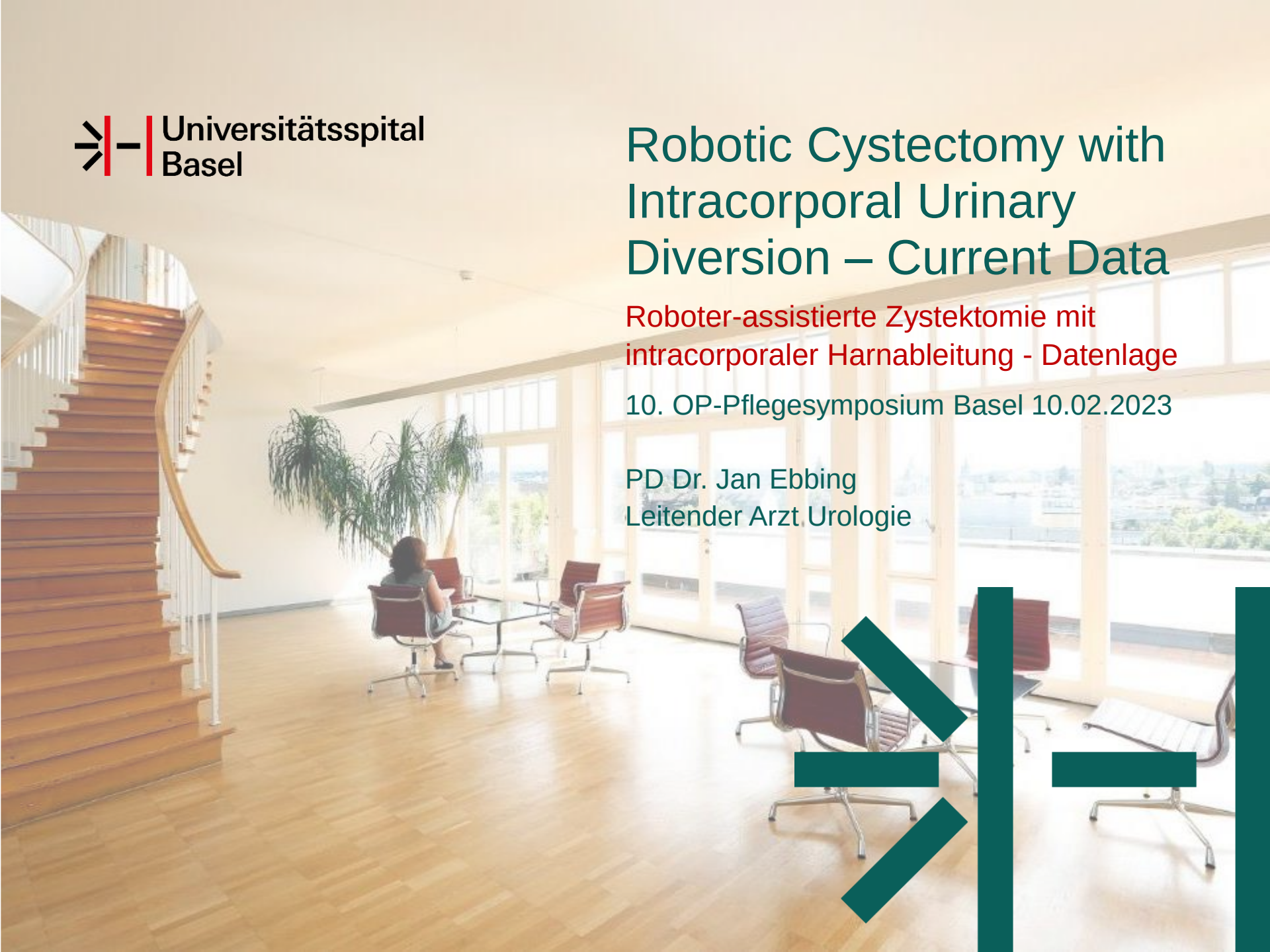

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Robotic Cystectomy with Intracorporal Urinary Diversion – Current Data

Roboter-assistierte Zystektomie mit intracorporaler Harnableitung - Datenlage

10. OP-Pflegesymposium Basel 10.02.2023

PD Dr. Jan Ebbing
Leitender Arzt Urologie

Conflict of Interest Disclosure

I have the following potential conflict(s) of interest to report:

- Proctorship Boston Scientific
- Scientific Grant Intuitive Surgical

Wir benötigen zukunftsweisende Behandlungs- und Diagnostikverfahren, um den Anforderungen einer alternden Gesellschaft gerecht zu werden.

«Wie wir uns unsere Zukunft heute vorstellen, ist der Schlüssel, um ein besseres Morgen zu erschaffen.»

«Unsere Zukunft wird eine erfolgreiche Interaktion von Mensch und Maschine sein»

Bild: Ebbing J. Expo Dubai 2020 (2021)

7.3.5.2. Summary of evidence and guidelines for laparoscopic/robotic-assisted laparoscopic cystectomy

Summary of evidence	LE
Robot-assisted RC has longer operative time (1–1.5 hours) and major costs, but shorter length of hospital stay (1–1.5 days) and less blood loss compared to ORC.	1
Robotic cystectomy and open cystectomy may result in similar rates of (major) complications.	2
Most endpoints, if reported, including intermediate-term oncological endpoint and QoL, are not different between RARC and ORC.	2
Surgeons experience and institutional volume are considered the key factor for outcome of both RARC and ORC, not the technique.	2

Rai, B.P., et al. Robotic versus open radical cystectomy for bladder cancer in adults. Cochrane Database Syst Rev, 2019. 4: Cd011903

Cochrane Library

Cochrane Database of Systematic Reviews

Robotic versus open radical cystectomy for bladder cancer in adults (Review)

Rai BP, Bondad J, Vasdev N, Adshead J, Lane T, Ahmed K, Khan MS, Dasgupta P, Guru K, Chlosta PL, Aboumarzouk OM

Study		N
Nix 2009	RARC	21
	ORC	20
Parekh 2013	RARC	20
	ORC	20
Bochner 2015 (MSKCC)	RARC	60
	ORC	58
Khan 2015 (CORAL)	RARC	20
	ORC	20
Parekh 2018 (RAZOR)	RARC	150
	ORC	152

N=541

Alle mit extracorporaler (offener) Harnableitung

Rai, B.P., et al. Robotic versus open radical cystectomy for bladder cancer in adults. Cochrane Database Syst Rev, 2019. 4: Cd011903

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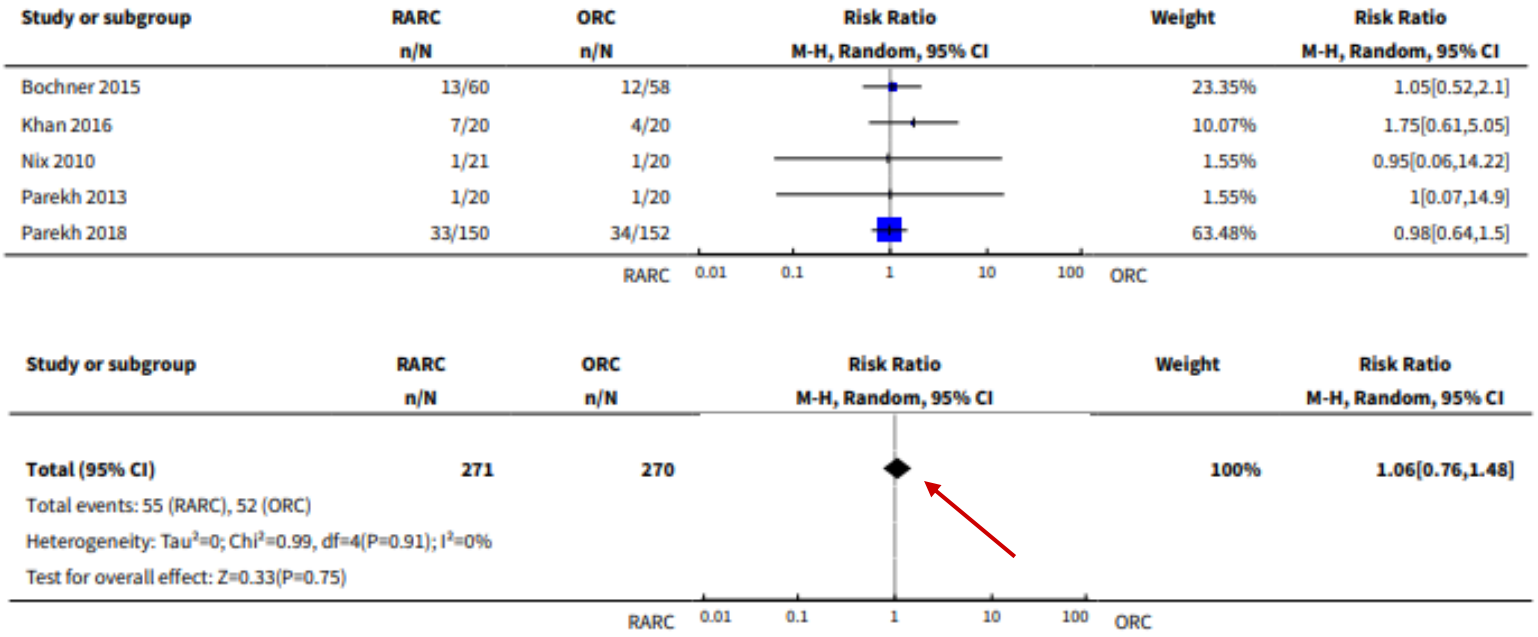
Robotic versus open radical cystectomy for bladder cancer in adults (Review)

Rai BP, Bondad J, Vasdev N, Adshead J, Lane T, Ahmed K, Khan MS, Dasgupta P, Guru K, Chlosta PL, Aboumarzouk OM

Analysis 1.2. Comparison 1 Robotic-assisted laparoscopic versus open radical cystectomy, Outcome 2 Major postoperative complication rates (Clavien 3 to 5).



EUROPEAN UROLOGY 79 (2021) 82–104

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

European Association of Urology

Platinum Priority – Review – Urothelial Cancer
Editorial by Ashish M. Kamat on pp. 105–106 of this issue

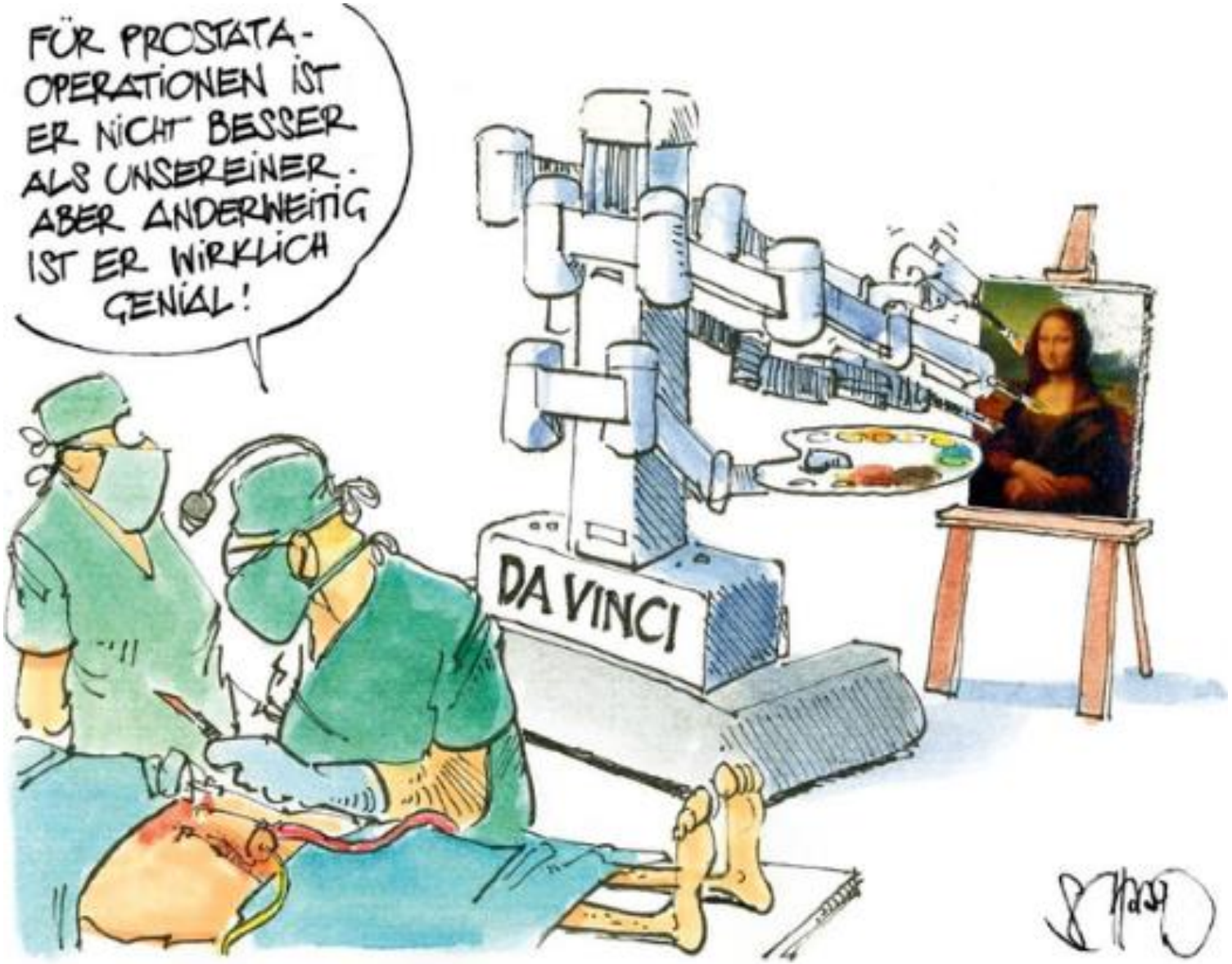
European Association of Urology Guidelines on Muscle-invasive and Metastatic Bladder Cancer: Summary of the 2020 Guidelines

J. Alfred Witjes [a,], Harman Max Bruins [b], Richard Cathomas [c], Eva M. Compérat [d], Nigel C. Cowan [e], Georgios Gakis [f], Virginia Hernández [g], Estefania Linares Espinós [h], Anja Lorch [i], Yann Neuzillet [j], Mathieu Rouanne [f], George N. Thalmann [k], Erik Veskimäe [l], Maria J. Ribal [m], Antoine G. van der Heijden [a]*

[a] Department of Urology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands; [b] Department of Urology, Zuyderland Medical Center, Sittard-Geleen-Heerlen, The Netherlands; [c] Department of Medical Oncology, Kantonsspital Graubünden, Chur, Switzerland; [d] Department of Pathology, Sorbonne University, Assistance Publique-Hôpitaux de Paris, Hopital Tenon, Paris, France; [e] Department of Radiology, The Queen Alexandra Hospital, Portsmouth, UK; [f] Department of Urology and Pediatric Urology, University of Würzburg, Würzburg, Germany; [g] Department of Urology, Hospital Universitario Fundación Alcorcón, Madrid, Spain; [h] Department of Urology, Hospital Universitario La Paz, Madrid, Spain; [i] Department of Medical Oncology and Hematology, University Hospital Zürich, Zürich, Switzerland; [j] Department of Urology, Foch Hospital, University of Versailles Saint Quentin en Yvelines, Suresnes, France; [k] Department of Urology, Inselspital, University Hospital Bern, Switzerland; [l] Department of Urology, Tampere University Hospital, Tampere, Finland; [m] Department of Urology, Hospital Clinic, University of Barcelona, Barcelona, Spain

Table 13 – Summary of evidence and recommendations for radical cystectomy and urinary diversion.

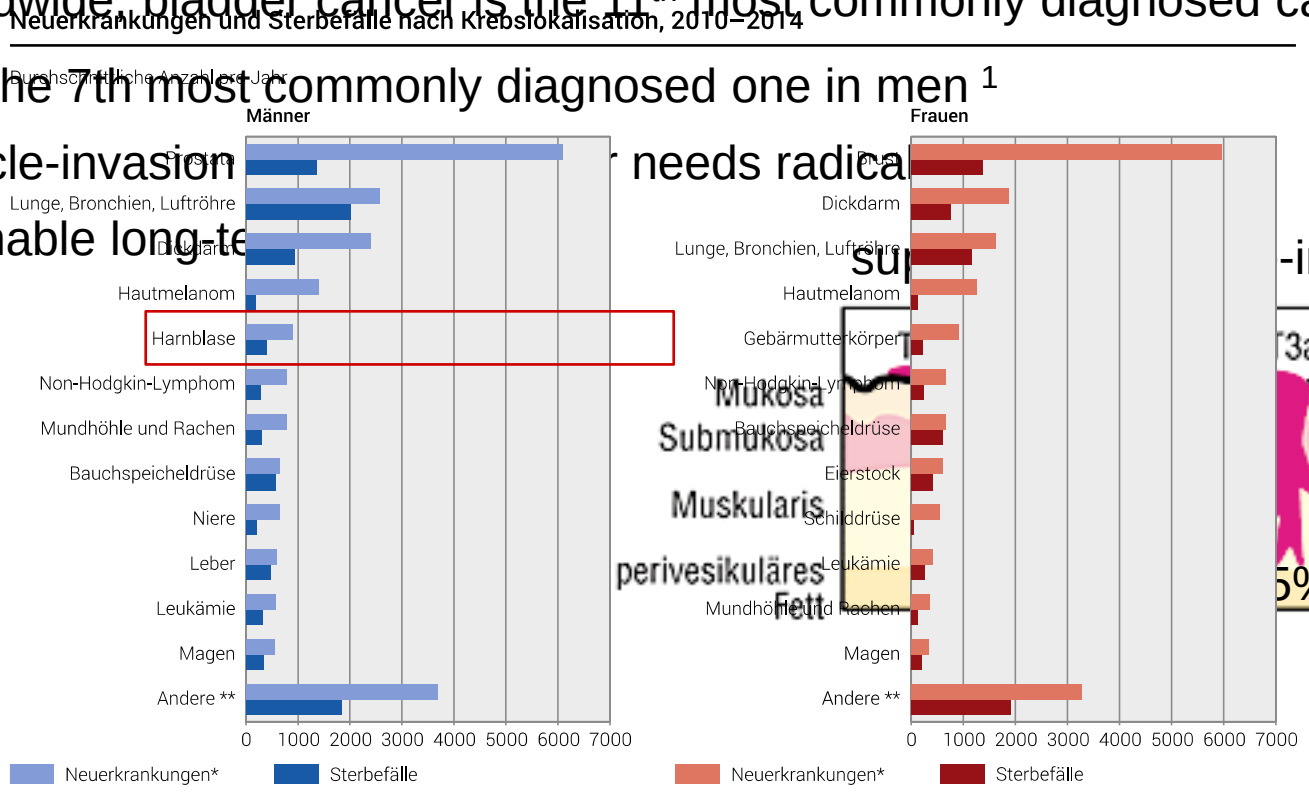
Summary of evidence	LE
For MIBC, RC is the curative treatment of choice.	3
Higher hospital volume likely improves quality of care and reduction in perioperative mortality and morbidity.	3
Radical cystectomy includes removal of regional lymph nodes.	3
There are data to support that extended LND (vs standard or limited LND) improves survival after RC.	3
Radical cystectomy in both sexes must not include removal of the entire urethra in all cases, which may then serve as the outlet for an orthotopic bladder substitution. The terminal ileum and colon are the intestinal segments of choice for urinary diversion.	3
The type of urinary diversion does not affect oncological outcome.	3
Laparoscopic cystectomy and robotic-assisted laparoscopic cystectomy are feasible but still investigational. Current best practice is open RC.	3
The use of extended prophylaxis significantly decreases the incidence of venous thromboembolism after RC.	3
In patients aged >80 yr with MIBC, cystectomy is an option.	3
Surgical outcome is influenced by comorbidity, age, previous treatment for bladder cancer or other pelvic diseases, surgeon and hospital volumes of cystectomy, and type of urinary diversion.	2
Surgical complications of cystectomy and urinary diversion should be reported using a uniform grading system. Currently, the best-adapted grading system for cystectomy is the Clavien grading system.	2
No conclusive evidence exists as to the optimal extent of LND.	2a

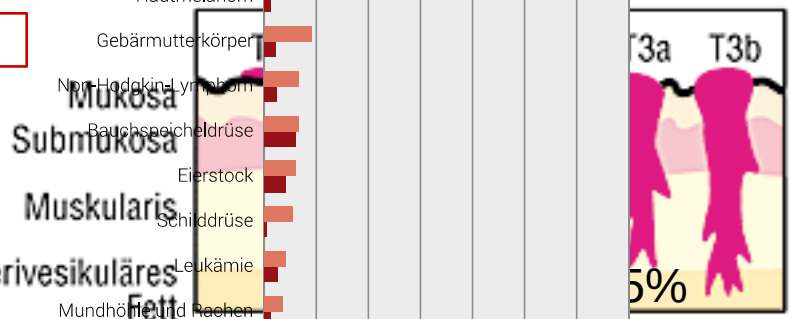

FÜR PROSTATA-OPERATIONEN IST ER NICHT BESSER ALS UNSEREINER. ABER ANDERWEITIG IST ER WIRKLICH GENIAL!
DA VINCI

Epidemiology

- Incidence and mortality Switzerland

- Worldwide, bladder cancer is the 11th most commonly diagnosed cancer and the 7th most commonly diagnosed one in men [1]
- Muscle-invasion [illegible] needs radical [illegible] to enable long-te[illegible] sup[illegible]-invasive





[1] J. Ferlay, Eur J Cancer,2013.49:1374.

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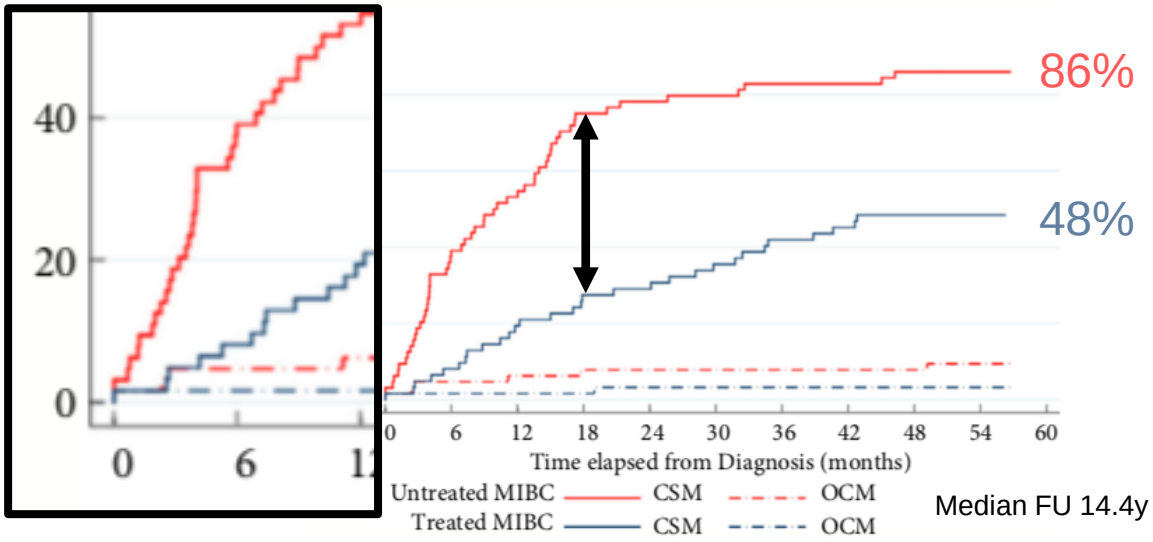
Risk and benefits of RARC in elderly patients

Comparative Study > BJU Int. 2020 Feb;125(2):270-275. doi: 10.1111/bju.14872.
Epub 2019 Aug 7.

The natural history of untreated muscle-invasive bladder cancer

Alberto Martini [1], John P Sfakianos [1], Lotta Renström-Koskela [2], Ashkan Mortezavi [3], Ugo G Falagario [1], Lars Egevad [4], Abolfazal Hosseini [2], Reza Mehrazin [1], Matthew D Galsky [5], Gunnar Steineck [6], N Peter Wiklund [1 2]

Fig. 3 Cumulative incidence function curves for patients diagnosed with MIBC demonstrating CSM and OCM according to treatment administration. Pepe–Mori test for CSM: $P < 0.001$ and OCM: $P = 0.6$.



Median FU 14.4y

- Median Age in untreated arm: 79y
- 90d mortality for surgery: around 3%

A. Martini, BJU Int. 2020 Feb; 125(2):270-275

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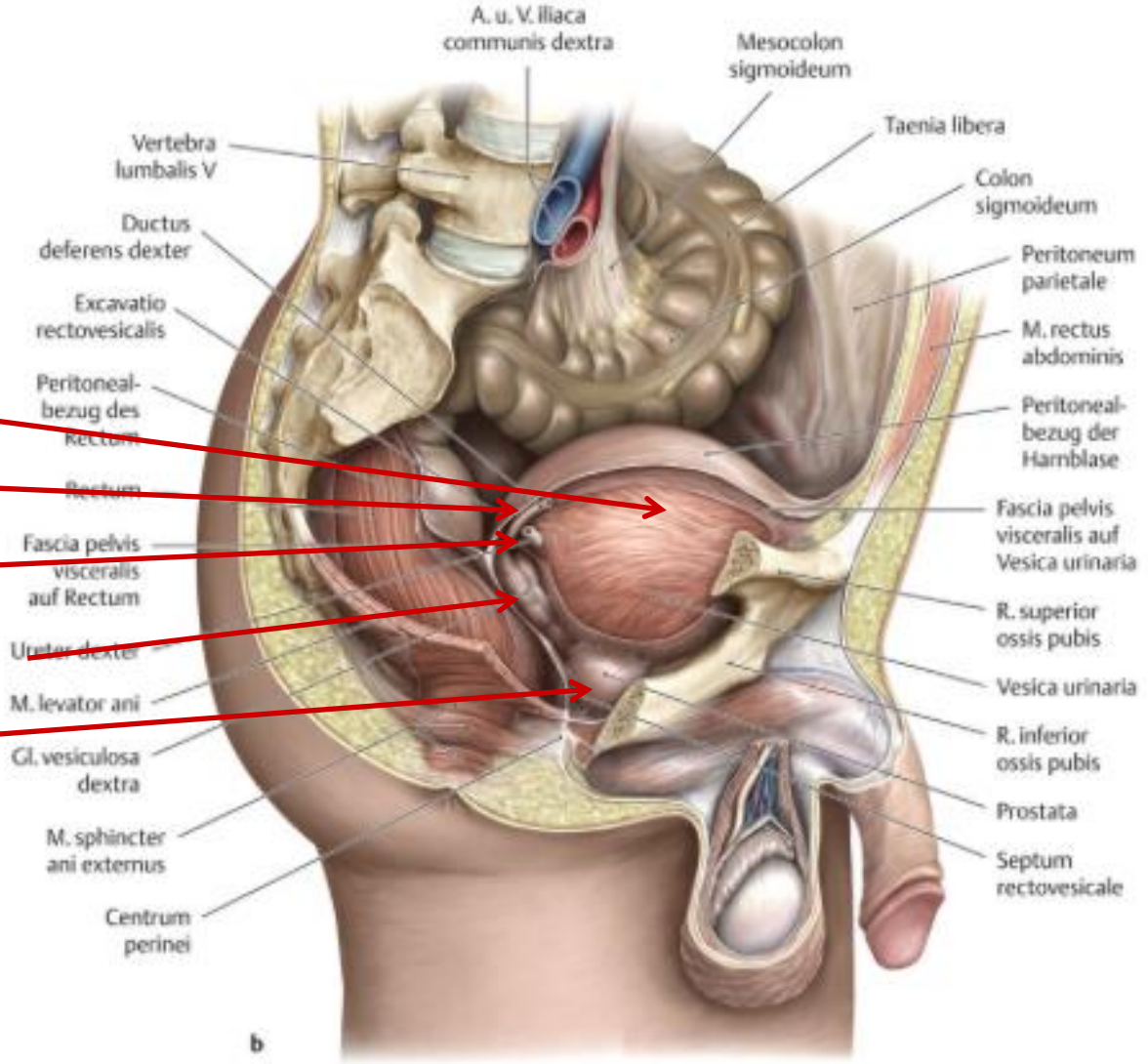
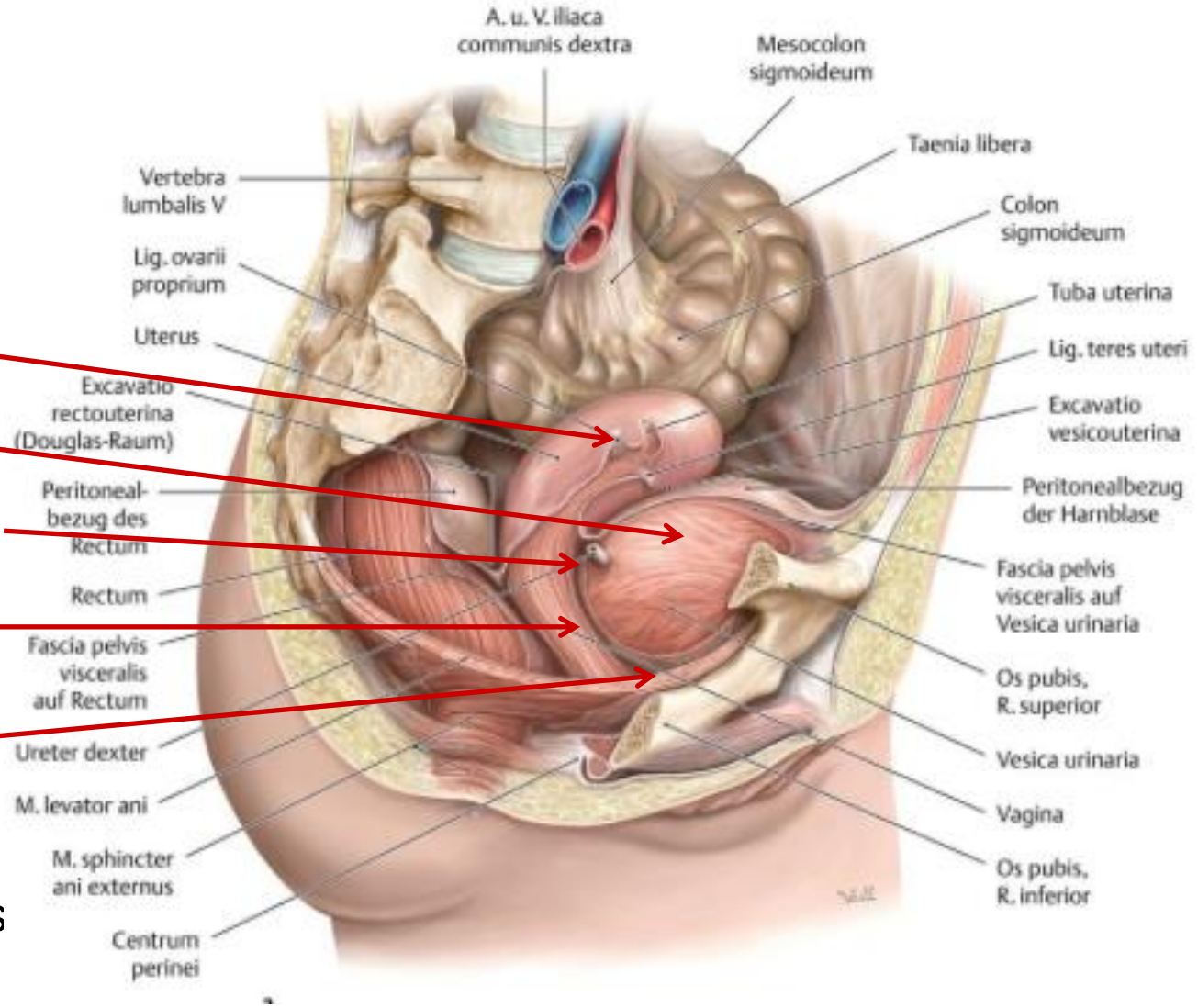
Anatomy

- Male
- Bladder
- Sperm duct
- Distl. ureters
- Seminale vesicles
- Prostate
- Regional LNs



Anatomy

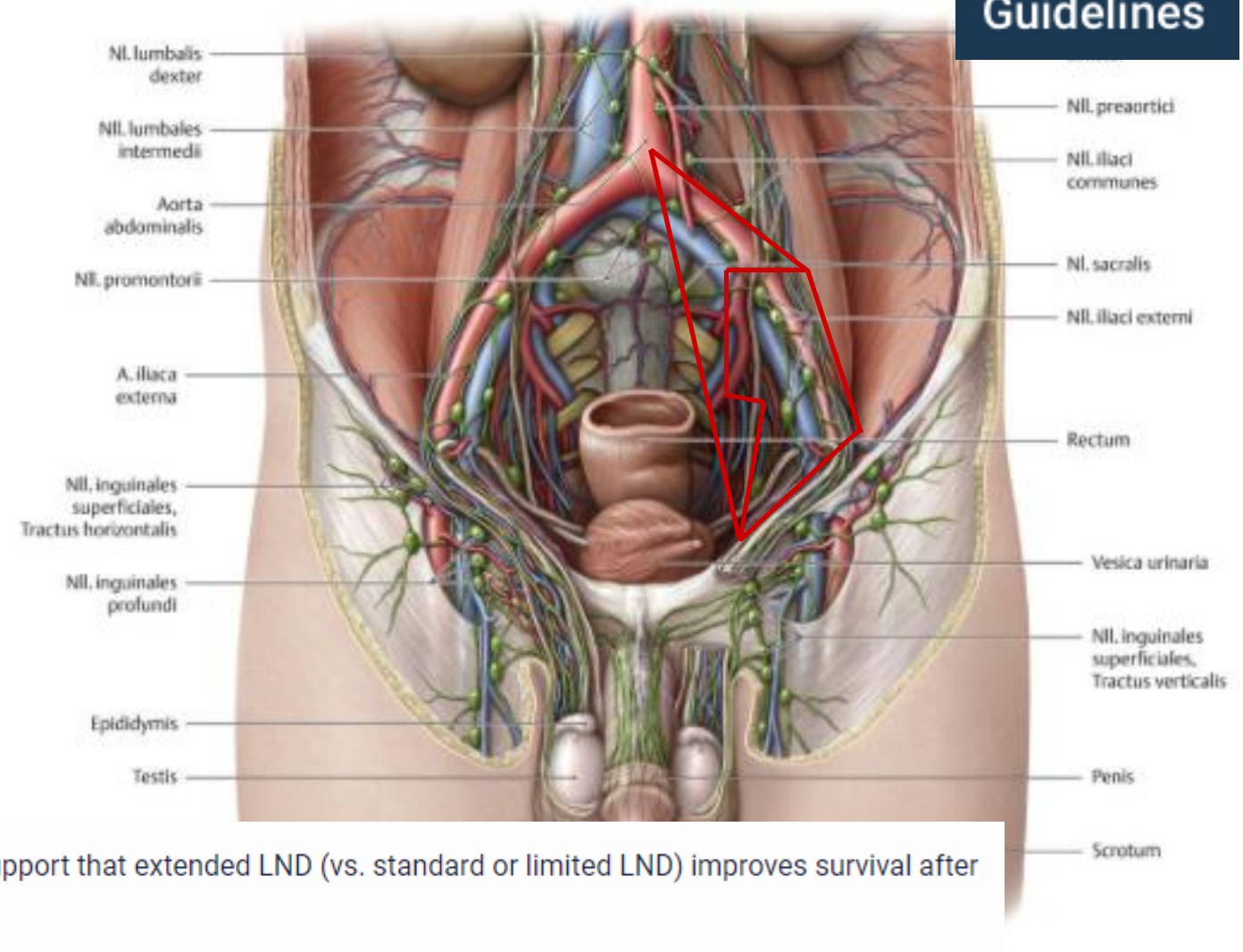
- Female
- Uterus
- Bladder
- Dist. Ureters
- Adjacent vent. vagina
- Urethra
- Regional LNs



Anatomy

Guidelines

- PLND [1]



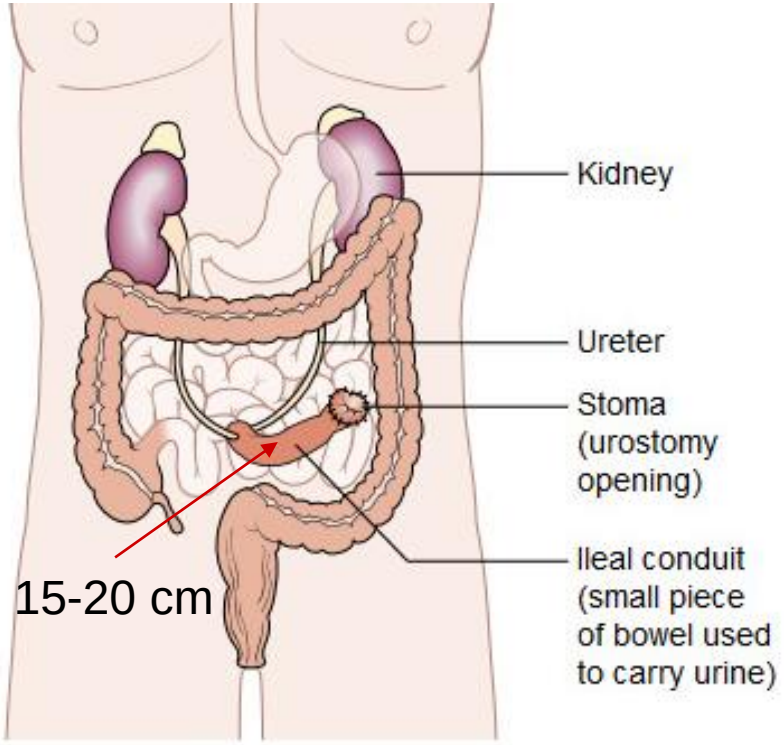
There are data to support that extended LND (vs. standard or limited LND) improves survival after RC.

[1] G. Simone, Int J Urol, 2013. 20: 390.

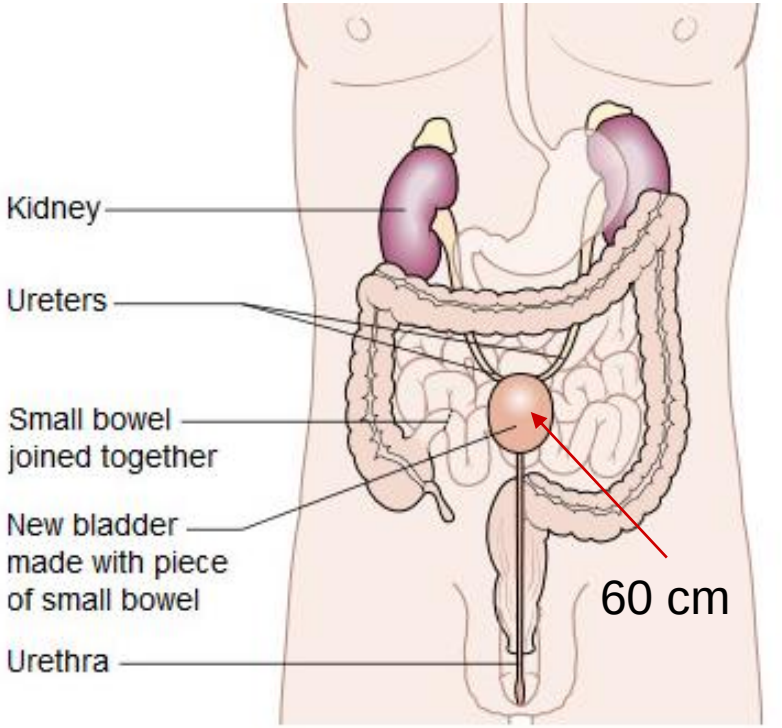
Urinary diversion

- Radical cystectomy and urinary diversion are the two steps of one operation.

Ileal conduit



Orthotopic ileal neobladder



- Most complications are diversion related.

Urinary diversion

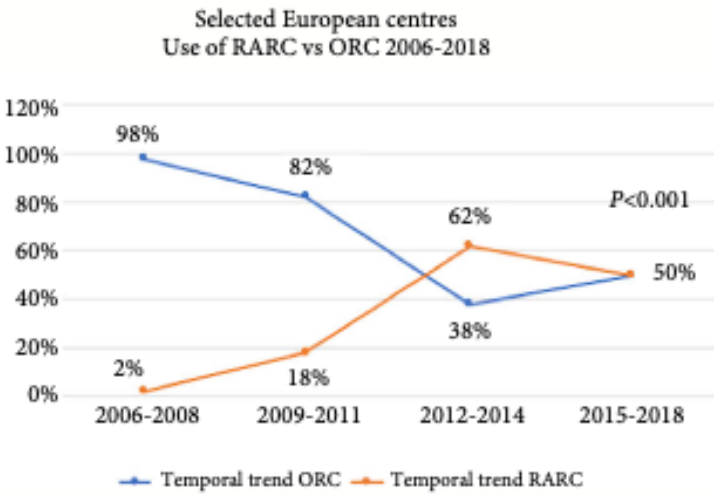
- RARC can be performed with ECUD and with ICUD.

- In expert hands ICUD seems to be a main reason for reduction of peri-operative complications in RARC

- Advantages of ICUD [1]
  - Protection of bowel
  - Reducing hyothermia and loss of fluids through dehydration
  - Less bleeding
  - No need for extensive ureteral dissection

[1] Justin W. Collins, Eur Urol 2013 Oct;64(4):654-63.

RARC - trends



BJUI
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Robotics & Laparoscopy | Full Access

Differences in trends in the use of robot-assisted and open radical cystectomy and changes over time in peri-operative outcomes among selected centres in North America and Europe: an international multicentre collaboration

Stefania Zamboni, Francesco Soria, Romain Mathieu, Evanguelos Xylinas, Mohammad Abufaraj, David D`Andrea, Wei Shen Tan, John D. Kelly, Giuseppe Simone, Michele Gallucci ... See all authors

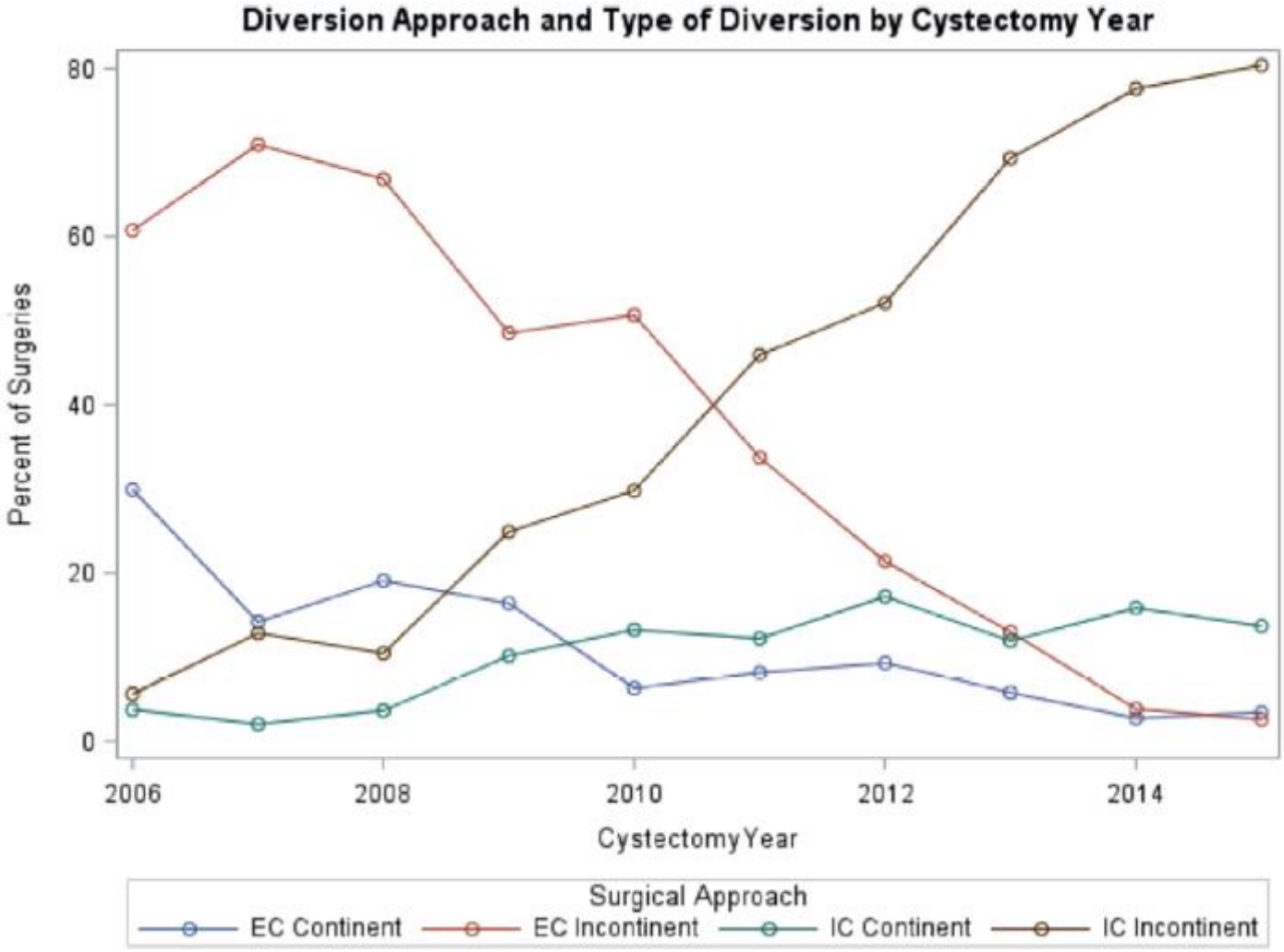
First published: 04 May 2019 | https://doi.org/10.1111/bju.14791 | Citations: 32

Cystectomy USB 2021: 15% offen, 85% DaVinci

Zamboni S., BJU Int 2019; 124: 656–664

Universitätsspital Basel

RARC – trends IRCC (intern. robotic cystectomy consortium)



A.A. Hussein, J Urol, 2018. 199: 1302.

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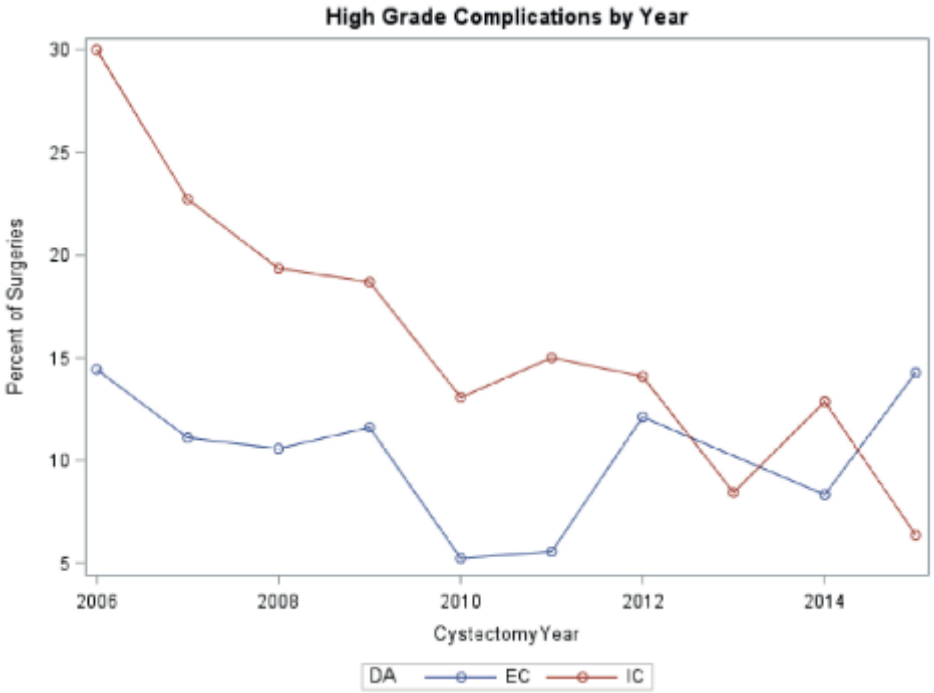
RARC – High Grade Complications



Multicenter Study > J Urol. 2018 May;199(5):1302-1311. doi: 10.1016/j.juro.2017.12.045. Epub 2017 Dec 21.

Outcomes of Intracorporeal Urinary Diversion after Robot-Assisted Radical Cystectomy: Results from the International Robotic Cystectomy Consortium

Ahmed A Hussein [1], Paul R May [1], Zhe Jing [1], Youssef E Ahmed [1], Carl J Wijburg [1], Abdulla Erdem Canda [1], Prokar Dasgupta [1], Mohammad Shamim Khan [1], Mani Menon [1], James O Peabody [1], Abolfazl Hosseini [1], John Kelly [1], Alexandre Mottrie [1], Jihad Kaouk [1], Ashok Hemal [1], Peter Wiklund [1], Khurshid A Guru [2]; Collaborators [1]

- 2017: IRCC database (29 centres, n=2432, 30 days): ICUD 13%, ECUD 10% (p=0.02)
- 2020: Cleveland (USA, n=948, 90 days): ICUD 10%, ECUD 18%, ORC 21% (p=0.002)
- 2021: BladderBase (Sweden, n=3169, 90 days): ICUD 17% vs. ORC 24% (p<0.001)
- 2021: RACE (Netherlands, n=348, 365 days): ICUD 23% vs. ORC 20% (p=0.05)

A.A. Hussein, J Urol, 2018. 199: 1302.

RARC – Transfusion Rate

- 2017: IRCC database (29 centers, n=2432): ICUD 5%, ECUD 13% (p<0.001)
- 2020: Cleveland (USA, n=948): ICUD 17%, ECUD 24%, ORC 39% (p<0.001)
- 2021: BladderBase (Sweden, n=3169): ICUD 8%, ECUD 38% (p<0.001)
- 2021: RACE (Netherlands, n=348): ICUD 9%, ORC 14 % (p<0.001)

ELSEVIER

Urologic Oncology: Seminars and Original Investigations 39 (2021) 496.e1–496.e8

UROLOGIC ONCOLOGY

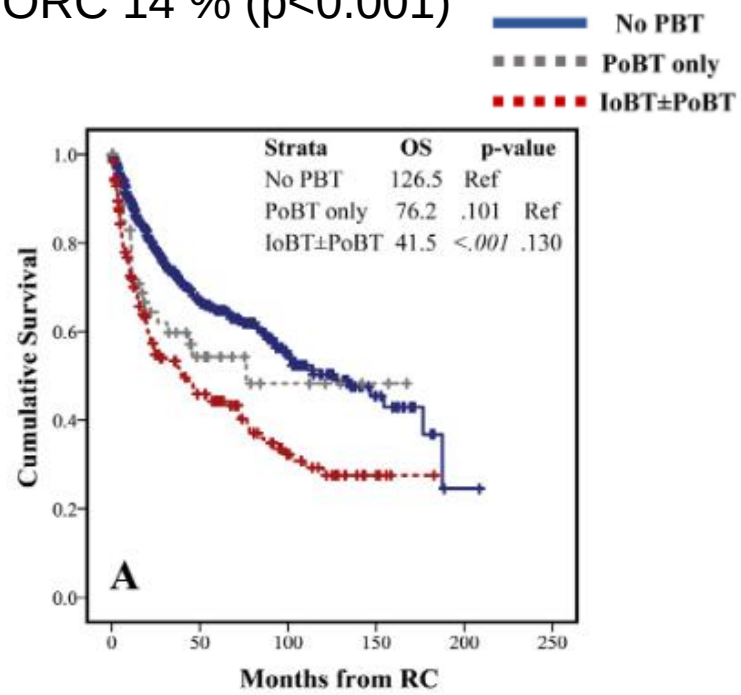
Clinical-Bladder cancer

Patterns and timing of perioperative blood transfusion and association with outcomes after radical cystectomy

Leonidas N. Diamantopoulos[a], Rishi R Sekar[b], Sarah K. Holt[b], Ali Raza Khaki[c,e], Natalie J Miller[c], Adam Gadzinski[b], Yaw A. Nyame[b], Funda Vakar-Lopez[d], Maria S. Tretiakova[d], Sarah P. Psutka[b], John L. Gore[b,e], Daniel W. Lin[b,e], George R. Schade[b,e], Andrew C. Hsieh[c,f], John K. Lee[c,f], Todd Yezefski[c], Michael T. Schweizer[c,e], Heather H. Cheng[c,e], Evan Y. Yu[c,e], Lawrence D. True[d], Robert B. Montgomery[c,e], Petros Grivas[c,e], Jonathan L. Wright[b,e,*]

[a] Department of Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA
[b] Department of Urology, University of Washington, Seattle, WA
[c] Division of Medical Oncology, Department of Medicine, University of Washington, Seattle Cancer Care Alliance, Seattle, WA
[d] Department of Laboratory Medicine and Pathology, University of Washington, Seattle, WA
[e] Clinical Research Division, Fred Hutchinson Cancer Research Center, Seattle, WA
[f] Division of Human Biology, Fred Hutchinson Cancer Research Center, Seattle, WA

Received 29 September 2020; received in revised form 18 November 2020; accepted 7 January 2021



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IROC Study

Randomized Controlled Trial > JAMA. 2022 Jun 7;327(21):2092-2103.
doi: 10.1001/jama.2022.7393.

Effect of Robot-Assisted Radical Cystectomy With Intracorporeal Urinary Diversion vs Open Radical Cystectomy on 90-Day Morbidity and Mortality Among Patients With Bladder Cancer: A Randomized Clinical Trial

James W F Catto [1 2 3], Pramit Khetrapal [3], Federico Ricciardi [4], Gareth Ambler [5], Norman R Williams [6], Tarek Al-Hammouri [3], Muhammad Shamim Khan [7], Ramesh Thurairaja [7], Rajesh Nair [7], Andrew Feber [3], Simon Dixon [8], Senthil Nathan [3], Tim Briggs [3], Ashwin Sridhar [3], Imran Ahmad [9], Jaimin Bhatt [9], Philip Charlesworth [10], Christopher Blick [10], Marcus G Cumberbatch [1 2], Syed A Hussain [1 11], Sanjeev Kotwal [12], Anthony Koupparis [13], John McGrath [14], Aidan P Noon [2], Edward Rowe [13], Nikhil Vasdev [15], Vishwanath Hanchanale [16], Daryl Hagan [5], Chris Brew-Graves [5], John D Kelly [3]; iROC Study Team

Collaborators, Affiliations + expand

PMID: 35569079 PMCID: PMC9109000 DOI: 10.1001/jama.2022.7393
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Table 2. Complications Recorded Within 12 Weeks of Surgery Stratified by Group and Reported According to Clavien-Dindo Severity Grade and Type

Complications	No. (%) Robotic cystectomy (n = 161)	Open cystectomy (n = 156)	Difference, % (95% CI)
Clavien-Dindo grade[a]	n = 151	n = 150	
No complications	59 (39.1)	50 (33.3)	5.7 (-5.1 to 16.6)
I	26 (17.2)	21 (14.0)	3.2 (-5.0 to 11.4)
II	41 (27.2)	46 (30.7)	-3.5 (-13.8 to 6.7)
III	0	1 (0.7)	
IIIa	8 (5.3)	14 (9.3)	-4.0 (-9.9 to 1.8)
IIIb	9 (6.0)	11 (7.3)	-1.4 (-7.0 to 4.3)
IV	0	0	
IVa	5 (3.3)	4 (2.7)	0.6 (-3.2 to 4.5)
IVb	0	0	
V	3 (2.0)	3 (2.0)	-0.0 (-3.2 to 3.1)
Type			
Gastrointestinal	46 (28.6)	44 (28.2)	0.37 (-9.54 to 10.25)
Infection	38 (23.6)	52 (33.3)	-9.73 (-19.47 to 0.24)
Genitourinary[b]	19 (11.8)	17 (10.9)	0.9 (-6.19 to 7.94)
Wound	9 (5.6)	27 (17.3)	-11.72 (-18.59 to -4.58)
Neurological	7 (4.3)	10 (6.4)	-2.06 (-7.23 to 3.12)
Cardiac	7 (4.3)	6 (3.8)	0.5 (-4.14 to 5.09)
Pulmonary	7 (4.3)	4 (2.6)	1.78 (-2.55 to 6.04)
Surgical	6 (3.7)	3 (1.9)	1.8 (-2.2 to 5.72)
Miscellaneous[c]	4 (2.5)	9 (5.8)	-3.28 (-7.89 to 1.37)
Thromboembolic[d]	3 (1.9)	13 (8.3)	-6.47 (-11.43 to -1.38)
Bleeding	1 (0.6)	1 (0.6)	-0.02 (-2.47 to 2.39)
Other[e]	22 (13.7)	23 (14.7)	-1.08 (-8.82 to 6.66)

16.6%

22%

Blood transfusion:

- Intraoperative

2.6% iRARC
6.5% ORC

- Postoperative

7% iRARC
12% ORC

- After discharge

0% iRARC
2% ORC

J.W.F. Catto, JAMA. 2022;327(21):2092-2103

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IROC – Primary Endpoint

Randomized Controlled Trial > JAMA. 2022 Jun 7;327(21):2092-2103.
doi: 10.1001/jama.2022.7393.

Effect of Robot-Assisted Radical Cystectomy With Intracorporeal Urinary Diversion vs Open Radical Cystectomy on 90-Day Morbidity and Mortality Among Patients With Bladder Cancer: A Randomized Clinical Trial

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Collaborators, Affiliations + expand

PMID: 35569079 PMCID: PMC9109000 DOI: 10.1001/jama.2022.7393
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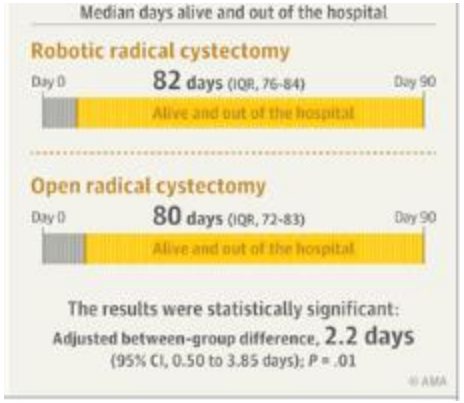
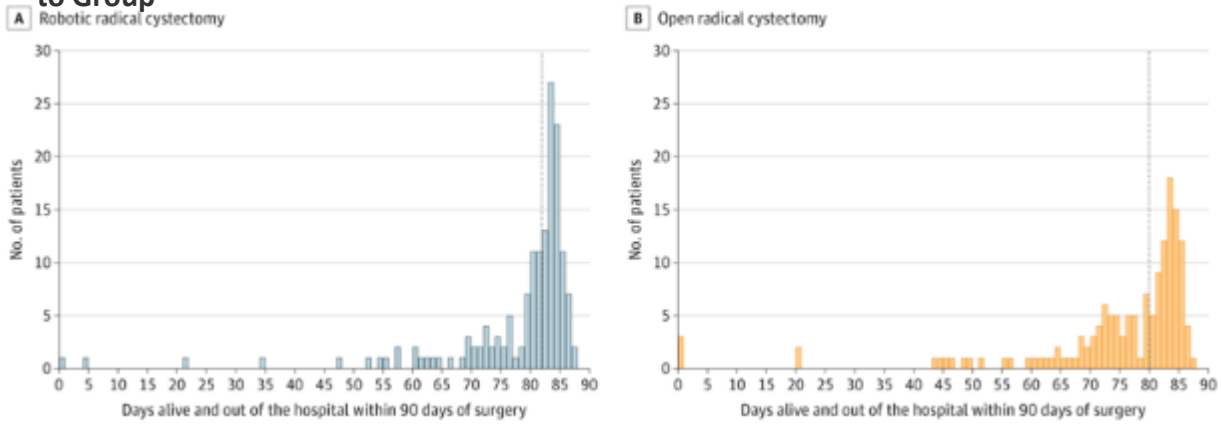


Distribution of Days Alive and Out of the Hospital Within 90 Days of Surgery According to Group



- Median length of stay 7 (IQR, 6-10) days for iRARC and 8 (IQR, 6-14) days for ORC
- Readmission 21.8% for iRARC and 32.2% for ORC (readmission time comparable)
- Death within 90 days occurred in
  - 2 participants (1.2%) in iROC group (1 cardiorespiratory failure and 1 cancer progression)
  - 4 participants (2.6%) in the ORC group (2 intra-abdominal sepsis/laparotomy/organ failure, 1 pulmonary embolus, and 1 cancer progression)

J.W.F. Catto, JAMA. 2022;327(21):2092-2103

Universitätsspital Basel

IROC – Quality of Life

Randomized Controlled Trial > JAMA. 2022 Jun 7;327(21):2092-2103.
doi: 10.1001/jama.2022.7393.

Effect of Robot-Assisted Radical Cystectomy With Intracorporeal Urinary Diversion vs Open Radical Cystectomy on 90-Day Morbidity and Mortality Among Patients With Bladder Cancer: A Randomized Clinical Trial

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Collaborators, Affiliations + expand

PMID: 35569079 PMCID: PMC9109000 DOI: 10.1001/jama.2022.7393
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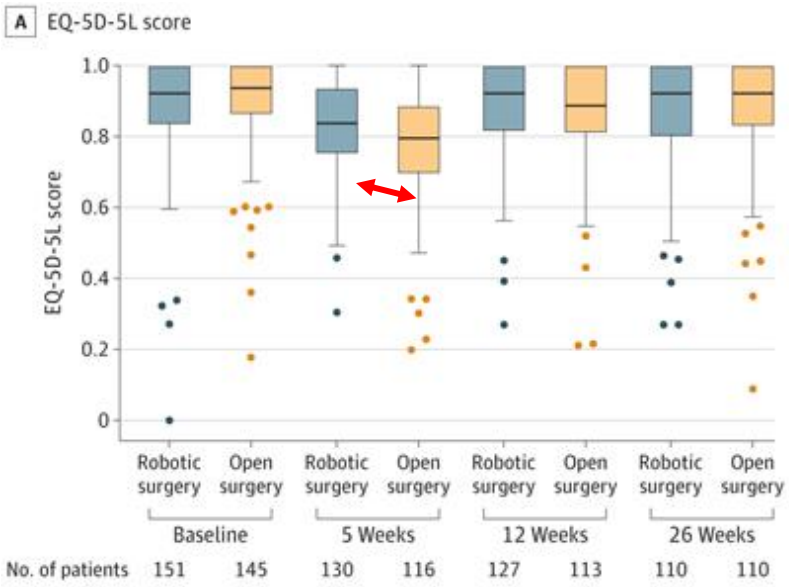
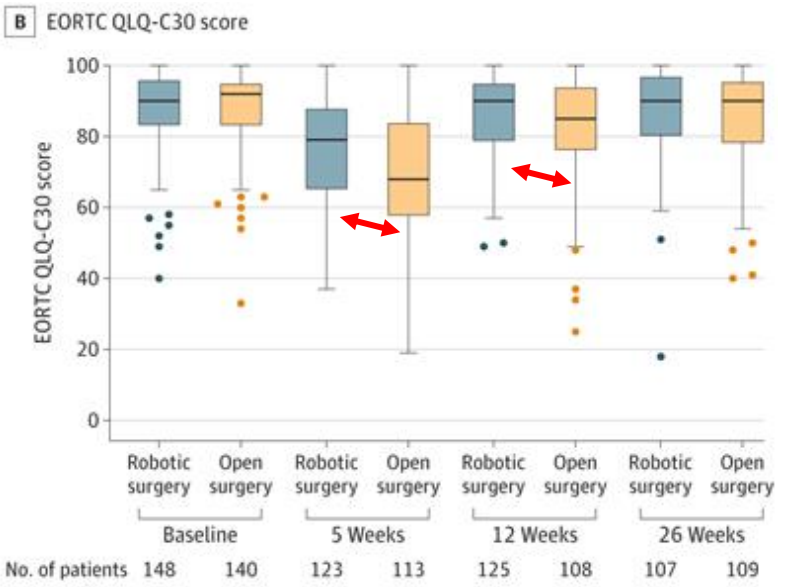
General health-related quality of life



Significantly worse in ORC at 5 weeks

Cancer-specific health-related quality of life



Significantly worse in ORC at 5 and 12 weeks

J.W.F. Catto, JAMA. 2022;327(21):2092-2103

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IROC – Stength and Physical Activity

Randomized Controlled Trial > JAMA. 2022 Jun 7;327(21):2092-2103.
doi: 10.1001/jama.2022.7393.

Effect of Robot-Assisted Radical Cystectomy With Intracorporeal Urinary Diversion vs Open Radical Cystectomy on 90-Day Morbidity and Mortality Among Patients With Bladder Cancer: A Randomized Clinical Trial

James W F Catto [1, 2, 3], Pramit Khetrapal [3], Federico Ricciardi [4], Gareth Ambler [5], Norman R Williams [6], Tarek Al-Hammouri [3], Muhammad Shamim Khan [7], Ramesh Thurairaja [7], Rajesh Nair [7], Andrew Feber [3], Simon Dixon [8], Senthil Nathan [3], Tim Briggs [7], Ashwin Sridhar [3], Imran Ahmad [9], Jaimin Bhatt [9], Philip Charlesworth [10], Christopher Blick [10], Marcus G Cumberbatch [1, 2], Syed A Hussain [1, 11], Sanjeev Kotwal [12], Anthony Koupparis [10], John McGrath [14], Aidan P Noon [2], Edward Rowe [13], Nikhil Vasdev [15], Vishwanath Hanchanale [16], Daryl Hagan [3], Chris Brew-Graves [3], John D Kelly [3]; IROC Study Team

Collaborators, Affiliations + expand

PMID: 35569079 PMCID: PMC9109000 DOI: 10.1001/jama.2022.7393
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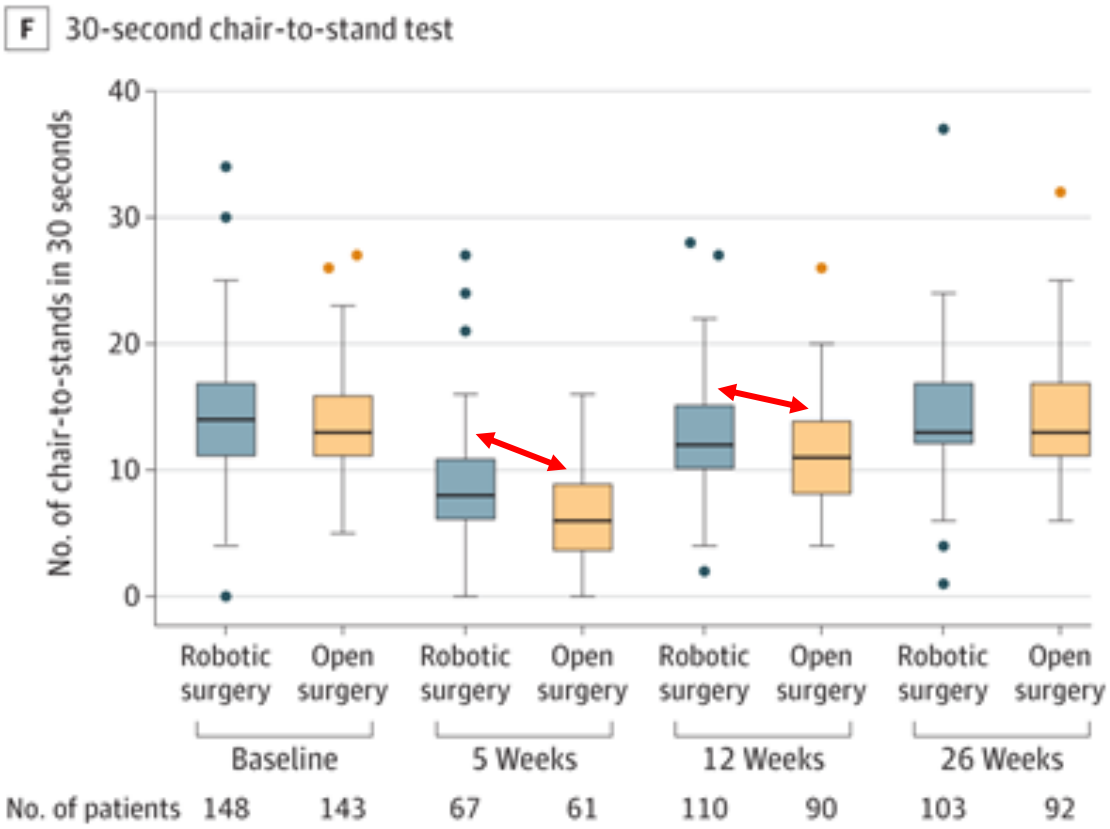

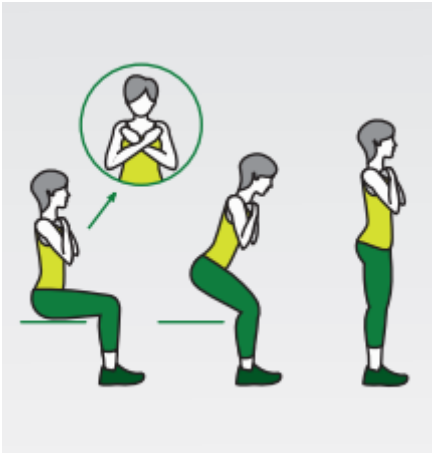

- The difference was similar to having chronic obstructive pulmonary disease or an increase in age from 60 years to 85 years

J.W.F. Catto, JAMA. 2022;327(21):2092-2103

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BladderBase (Sweden)

JAMA Netw Open. 2022 Apr 1;5(4):e228959. doi: 10.1001/jamanetworkopen.2022.8959.

Association of Open vs Robot-Assisted Radical Cystectomy With Mortality and Perioperative Outcomes Among Patients With Bladder Cancer in Sweden

Ashkan Mortezavi[1 2 3], Alessio Crippa[2], Maria Ioanna Kotopouli[4], Olof Akre[3 5], Peter Wiklund[3 5 6], Abolfazl Hosseini[3 5]

Affiliations + expand

PMID: 35482309 PMCID: PMC9051984 DOI: 10.1001/jamanetworkopen.2022.8959

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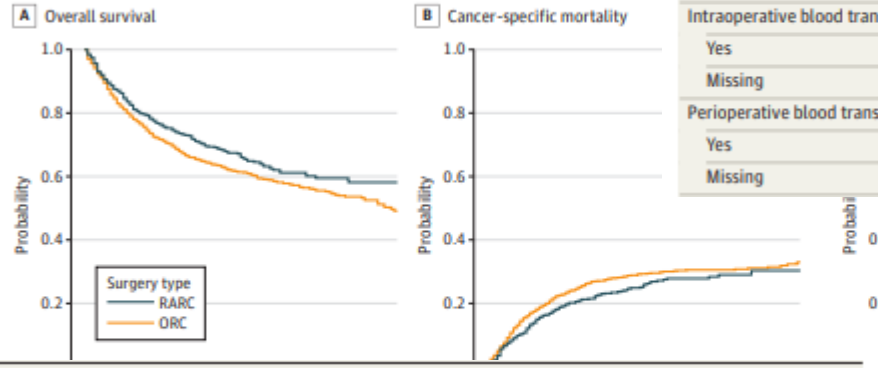
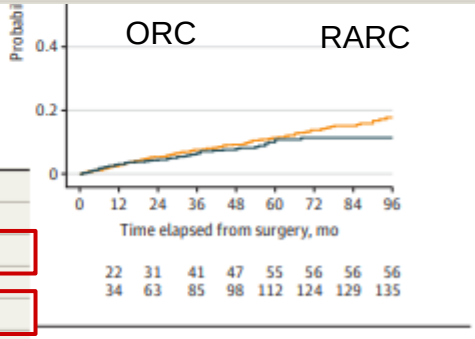
Figure 2. Sensitivity Survival Analysis including High-Volume Hospitals Only





Estimated blood loss					
Median (IQR), mL	700 (400 to 1300)	150 (100 to 300)	NA	NA	<.001
Missing	19 (1.2)	22 (2.5)	NA	NA	NA
Intraoperative blood transfusion					
Yes	572 (38.7)	63 (7.7)	NA	NA	<.001
Missing	75 (4.8)	59 (6.8)	NA	NA	NA
Perioperative blood transfusion[b]					
Yes	429 (50.8)	143 (20.7)	NA	NA	<.001
Missing	137 (14.0)	12 (1.7)	NA	NA	NA

Subclassification of complications in patients with ≥1 high-grade complication (Clavien-Dindo III-V)			
Gastrointestinal	113 (7.3)	51 (5.8)	.18
Cardiovascular and respiratory	63 (4.1)	14 (1.6)	.001
Infectious	179 (11.6)	87 (10.0)	.22
Abdominal wall or stoma	118 (7.6)	26 (3.0)	<.001
Genitourinary	97 (6.3)	57 (6.5)	.80
Bleeding	18 (1.2)	13 (1.5)	.57
Lymphocele	29 (1.9)	7 (0.8)	.04
Other	72 (4.6)	33 (3.8)	.35

ORC RARC

s open radical cystectomy; RARC, robot-assisted radical

Operation time					
Median (IQR), min	323 (250 to 407)	320 (260 to 380)	NA	NA	.45

ORC RARC

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RARC with ICUD

- Menon et al. first described RARC with ECUD in 2003 [1]
- The Karolinska Institute is a pioneer center in RARC with ICUD

Surgery in Motion

Robot-assisted Radical Cystectomy: Description of an Evolved Approach to Radical Cystectomy [2]

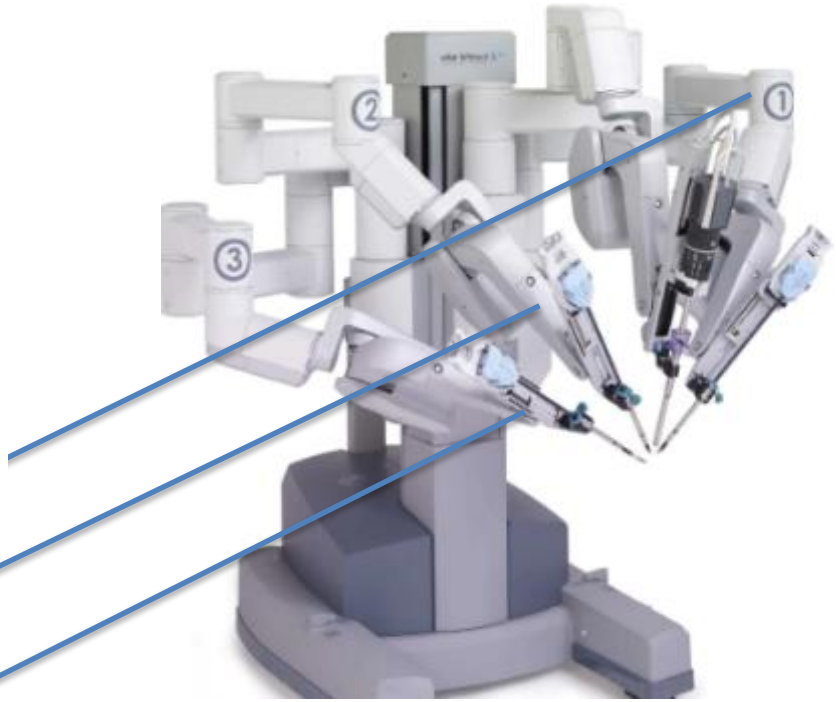
Justin W. Collins [1,], Stavros Tyritzis [1], Tommy Nyberg, Martin Schumacher, Oscar Laurin, Dinyar Khazaeli, Christofer Adding, Martin N. Jonsson, Abolfazl Hosseini, N. Peter Wiklund [*]*

Karolinska University Hospital, Stockholm, Sweden

[1] M. Menon, 2003, BJU Int. 92: 232. [2] Justin W. Collins, Eur Urol 2013 Oct;64(4):654-63.

Karolinska technique [1]

- Patient position and port placement



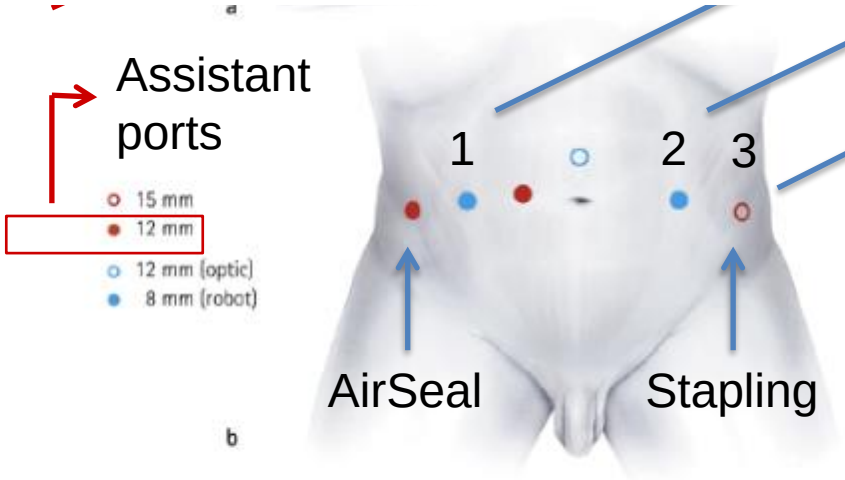


Fig. 1 – (a) Patient position; (b) port placement.

[1] Justin W. Collins, Eur Urol 2013 Oct;64(4):654-63.

Patient selection [1]

- Crucial to optimising outcomes
- (Relative) contraindications for RARC
  - Decreased pulmonary compliance
  - History of previous extensive abdominal surgery
  - BMI > 30
  - Bulky disease
  - ~~Patient age > 80 years~~

[1] Justin W. Collins, Eur Urol 2013 Oct;64(4):654-63.

Patient Age

› BJU Int. 2021 May;127(5):585-595. doi: 10.1111/bju.15274. Epub 2020 Nov 5.

Morbidity and mortality after robot-assis cystectomy with intracorporeal urinary d octogenarians: results from the Europear Association of Urology Robotic Urology S Scientific Working Group

Ashkan Mortezavi [1 2 3], Alessio Crippa [3], Sebastian Edeling [4], Sasa Pokupic [4], Paolo Dell'Oglio [5 6 7], Francesco Montorsi [5], Frederiek D'Hondt [6], Alexandre Karel Decaestecker [8], Carl J Wijburg [9], Justin Collins [10], John D Kelly [10], Wei S Ashwin Sridhar [10], Hubert John [11], Abdullah Erdem Canda [12], Christian Schwe Erik Peder Rönmark [1], Peter Wiklund [1 14], Abolfazl Hosseini [1]

Affiliations + expand

PMID: 33058469 PMCID: PMC8246851 DOI: 10.1111/bju.15274

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	Complications Clavien–Dindo ≥ III			
	OR	95% CI		P
		Lower	Upper	
Age at surgery				
≥80 vs <80 years	0.6	0.3	1.1	0.1
Sex				
Female vs male	0.8	0.5	1.2	0.3
BMI				
≥26 vs <26 kg/m^2	0.7	0.5	0.98	**0.036**
NAC				
Yes vs no	1.1	0.8	1.5	0.6
ASA score				
III, IV vs I, II	1.1	0.8	1.5	0.5
Operating time				
Continuous, per 20 min	1.05	1.01	1.1	**0.034**
EBL				
Continuous, per 200 mL	1.1	0.98	1.3	0.1
PLND				
Performed vs not performed	1.4	0.5	3.7	0.5
Type of diversion				
Neobladder vs conduit	0.8	0.5	1.1	0.2

Comparative Study › Urol Oncol. 2019 Jun;37(6):354.e1-354.e8.

doi: 10.1016/j.urolonc.2019.01.028. Epub 2019 Feb 13.

Robotic vs. open cystectomy: How length-of-stay differences relate conditionally to age

Kassem Faraj [1], Yu-Hui H Chang [2], Matthew R Neville [2], Gail Blodgett [3], David A Etzioni [4], Elizabeth B Habermann [5], Paul E Andrews [1], Erik P Castle [1], Mitchell R Humphreys [1], Mark D Tyson [6]

Affiliations + expand

PMID: 30770298 DOI: 10.1016/j.urolonc.2019.01.028

- 2.5 days in RARC

A. Mortezavi, BJU Int. 201 May; 127(5)::585-595 K. Faraj, Urol Oncol. 2019 June; 37(6):354.e1-354.e8

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Table 3 – Consensus view on structured enhanced recovery programme for robot-assisted radical cystectomy patients (preoperative, perioperative, and postoperative care)

Consensus view on an ERP for patients undergoing RARC	
Outpatient assessment	**Day 2–4**
Preoperative counselling and education. Verbal and written information supplied on operation and urinary diversion	1. Prevention of postoperative nausea and vomiting: regular antiemetics may be of benefit (metoclopramide)
fluid restriction [59]	
8. Prevention of hypothermia (Bair Hugger; 3M Medical, Diegem, Belgium)	2. Removal of clips at day 10
9. Removal of nasogastric tube in recovery	3. Contact with specialist nurse via telephone
	4. Audit cycle of compliance and outcomes

ERP = enhanced recovery program; RARC = robot-assisted radical cystectomy.

CLINICAL NUTRITION

FULL LENGTH ARTICLE | VOLUME 32, ISSUE 6, P879-887, DECEMBER 01, 2013

Guidelines for perioperative care after radical cystectomy for bladder cancer: Enhanced Recovery After Surgery (ERAS®) society recommendations

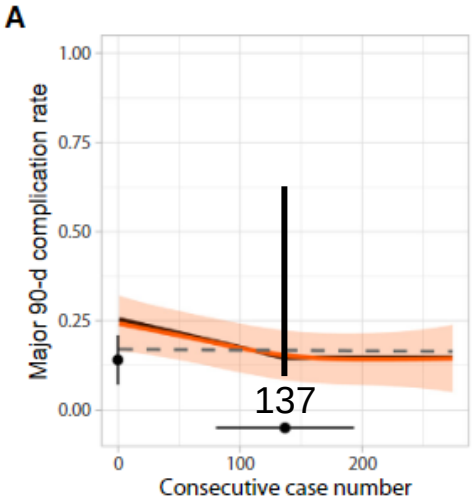
Yannick Cerantola • Massimo Valerio • Beata Persson • ... Erling Aarsether • Peter Wiklund • Hitendra R.H. Patel • Show all authors

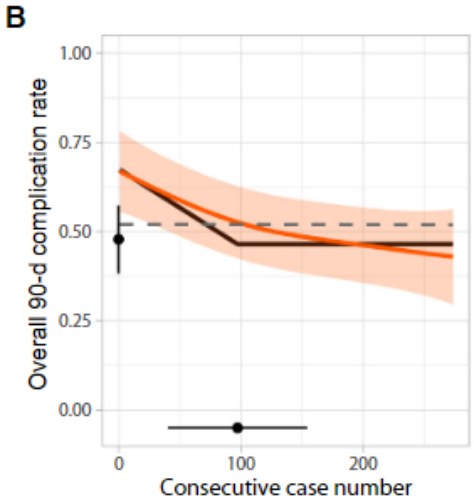
Published: October 18, 2013 • DOI: https://doi.org/10.1016/j.clnu.2013.09.014 •

RARC with ICUD – surgical steps

- In April 2017 conversion from ORC to RARC with ICUD at USB
- Adoption of Karolinska surgical technique of RARC with ICUD
- Preparation period
  - Teaching of robotic team and medical staff
  - Teaching of stoma nurses and ward nurses
  - Incorporation of an ERAS protocol according to EAU ERUS Scientific Working Group consensus view

Learning Curve





EUROPEAN UROLOGY OPEN SCIENCE 39 (2022) 55–61

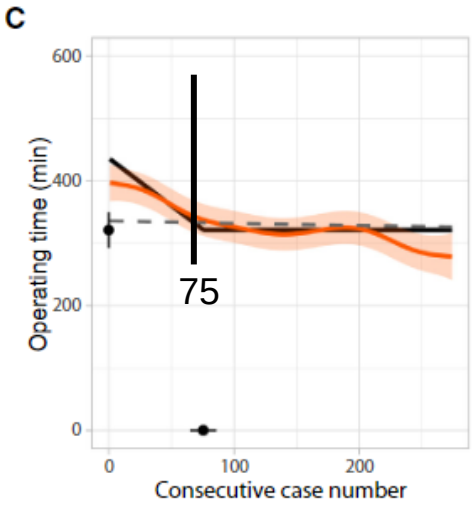
available at www.sciencedirect.com
journal homepage: www.eu-openscience.europeanurology.com

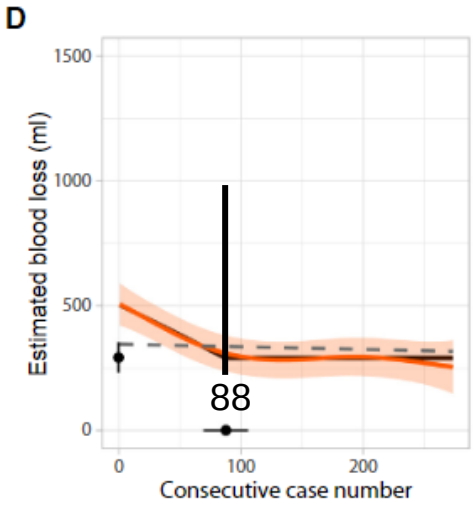
European Association of Urology

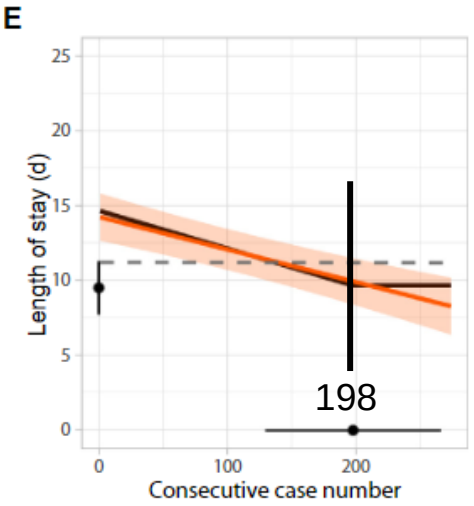
Bladder Cancer

Learning Curve Analysis for Intracorporeal Robot-assisted Radical Cystectomy: Results from the EAU Robotic Urology Section Scientific Working Group

Carl J. Wijburg[a,], Gerjon Hannink[b], Charlotte T.J. Michels[c], Philip C. Weijerman[a], Rami Issa[d], Andrea Tay[d], Karel Decaestecker[e], Peter Wiklund[f], Abolfazl Hosseini[g], Ashwin Sridhar[h], John Kelly[h], Frederiek d'Hondt[i], Alexandre Mottrie[i], Sjoerd Klaver[j], Sebastian Edeling[k], Paolo Dell'Oglio[l], Francesco Montorsi[m], Maroeska M. Rovers[b,c], J. Alfred Witjes[n]*







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Conclusion for RARC

- RARC with ICUD shoes lower rates of major complications compared to ORC or ECUD (including cardiovascular events) when perfomed in expert hands
- This might lead to better OS
- Switching from ORC to RARC with ICUD is a demanding process with a reasonable learning curve
- Safe and time efficient when performed with an experienced robotic team
- Implementation of ERAS protocol is recommended