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Version: Supplemental Material

Article:

Catto, JWF orcid.org/0000-0003-2787-8828, Khetrapal, P, Ricciardi, F et al. (68 more authors) (2022) 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. *JAMA*, 327 (21). pp. 2092-2103. ISSN 0098-7484

<https://doi.org/10.1001/jama.2022.7393>

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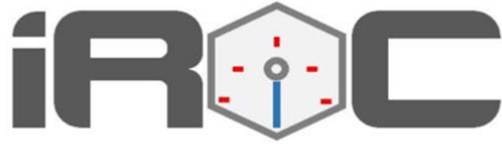
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5 **radical cystectomy on 90-day morbidity and mortality: a randomized clinical trial**
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Supplementary Table 1: Reporting of secondary outcomes collected in this study.

Primary	
REPORTED	To compare the number of days alive and out of hospital within 90 days of surgery in patients undergoing iRARC and ORC.
Secondary	
Recovery	
REPORTED	1. Overall functional recovery: Self-administered WHODAS-2 (12 point) questionnaire at baseline (pre-operative), 5 weeks, 12 weeks, 26 weeks, 52 weeks and 78 weeks after surgery.
REPORTED	2. Cystectomy specific impact upon HRQOL: EORTC QLQ-BLM30 questionnaire at baseline (pre-operative), 5 weeks, 12 weeks, 26 weeks 52 weeks and 78 weeks after surgery.
REPORTED	3. Quantified activity levels: Total steps taken over 7 consecutive days (measured using a wearable tracking device e.g. Fitbit test) at baseline (pre-operative), 5 days post-op, 5 weeks, 12 weeks, 26 weeks and 52 weeks.
REPORTED	4. 30 Second Chair to Stand test: Number times the patient can stand from sitting in a 30 second interval. This will be counted in the outpatient’s clinic at baseline (pre-operative), 5 weeks, 12 weeks, 26 weeks and 52 weeks.
REPORTED	5. Qualitative and economic analysis: EQ-5D-5L at baseline, 5 weeks, 12 weeks, 26 weeks, 52 and 78 weeks.
Perioperative morbidity	
REPORTED	1. Adverse events recorded using the Clavien-Dindo classification should only be Grade III and above.
REPORTED	2. Re-admission to hospital within 90 days of surgery.
REPORTED	3. Intra and post-operative blood transfusion rates
	4. Length of days in critical care
REPORTED	5. Rate of radiological or surgical intervention.
	6. Readmission to ITU
REPORTED	7. 30 and 90-day mortality rate
	8. Conversion from iRARC to open ORC
	9. Conversion from intra-corporeal to extra-corporeal reconstruction.
Oncological outcomes	
REPORTED	1. The number of retrieved lymph nodes in the pathological specimen.
REPORTED	2. Positive margin rate in the pathological specimen.
REPORTED	3. Port site recurrence free survival
REPORTED	4. Location of recurrence/metastases
REPORTED	5. Overall and Cancer free survival at 12 and 18 months
Surgeon fatigue	
	SURG-TLX tool

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45 **Supplementary Table 2: Reasons for readmission by 5 and 12 weeks after the date of**
 46 **surgery.**

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Readmission by 5 weeks	Robotic (n=31)	Open (n=42)
22. Infectious - Urosepsis	7 (53.8%)	6 (46.2%)
12. Gastrointestinal - Constipation	0 (0%)	4 (100%)
62. Wound - Wound infection	1 (25.0%)	3 (75.0%)
21. Infectious - Systemic sepsis	1 (33.3%)	2 (66.7%)
17. Gastrointestinal - Small bowel obstruction	1 (50.0%)	1 (50.0%)
20. Infectious - Fever of unknown origin	1 (50.0%)	1 (50.0%)
23. Infectious - Urinary tract infection	1 (50.0%)	1 (50.0%)
56. Thromboembolic - DVT	0 (0%)	2 (100%)
10. Gastrointestinal - Anastomotic bowel leak	1 (100%)	0 (0%)
24. Genitourinary - Renal failure	1 (100%)	0 (0%)
27. Genitourinary - Urethral obstruction / RUT	1 (100%)	0 (0%)
28. Genitourinary - Urinary leak	1 (100%)	0 (0%)
40. Miscellaneous - Dehydration	0 (0%)	1 (100%)
57. Thromboembolic - Pulmonary embolism	1 (100%)	0 (0%)
60. Wound - Wound dehiscence deep (facial)	0 (0%)	1 (100%)
65. Other (specify)*	14 (41.2%)	20 (58.8%)

* Other for Robotic Cystectomy: Hydronephrosis, IVC filter removal, Renal impairment and obstruction, Pain, Nephrostomy problem, Neobladder leak, Pulmonary collapse, Pain, Nephrostomy removal

* Other for Open Cystectomy: Obstructed Common Bile Duct, Acute abdomen, Collection, Urosepsis and hydronephrosis, Anorexia, Pain and anorexia, TWOC, Pneumonia, Weight loss, Dehiscence, Sepsis, Lymphatic vaginal leak, Intra-abdominal infection, Hyperkalaemia & Acute kidney injury, Replacement of ureteric stent, Bladder retraining, Sepsis, DVT and Pulmonary Embolus, Renal impairment, Dehydration

Readmission by 12 weeks	Robotic (n=13)	Open (n=32)
22. Infectious - Urosepsis	2 (40.0%)	3 (60.0%)
23. Infectious - Urinary tract infection	1 (20.0%)	4 (80.0%)
17. Gastrointestinal - Small bowel obstruction	3 (75.0%)	1 (25.0%)
62. Wound - Wound infection	1 (33.3%)	2 (66.7%)
14. Gastrointestinal - Emesis	1 (50.0%)	1 (50.0%)
51. Surgical - Incisional hernia	1 (50.0%)	1 (50.0%)
12. Gastrointestinal - Constipation	0 (0%)	1 (100%)
16. Gastrointestinal - Ileus	0 (0%)	1 (100%)
19. Infectious - Abscess	0 (0%)	1 (100%)
41. Miscellaneous - Lymphocele	0 (0%)	1 (100%)
57. Thromboembolic - Pulmonary embolism	0 (0%)	1 (100%)
60. Wound - Wound dehiscence deep (fascial)	0 (0%)	1 (100%)
65. Other (specify)*	4 (22.2%)	14 (77.8%)

* Other for Robotic Cystectomy: Enterocutaneous fistula with pelvic collection, Interval urethrectomy, Renal impairment, TWOC

* Other for Open Cystectomy: Cancer Recurrence, Metabolic acidosis, Removal of nephrostomy tube, Acute pyelonephritis, Completion Urethrectomy, Pain and anorexia, DVT and Pulmonary Embolus, Pulmonary Embolus and pelvic collection, Renal impairment, DVT, Hypomagnesaemia, Renal impairment, Pulmonary embolism, Kidney stone

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54 **Supplementary Table 3: Type of complication (full description) by group**

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Randomised group		Robotic (n=161)	Open (n=156)
Surgical complications (full description), n (%)			
1.	Bleeding - Anaemia requiring transfusion	1 (0.6%)	1 (0.6%)
2.	Bleeding - Post-operative bleeding other than GI	0 (0%)	0 (0%)
3.	Bleeding - Wound hematoma	0 (0%)	0 (0%)
4.	Cardiac - Angina	0 (0%)	0 (0%)
5.	Cardiac - Arrhythmia	4 (2.5%)	2 (1.3%)
6.	Cardiac - Congestive heart failure	0 (0%)	0 (0%)
7.	Cardiac - Hypertension	3 (1.9%)	0 (0%)
8.	Cardiac - Hypotension	0 (0%)	3 (1.9%)
9.	Cardiac - Myocardial infarction	0 (0%)	1 (0.6%)
10.	Gastrointestinal - Anastomotic bowel leak	3 (1.9%)	1 (0.6%)
11.	Gastrointestinal - Clostridium difficile colitis	3 (1.9%)	1 (0.6%)
12.	Gastrointestinal - Constipation	8 (5%)	11 (7.1%)
13.	Gastrointestinal - Diarrhoea	4 (2.5%)	4 (2.6%)
14.	Gastrointestinal - Emesis	7 (4.3%)	7 (4.5%)
15.	Gastrointestinal - Gastrointestinal bleeding	0 (0%)	0 (0%)
16.	Gastrointestinal - Ileus	16 (9.9%)	17 (10.9%)
17.	Gastrointestinal - Small bowel obstruction	5 (3.1%)	3 (1.9%)
18.	Gastrointestinal - Uretero-ileal obstruction	0 (0%)	0 (0%)
19.	Infection - Abscess	0 (0%)	3 (1.9%)
20.	Infection - Fever of unknown origin	2 (1.2%)	6 (3.8%)
21.	Infection - Systemic sepsis	3 (1.9%)	7 (4.5%)
22.	Infection - Urosepsis	12 (7.5%)	13 (8.3%)
23.	Infection - Urinary tract infection	21 (13%)	23 (14.7%)
24.	Genitourinary - Renal failure	8 (5%)	11 (7.1%)
25.	Genitourinary - Haematuria	0 (0%)	1 (0.6%)
26.	Genitourinary - Stomal ischemia	0 (0%)	0 (0%)
27.	Genitourinary - Ureteral obstruction / RUT	4 (2.5%)	1 (0.6%)
28.	Genitourinary - Urinary leak	7 (4.3%)	4 (2.6%)
29.	Genitourinary - Urinary fistula	0 (0%)	0 (0%)
30.	Genitourinary - Urinary retention	0 (0%)	0 (0%)
31.	Neurological - CVA	0 (0%)	0 (0%)
32.	Neurological - Delirium/agitation	5 (3.1%)	6 (3.8%)
33.	Neurological - Loss of consciousness	0 (0%)	0 (0%)
34.	Neurological - Peripheral neuropathy	1 (0.6%)	3 (1.9%)
35.	Neurological - Seizure	0 (0%)	0 (0%)
36.	Neurological - TIA	0 (0%)	0 (0%)
37.	Neurological - Vertigo	0 (0%)	1 (0.6%)
38.	Miscellaneous - Acidosis	0 (0%)	1 (0.6%)
39.	Miscellaneous - Decubitus ulcer	0 (0%)	0 (0%)
40.	Miscellaneous - Dehydration	0 (0%)	2 (1.3%)
41.	Miscellaneous - Lymphocele	3 (1.9%)	5 (3.2%)
42.	Miscellaneous - Peripheral arterial ischaemia	0 (0%)	0 (0%)
43.	Miscellaneous - Psychological illness	1 (0.6%)	1 (0.6%)
44.	Miscellaneous - Thrombocytopenia	0 (0%)	0 (0%)
45.	Pulmonary - Atelectasis	0 (0%)	0 (0%)
46.	Pulmonary - Pleural effusion	0 (0%)	0 (0%)

Randomised group	Robotic (n=161)	Open (n=156)
47. Pulmonary - Pneumonia	7 (4.3%)	4 (2.6%)
48. Pulmonary - Pneumothorax	0 (0%)	0 (0%)
49. Pulmonary - Respiratory distress	0 (0%)	0 (0%)
50. Surgical - Bowel injury	0 (0%)	0 (0%)
51. Surgical - Incisional hernia	5 (3.1%)	3 (1.9%)
52. Surgical - Port-site hernia	1 (0.6%)	0 (0%)
53. Surgical - Retained foreign body	0 (0%)	0 (0%)
54. Surgical - Vascular injury	0 (0%)	0 (0%)
55. Surgical - Visceral injury	0 (0%)	0 (0%)
56. Thromboembolic - DVT	0 (0%)	1 (0.6%)
57. Thromboembolic - Pulmonary embolism	3 (1.9%)	11 (7.1%)
58. Thromboembolic - Superficial phlebitis	0 (0%)	1 (0.6%)
59. Wound - Hernia	0 (0%)	1 (0.6%)
60. Wound - Wound dehiscence deep (facial)	1 (0.6%)	4 (2.6%)
61. Wound - Wound dehiscence superficial	2 (1.2%)	4 (2.6%)
62. Wound - Wound infection	6 (3.7%)	13 (8.3%)
63. Wound - Wound sepsis	0 (0%)	3 (1.9%)
64. Wound - Wound seroma	0 (0%)	0 (0%)
65. Other (specify)*	20 (12.4%)	22 (14.1%)

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* Other includes abdominal pain, scrotal swelling, oral thrush, apnoea secondary to opiates, dusky ileal stoma, swollen leg, retracted stent in neobladder, rash, vaginal prolapse, neck pain, diuresis, flare of ulcerative colitis, completion urethrectomy, high output ileostomy, flushing, loss of taste and reduced appetite, gout, scrotal soreness, acute passage of kidney stone, fractured neck of femur.

69 **Supplementary Table 4: Summary statistics for the EQ-5D-5L by group.** Descriptive
70 statistics for the EQ-5D-5L Scores are given as mean (SD) by group, at baseline and at 5, 12
71 and 26 weeks time point. Additionally, the frequency of missing data is also given. EQ-5D-5L
72 Scores at 5, 12 and 26 weeks were compared between trial groups using a mixed model,
73 with fixed effects for group, time (and their interaction), baseline EQ-5D-5L score value, and
74 type of diversion, and random effects for site and patient.
75

Randomised group	Robotic (n=161)	Open (n=156)	N	Coeff. Estimate ORC	95% Confidence Interval	p-value
EQ-5D-5L - Baseline	0.89 (0.2)	0.90 (0.1)				
<i>Missing</i>	10	11				
EQ-5D-5L - Week 5	0.83 (0.1)	0.77 (0.2)	231	-0.07	(-0.11; -0.03)	0.003
<i>Missing</i>	31	40				
EQ-5D-5L - Week 12	0.88 (0.1)	0.86 (0.2)	226	-0.03	(-0.07; 0.01)	0.1
<i>Missing</i>	34	43				
EQ-5D-5L - Week 26	0.87 (0.2)	0.87 (0.2)	209	-0.02	(-0.06; 0.01)	0.2
<i>Missing</i>	51	46				

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81 **Supplementary Table 5: Summary statistics for the QLQ-C30, by group.** Descriptive
 82 statistics for the QLQ-C30 scores are given as mean (standard deviation) by group, at
 83 baseline and at 5, 12 and 26 weeks time point. Additionally, the frequency of missing data is
 84 also given. QLQ-C30 Scores at 5, 12 and 26 weeks were compared between trial groups
 85 using a mixed model, with fixed effects for group, time (and their interaction), baseline QLQ-
 86 C30 score value, and type of diversion, and random effects for site and patient.
 87

Randomised group	Robotic (n=161)	Open (n=156)	N	Coeff. Estimate ORC	95% Confidence Interval	p-value
QLQ-C30 Baseline	87.55 (11.6)	87.74 (11.6)				
<i>Missing</i>	13	16				
QLQ-C30 Week 5	76.46 (14.2)	68.66 (18.4)	217	-9.59	(-13.14; -6.04)	<0.001
<i>Missing</i>	38	43				
QLQ-C30 Week 12	86.06 (11.7)	81.96 (16.1)	212	-4.60	(-8.19; -1.01)	0.01
<i>Missing</i>	36	48				
QLQ-C30 Week 26	87.14 (13.1)	84.86 (14.0)	195	-2.58	(-6.27; 1.11)	0.17
<i>Missing</i>	54	47				

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93 **Supplementary Table 6: Summary statistics for the QLQ-BLM30 by group.** Descriptive
 94 statistics for the QLQ-BLM30 scores are given as means (standard deviation) for each
 95 questionnaire form are summarised, by group, at baseline and at 5, 12 and 26 weeks time
 96 point. The table also show the differences in scores at each time point with the associated
 97 95% CI. Additionally, the frequency of missing data is also reported
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	Randomised group	Robotic (n=161)	Open (n=156)	Difference (95% CI)
Urinary symptoms - Baseline		34.0 (24.8)	26.7 (22.8)	7.3 (1.6; 12.9)
	<i>Missing</i>	18	23	
Urinary symptoms - Week 5		33.8 (24.4)	24.2 (25.9)	9.6 (-11.9; 31.1)
	<i>Missing</i>	148	145	
Urinary symptoms - Week 12		31.6 (20.7)	31.8 (25.2)	-0.2 (-18.9; 18.5)
	<i>Missing</i>	148	143	
Urinary symptoms - Week 26		28.6 (24.6)	30.8 (22.0)	-2.2 (-21.1; 16.6)
	<i>Missing</i>	149	141	
Urostomy problems - Baseline		27.8 (.)	0.0 (.)	NA (NA; NA)
	<i>Missing</i>	160	155	
Urostomy problems - Week 5		15.8 (14.2)	16.8 (13.8)	-1 (-4.7; 2.7)
	<i>Missing</i>	44	48	
Urostomy problems - Week 12		13.4 (13.1)	15.1 (14.7)	-1.7 (-5.5; 2.1)
	<i>Missing</i>	48	55	
Urostomy problems - Week 26		14.5 (13.2)	12.3 (12.2)	2.3 (-1.4; 5.9)
	<i>Missing</i>	62	62	
Catheter use problem - Baseline		19.0 (37.8)	20.0 (35.8)	-1 (-40.5; 38.6)
	<i>Missing</i>	154	146	
Catheter use problem - Week 5		25.6 (30.9)	14.3 (17.8)	11.4 (-11.6; 34.3)
	<i>Missing</i>	148	149	
Catheter use problem - Week 12		27.8 (31.2)	22.2 (28.9)	5.6 (-22.1; 33.3)
	<i>Missing</i>	149	147	
Catheter use problem - Week 26		15.4 (17.3)	12.5 (24.8)	2.9 (-19.1; 24.8)
	<i>Missing</i>	148	148	
Future worries - Baseline		38.1 (25.2)	42.0 (25.9)	-3.9 (-9.9; 2.1)
	<i>Missing</i>	18	16	
Future worries - Week 5		34.1 (24.9)	41.7 (26.4)	-7.6 (-14.2; -1)
	<i>Missing</i>	34	46	
Future worries - Week 12		28.6 (23.9)	32.2 (26.8)	-3.6 (-10.1; 3)
	<i>Missing</i>	35	46	
Future worries - Week 26		27.6 (22.4)	28.4 (23.6)	-0.8 (-6.9; 5.4)
	<i>Missing</i>	50	50	

	Randomised group	Robotic (n=161)	Open (n=156)	Difference (95% CI)
Bloating and flatulence - Baseline		17.0 (22.1)	16.9 (21.3)	0.1 (-5; 5.2)
	<i>Missing</i>	19	18	
Bloating and flatulence - Week 5		26.7 (20.3)	31.2 (23.3)	-4.5 (-10.2; 1.1)
	<i>Missing</i>	36	47	
Bloating and flatulence - Week 12		19.6 (16.5)	23.7 (17.0)	-4.1 (-8.4; 0.2)
	<i>Missing</i>	36	47	
Bloating and flatulence - Week 26		16.4 (19.5)	22.2 (20.7)	-5.8 (-11.2; -0.4)
	<i>Missing</i>	51	50	
Body image - Baseline		14.3 (23.1)	13.1 (19.1)	1.2 (-3.8; 6.1)
	<i>Missing</i>	18	18	
Body image - Week 5		24.7 (26.6)	29.0 (28.8)	-4.3 (-11.5; 2.8)
	<i>Missing</i>	33	46	
Body image - Week 12		23.7 (26.1)	25.1 (26.8)	-1.4 (-8.2; 5.4)
	<i>Missing</i>	35	45	
Body image - Week 26		25.3 (26.9)	24.2 (28.4)	1.1 (-6.3; 8.5)
	<i>Missing</i>	50	49	
Sexual function - Baseline		34.3 (21.8)	35.2 (22.1)	-1 (-7.1; 5.1)
	<i>Missing</i>	53	60	
Sexual function - Week 5		11.0 (17.4)	9.6 (16.0)	1.4 (-2.9; 5.7)
	<i>Missing</i>	38	48	
Sexual function - Week 12		16.0 (20.8)	16.7 (22.8)	-0.7 (-6.5; 5.1)
	<i>Missing</i>	43	52	
Sexual function - Week 26		17.7 (20.6)	22.3 (24.5)	-4.7 (-11; 1.7)
	<i>Missing</i>	61	59	
Male sexual problems - Baseline		29.8 (36.1)	32.6 (36.9)	-2.8 (-13.3; 7.7)
	<i>Missing</i>	62	67	
Male sexual problems - Week 5		73.1 (36.3)	77.8 (35.4)	-4.6 (-17.1; 7.8)
	<i>Missing</i>	94	93	
Male sexual problems - Week 12		78.4 (31.2)	83.1 (28.5)	-4.7 (-15; 5.6)
	<i>Missing</i>	94	91	
Male sexual problems - Week 26		20.2 (38.2)	22.6 (44.8)	-2.4 (-16.6; 11.8)
	<i>Missing</i>	90	91	
Sexual intimacy - Baseline		12.6 (25.2)	14.3 (25.9)	-1.7 (-10.8; 7.4)
	<i>Missing</i>	100	93	
Sexual intimacy - Week 5		22.2 (26.1)	39.7 (40.3)	-17.5 (-38.1; 3.2)
	<i>Missing</i>	134	135	
Sexual intimacy - Week 12		34.3 (37.5)	33.3 (34.8)	1 (-18.4; 20.3)
	<i>Missing</i>	126	133	
Sexual intimacy - Week 26		25.3 (33.4)	32.5 (36.3)	-7.2 (-23.6; 9.2)
	<i>Missing</i>	128	117	

	Randomised group	Robotic (n=161)	Open (n=156)	Difference (95% CI)
Risk of contaminating partner - Baseline		14.4 (25.6)	11.3 (24.8)	3.2 (-5.9; 12.2)
	<i>Missing</i>	101	94	
Risk of contaminating partner - Week 5		7.4 (16.9)	8.3 (26.2)	-0.9 (-14.6; 12.8)
	<i>Missing</i>	134	136	
Risk contaminating partner – Week 12		6.1 (21.2)	19.7 (36.6)	-13.6 (-31.3; 4)
	<i>Missing</i>	128	134	
Risk contaminating partner – Week 26		6.2 (13.2)	10.3 (26.7)	-4 (-13.7; 5.7)
	<i>Missing</i>	129	117	
Sexual enjoyment - Baseline		60.0 (37.7)	45.8 (39.1)	14.2 (0.3; 28.2)
	<i>Missing</i>	101	97	
Sexual enjoyment - Week 5		42.3 (36.0)	48.1 (34.7)	-5.8 (-27.7; 16)
	<i>Missing</i>	135	138	
Sexual enjoyment - Week 12		34.5 (30.2)	38.1 (39.8)	-3.6 (-24.6; 17.4)
	<i>Missing</i>	132	135	
Sexual enjoyment - Week 26		39.3 (31.5)	37.7 (37.3)	1.6 (-15.4; 18.5)
	<i>Missing</i>	133	118	
Female sexual problems - Baseline		27.8 (31.2)	11.1 (27.2)	16.7 (-14.7; 48)
	<i>Missing</i>	149	150	
Female sexual problems - Week 5		25.0 (31.9)	100.0 (.)	NA (NA; NA)
	<i>Missing</i>	157	155	
Female sexual problems - Week 12		14.3 (26.2)	20.0 (44.7)	-5.7 (-60.4; 49)
	<i>Missing</i>	154	151	
Female sexual problems - Week 26		33.3 (21.1)	40.0 (36.5)	-6.7 (-51.6; 38.2)
	<i>Missing</i>	155	151	

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106 **Supplementary Table 7: Summary statistics WHODAS-2 score, by group.** Descriptive
 107 statistics for the WHODAS-2 score are given as mean (SD) by group, at baseline and at 5, 12,
 108 26 and 52 weeks timepoints. Additionally, the frequency of missing data is also given.
 109 WHODAS-2 scores at 5, 12 and 26 weeks were compared between trial groups using a mixed
 110 model, with fixed effects for group, time (and their interaction), baseline WHODAS-2 score
 111 value, and type of diversion, and random effects for site and patient. Due to skewness of
 112 WHODAS-2 score, the outcome was log-transformed.
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Randomised group	Robotic (N=161)	Open (N=155)	Coeff. Estimate ORC	95% Confidence Interval	p-value
WHODAS-2 score Baseline	9.3 (12.4)	9.2 (11.4)			
<i>Missing</i>	20	26			
WHODAS-2 score Week 5	20.9 (18.2)	26.4 (18.7)	0.43	(0.15; 0.73)	0.003
<i>Missing</i>	47	54			
WHODAS-2 score Week 12	10.2 (11.5)	14.9 (16.3)	0.38	(0.09; 0.68)	0.01
<i>Missing</i>	43	52			
WHODAS-2 score Week 26	10.8 (13.3)	11.1 (13.1)	0.24	(-0.05; 0.54)	0.1
<i>Missing</i>	56	51			
WHODAS-2 score Week 52	10.8 (15.8)	10.1 (14.4)			
<i>Missing</i>	69	74			

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121 **Supplementary Table 8: Activity Levels by group as measured by steps per day over a 7-**
 122 **day period.** Descriptive statistics for Activity Levels are given as mean (SD) for both Average
 123 and Maximum number of daily steps by group, at baseline, 5 days, 5 and 12 weeks time
 124 point. Additionally, the frequency of missing data is also given. Average and Maximum
 125 number of daily steps, at 5 days, 5 and 12 weeks time point can be compared between trial
 126 groups using linear regression models. For both outcomes, values at 5 days, 5 weeks, and 12
 127 weeks were compared between trial groups using a mixed model, with fixed effects for
 128 group, time (and their interaction), baseline value, and type of diversion, and random
 129 effects for site and patient.
 130

Randomised group	Robotic (n=161)	Open (n=156)	Coeff. Estimate ORC	95% Confidence Interval	p-value
Avg. - Baseline	6429.8 (3188.7)	6550.4 (2863.7)			
Max - Baseline	9658.7 (5238.1)	9525.3 (4039.1)			
<i>Missing</i>	31	43			
Avg. - Day 5	1941.8 (1331.5)	1648.3 (1281.3)	-364	(-1018; 288)	0.3
Max - Day 5	2959.5 (1889.7)	2603.9 (1991.6)	-396	(--1342; 551)	0.4
<i>Missing</i>	38	46			
Avg. - Week 5	4615.3 (2604.0)	3997.6 (2587.3)	-641	(-1324; 42)	0.07
Max - Week 5	7135.2 (3778.9)	6295.6 (4163.9)	-793	(-1782; 196)	0.1
<i>Missing</i>	49	57			
Avg. - Week 12	5693.9 (3271.6)	5872.4 (2729.5)	-147	(--900; 605)	0.7
Max - Week 12	8440.3 (4560.5)	8850.8 (3790.7)	-92	(-996; 1179)	0.4
<i>Missing</i>	64	80			

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136 **Supplementary Table 9: Summary statistics for the Chair to Stand test by group.** Mean and
 137 SD are summarized by group, at baseline and at 5, 12 and 26-weeks' time point.
 138 Additionally, the frequency of missing data is also given. Chair-to-Stand scores at 5, 12 and
 139 26 weeks were compared between trial groups using a mixed model, with fixed effects for
 140 group, time (and their interaction), baseline Chair-to-Stand score value, and type of
 141 diversion, and random effects for site and patient.
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Randomised group	Robotic (n=161)	Open (n=156)	Coeff. Estimate ORC	95% Confidence Interval	p-value
Chair-to-Stand Baseline	14.0 (4.5)	13.8 (3.8)			
<i>Missing</i>	13	13			
Chair-to-Stand Week 5	8.8 (5.0)	6.4 (4.1)	-1.38	(-2.60; -0.16)	0.03
<i>Missing</i>	94	95			
Chair-to-Stand Week 12	12.7 (4.4)	11.5 (3.9)	-1.13	(-2.16; -0.10)	0.03
<i>Missing</i>	51	66			
Chair-to-Stand Week 26	14.2 (4.8)	14.0 (4.3)	0.04	(-1.01; 1.09)	0.9
<i>Missing</i>	58	64			

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150 **Supplementary Table 10: Subgroup analyses.** Results from separate subgroup analyses.
151 Differences are from analyses of the transformed outcome with interaction terms between
152 the intervention and the subgroup variables. The P-values come from the corresponding
153 interaction test.
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Subgroup	Level	N	Difference (Robotic-Open) (95% CI)	P-value
Overall		305	- 0.183 (-0.322 to -0.043)	0.01
Baseline Fitbit Steps	low	78	-0.308 (-0.589 -0.027)	0.26
	median	78	0.023 (-0.253 to 0.298)	
	high	77	-0.123 (-0.400 to 0.154)	
PS & Co-morbidity	0	221	-0.130 (-0.295 to 0.035)	0.31
	1+	51	-0.326 (-0.670 to 0.018)	
BMI	low	101	-0.116 (-0.356 to 0.123)	0.73
	median	101	-0.252 (-0.492 to -0.013)	
	high	101	-0.201 (-0.440 to 0.039)	
Age	<75	240	-0.113 (-0.268 to 0.042)	0.05
	75+	65	-0.449 (-0.748 to -0.150)	
Stage	< T2	140	-0.232 (-0.433 to -0.032)	0.47
	T2+	139	-0.128 (-0.329 to 0.073)	

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159 **Supplementary Table 11: Demographic features of the patients excluded after Radical**
 160 **cystectomy.** In total, 12 patients were excluded from analysis after radical cystectomy due
 161 to either missing data or participants withdrawing from the study. The table compares their
 162 demographic features with those included in the outcomes analysis.
 163

		Included in the outcomes analysis				Excluded from analysis			
		iRARC (n=156)		ORC (n=149)		iRARC (n=5)		ORC (n=7)	
Sex	1. Male	125/156	80%	116/149	78%	3/5	60%	6/7	86%
	2. Female	31/156	20%	33/149	22%	2/5	40%	1/7	14%
Site	a	59/156	38%	56/149	38%	1/5	20%	2/7	29%
	b	25/156	16%	26/149	17%	1/5	20%	1/7	14%
	c	24/156	15%	20/149	13%	1/5	20%	3/7	43%
	d	2/156	1%	2/149	1%	1/5	20%	0/7	0%
	g	9/156	6%	9/149	6%	0/5	0%	1/7	14%
	h	9/156	6%	9/149	6%	1/5	20%	0/7	0%
Age at Cys. (years)	mean (SD)	69.1 (8.1)		68.6 (8.3)		76.1 (3.1)		71.6 (10.8)	
Height (cm)	mean (SD)	170.1 (9.7)		171.3 (9.9)		163.2 (10.2)		171.6 (9.9)	
Weight (kg)	mean (SD)	80.0 (15.7)		80.9 (16.5)		66.2 (15.4)		96.4 (36.0)	
BMI (kg/m ²)	mean (SD)	27.7 (5.6)		27.7 (6.2)		24.7 (4.6)		32.7 (11.0)	
ECOG Status	0. Fully active.	109/134	81%	112/138	81%	4/5	80%	6/7	86%
	1. Restricted in strenuous	20/134	15%	25/138	18%	1/5	20%	0/7	0%
	3. Limited self-care	2/134	2%	0/138	0%	0/5	0%	1/7	14%
Smoking status	1. Currently smoking	17/155	11%	17/149	11%	1/5	20%	0/7	0%
	2. Ever smoked	93/155	60%	89/149	60%	2/5	40%	4/7	57%
	3. Never smoked	45/155	29%	43/149	29%	2/5	40%	3/7	43%
Occupation	0. No	89/153	58%	87/145	60%	1/5	20%	3/7	43%
	1. Yes; one occupation	44/153	29%	43/145	30%	2/5	40%	4/7	57%
	2. Yes; two occupations	16/153	11%	11/145	8%	2/5	40%	0/7	0%
	3. Yes; three occupations	4/153	3%	4/145	3%	2/5	40%	0/7	0%
Chair to stand performed		144/149	97%	139/142	98%	4/5	80%	4/6	67%
Urothelial carcinoma		145/156	93%	139/148	94%	4/5	80%	7/7	100%
Squamous carcinoma		17/138	12%	19/134	14%	1/4	25%	1/7	14%
Neoadjuvant chemotherapy		53/156	34%	51/149	34%	1/5	20%	2/7	29%
Immunotherapy		20/144	14%	15/135	11%	1/5	20%	1/5	20%
Pre-op Haemoglobin, g/dL (mean (SD))		13.3 (1.8)		13.3 (1.9)		11.5 (1.0)		12.6 (2.2)	
Pre-op Serum creatinine, mmol/L (mean (SD))		90.9 (30.3)		84.8 (21.0)		122.7 (38.2)		94.4 (31.1)	
Type of urinary diversion	Continent diversion	19/156	12%	15/149	10%	0/5	0%	1/7	14%
	Ileal conduit	137/156	88%	134/149	90%	5/5	100%	6/7	86%
Cystectomy histology stage	2. T0	24/143	17%	20/138	15%	1/2	50%	0/0	0%
	11. T3b	14/143	10%	11/138	8%	1/2	50%	0/0	0%
Flat CIS	0. Absent	88/142	62%	79/136	58%	2/2	100%	0/0	0%
Grade of Tumor	3. Grade 3	105/111	95%	102/109	94%	1/1	100%	0/0	0%
Margins	Positive	10/135	7%	10/125	8%	1/1	100%	0/0	0%

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