -428.74) |
| 143.25 (-19.08, 303.80) | 556.12 (428.74, 681.33) | RARC |
| The length of hospital stay | | |
| LRC | 1.79 (0.76, 2.82) | 0.13 (-1.19, 1.47) |
| -1.79 (-2.82, -0.76) | ORC | -1.65 (-2.67, -0.62) |
| -0.13 (-1.47, 1.19) | 1.65 (0.62, 2.67) | RARC |
| The blood transfusion rate | | |
| LRC | 1.87 (1.00, 3.64) | 1.38 (0.71, 2.81) |
| 0.54 (0.27, 1.00) | ORC | 0.74 (0.54, 1.01) |
| 0.72 (0.36, 1.41) | 1.36 (0.99, 1.84) | RARC |
| The time to regular diet | | |
| LRC | 1.45 (0.96, 2.31) | 0.89 (0.55, 1.53) |
| 0.69 (0.43, 1.04) | ORC | 0.61 (0.44, 0.85) |
| 1.12 (0.65, 1.83) | 1.64 (1.18, 2.27) | RARC |
| Postoperative 90-day complications | | |
| LRC | 0.96 (0.34, 2.43) | 0.81 (0.24, 2.36) |
| 1.05 (0.41, 2.92) | ORC | 0.85 (0.40, 1.71) |
| 1.24 (0.42, 4.14) | 1.17 (0.58, 2.49) | RARC |
| Inconsistent model | | |
| The recurrence rate | | |
| LRC | | 0.83 (0.50, 1.36) |
| | ORC | |
| | 1.20 (0.74, 1.99) | RARC |

Table 5

Table 6a: The network node-split plot of outcome indexes.

| | Name | Direct Effect | Indirect Effect | Overall | P-Value |
|------------------------------------|-----------|----------------------------|-----------------------------|----------------------------|---------|
| the recurrence rate | LRC, ORC | 0.21 (-0.50, 0.99) | -0.34 (-1.19, 0.73) | -0.02 (-0.67, 0.67) | 0.33 |
| | LRC, RARC | -0.51 (-1.19, 0.39) | 0.06 (-0.81, 1.00) | -0.27 (-0.93, 0.44) | 0.3 |
| Morbidity | LRC, ORC | 0.62 (-0.43, 1.46) | -0.19 (-1.39, 1.21) | N/A | 0.32 |
| | LRC, RARC | -0.56 (-1.52, 0.59) | 0.24 (-1.08, 1.34) | N/A | 0.32 |
| | ORC, RARC | -0.48 (-1.12, 0.12) | -1.77 (-3.26, 0.02) | N/A | 0.14 |
| positive surgical margins | LRC, ORC | 0.73 (-0.47, 1.83) | 0.61 (-1.22, 2.27) | 0.74 (-0.34, 1.73) | 0.9 |
| | LRC, RARC | -0.51 (-1.99, 0.81) | -0.41 (-2.01, 1.03) | -0.47 (-1.64, 0.62) | 0.89 |
| | ORC, RARC | -1.30 (-2.23, -0.34) | -0.74 (-3.59, 2.17) | -1.21 (-2.03, -0.39) | 0.67 |
| lymph node yield | LRC, RARC | 2.91 (-1.34, 6.96) | -0.12 (-3.32, 3.10) | 0.78 (-2.06, 3.66) | 0.24 |
| positive lymph node | LRC, ORC | 0.23 (-0.07, 0.54) | 0.08 (-0.56, 0.71) | 0.20 (-0.12, 0.53) | 0.65 |
| | LRC, RARC | -0.05 (-0.63, 0.54) | 0.05 (-0.49, 0.64) | -0.02 (-0.39, 0.40) | 0.73 |
| | ORC, RARC | -0.19 (-0.57, 0.20) | -0.15 (-1.10, 0.68) | -0.19 (-0.55, 0.14) | 0.99 |
| operating time | LRC, ORC | -45.26 (-68.37, -23.49) | -42.46 (-91.57, 5.91) | -46.42 (-67.19, -26.76) | 0.92 |
| | LRC, RARC | 21.73 (-22.29, 63.60) | 18.92 (-13.41, 50.38) | 19.34 (-6.13, 44.12) | 0.91 |
| | ORC, RARC | 65.48 (47.36, 84.00) | 36.24 (-43.41, 113.76) | 65.67 (47.02, 84.96) | 0.48 |
| estimated blood loss | LRC, ORC | 422.59 (294.48, 549.70) | 414.40 (122.50, 698.82) | 413.24 (284.30, 537.05) | 0.96 |
| | LRC, RARC | -143.71 (-386.83, 105.85) | -134.82 (-332.86, 51.83) | -142.84 (-301.43, 19.90) | 0.96 |
| | ORC, RARC | -543.31 (-677.10, -410.07) | -858.75 (-1474.77, -250.12) | -555.95 (-683.38, -426.37) | 0.33 |
| length of hospital stay | LRC, ORC | 2.00 (0.88, 3.12) | 1.18 (-1.47, 3.61) | 1.79 (0.76, 2.82) | 0.54 |
| | LRC, RARC | -0.30 (-2.61, 1.82) | 0.52 (-1.14, 2.23) | 0.13 (-1.19, 1.47) | 0.55 |
| | ORC, RARC | -1.53 (-2.52, -0.56) | -5.28 (-10.26, -0.25) | -1.65 (-2.67, -0.62) | 0.15 |
| blood transfusion rate | LRC, ORC | 0.57 (-0.12, 1.32) | 0.72 (-0.33, 1.80) | N/A | 0.78 |
| | LRC, RARC | 0.39 (-0.65, 1.40) | 0.29 (-0.49, 1.13) | N/A | 0.83 |
| | ORC, RARC | -0.31 (-0.63, 0.02) | -0.11 (-1.91, 1.83) | N/A | 0.82 |
| the time to regular diet | LRC, RARC | -0.75 (-1.55, 0.10) | 0.08 (-0.44, 0.60) | -0.12 (-0.61, 0.43) | 0.08 |
| Postoperative 90-day complications | LRC, RARC | -0.80 (-4.63, 1.76) | -0.10 (-1.49, 1.18) | -0.21 (-1.42, 0.86) | 0.64 |

Table 6b: The network node-split plot of outcome indexes.

| | Name | Direct Effect | Indirect Effect | Overall | P-Value |
|---------------------|-----------|---------------------|----------------------|---------------------|---------|
| the recurrence rate | ORC, RARC | -0.13 (-0.44, 0.16) | -1.90 (-2.82, -1.00) | -0.25 (-0.72, 0.22) | 0 |