



Annual Report 2022 – Supplementary Results

NBOCA: Annual Report 2022 – Supplementary Results

Date of publication: Thursday 12th January 2023

The National Bowel Cancer Audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing, and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage, and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations, and crown dependencies. www.hqip.org.uk/national-programmes.

Supplementary Table 1 Description of the 28,523 patients diagnosed with bowel cancer between 01 April 2020 and 31 March 2021 in England and Wales, by referral source

		Emergency Admission		GP Referral		Screening Referral		Other/ Not Known	
		Number	%	Number	%	Number	%	Number	%
Total no. patients		5,896		15,273		3,273		4,081	
Sex	Male	3,052	51.8	8,577	56.3	2,043	62.8	2,285	56.1
	Female	2,837	48.2	6,665	43.7	1,212	37.2	1,788	43.9
	Missing (% of total)	7 (0.1)		31 (0.2)		18 (0.5)		8 (0.2)	
Age-group	<50 yrs	573	9.7	879	5.8	0	0.0	384	9.4
	50-59 yrs	695	11.8	2,006	13.1	16	0.5	513	12.6
	60-74 yrs	1,794	30.4	5,436	35.6	3,000	91.7	1,589	38.9
	75-79 yrs	803	13.6	2,543	16.7	208	6.4	621	15.2
	80-84 yrs	899	15.2	2,442	16.0	40	1.2	546	13.4
	85+ yrs	1,132	19.2	1,967	12.9	9	0.3	428	10.5
Ethnicity*	White	4,577	89.2	12,235	88.5	2,582	85.8	3,139	89.7
	Mixed/Multi Ethnic	124	2.4	382	2.8	97	3.2	84	2.4
	Asian	234	4.6	746	5.4	226	7.5	160	4.6
	Black	129	2.5	311	2.2	61	2.0	68	1.9
	Other	67	1.3	158	1.1	42	1.4	49	1.4
	Missing/ Not Known (% of total)	765 (13.0)		1,441 (9.4)		265 (8.1)		581 (14.2)	
Cancer site	Caecum/ascending colon	2,117	35.9	3,949	25.9	574	17.5	1,342	32.9
	Hepatic flexure	318	5.4	646	4.2	139	4.2	189	4.6
	Transverse colon	549	9.3	931	6.1	213	6.5	259	6.3
	Splenic flexure/descending colon	545	9.2	793	5.2	234	7.1	241	5.9
	Sigmoid colon	1,362	23.1	3,161	20.7	1,111	33.9	887	21.7
	Rectosigmoid	219	3.7	927	6.1	155	4.7	176	4.3
	Rectal	786	13.3	4,866	31.9	847	25.9	987	24.2
TNM version	5	448	7.6	1,012	6.6	217	6.6	283	6.9
	8	5,448	92.4	14,261	93.4	3,056	93.4	3,798	93.1
Pre-treatment TNM T-stage	T1	134	2.3	763	5.0	441	13.5	365	8.9
	T2	400	6.8	2,390	15.6	880	26.9	794	19.5
	T3	2,133	36.2	7,410	48.5	1,298	39.7	1,588	38.9
	T4	2,073	35.2	3,080	20.2	174	5.3	651	16.0
	Tx	868	14.7	1,225	8.0	360	11.0	483	11.8
	T9	196	3.3	264	1.7	73	2.2	140	3.4

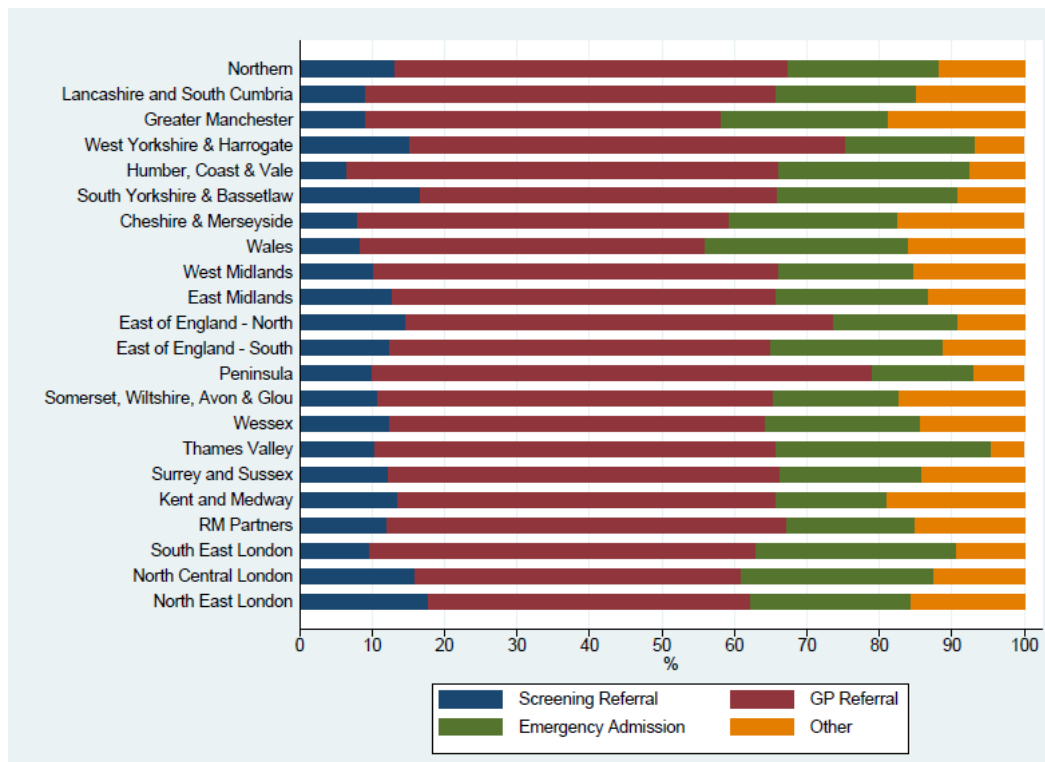
Pre-treatment TNM N-stage	N0	1,965	33.3	6,185	40.5	1,937	59.2	1,859	45.6
	N1	1,856	31.5	5,232	34.3	867	26.5	1,129	27.7
	N2	1,063	18.0	2,615	17.1	236	7.2	522	12.8
	Nx	815	13.8	986	6.5	153	4.7	425	10.4
	N9	197	3.3	255	1.7	80	2.4	146	3.6
Pre-treatment TNM M-stage	M0	3,772	64.0	11,897	77.9	2,993	91.4	3,244	79.5
	M1	1,918	32.5	3,093	20.3	187	5.7	671	16.4
	Mx	54	0.9	54	0.4	5	0.2	20	0.5
	M9	152	2.6	229	1.5	88	2.7	146	3.6
Performance Status	Normal activity	1,726	34.2	7,040	50.9	1,970	68.8	1,690	48.8
	Walk & light work	1,450	28.7	4,163	30.1	698	24.4	1,097	31.7
	Walk & all self care:up >50%	927	18.4	1,673	12.1	166	5.8	444	12.8
	Ltd self care: confined >50%	765	15.2	840	6.1	28	1.0	199	5.7
	Completely disabled	176	3.5	123	0.9	<5	0.0	32	0.9
	Missing (% of total)	852 (14.5)		1,434 (9.4)		410 (12.5)		619 (15.2)	
Care Plan Intent	Curative	2,801	47.5	10,403	68.1	2,867	87.6	2,855	70.0
	Non Curative	1,862	31.6	2,777	18.2	112	3.4	620	15.2
	No Cancer Treatment	686	11.6	922	6.0	53	1.6	247	6.1
	Not Known	547	9.3	1,171	7.7	241	7.4	359	8.8
ASA grade **	1	265	8.8	898	9.6	326	13.4	277	11.8
	2	1,357	45.2	5,133	54.9	1,541	63.5	1,250	53.0
	3	1,164	38.8	3,115	33.3	546	22.5	767	32.5
	4 or 5	215	7.2	205	2.2	15	0.6	63	2.7
	Missing/ Not Known (% of total)	2,895 (49.1)		5,922 (38.8)		845 (25.8)		1,724 (42.2)	
Surgical Treatment	Major Resection	2,701	45.8	8,629	56.5	2,325	71.0	2,236	54.8
	Local Excision	36	0.6	471	3.1	313	9.6	211	5.2
	Stoma	251	4.3	576	3.8	14	0.4	78	1.9
	Stent	107	1.8	123	0.8	6	0.2	18	0.4
	Other	298	5.1	336	2.2	59	1.8	178	4.4
	None Reported	2,503	42.5	5,138	33.6	556	17.0	1,360	33.3

* Ethnicity obtained from NCRAS rapid registration data for patients with a rapid registration record and PEDW for patients diagnosed in Wales

** TNM. Tumour Nodes Metastases. A system to describe the amount and spread of cancer in the body. The 'T' refers to 'Tumour' and describes the main tumour. The 'N' refers to 'Nodes' and describes how many lymph nodes or 'glands' have cancer. The 'M' refers to 'Metastases' and describes cancer that has spread to other parts of the body. Refer to [NBOCA dataset](#) for full description of each staging.

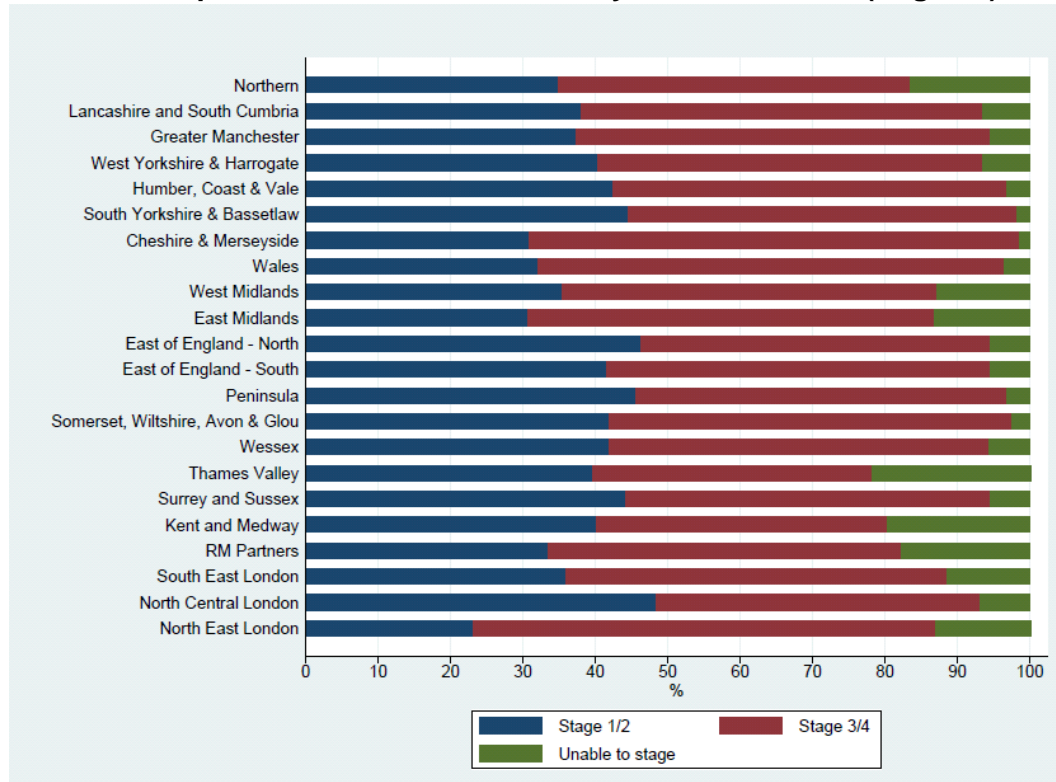
*** WHO Performance Status. 0 = Fully active, 1 = Some restriction but cares for self, 2 = Ambulatory >50% of time, occasional assistance needed, 3 = Ambulatory ≤50% of time, nursing care needed, 4 = Bedbound.

Supplementary Figure 1 Referral source of 28,115* patients diagnosed with bowel cancer between 01 April 2020 and 31 March 2021 by Cancer Alliance (England)/country (Wales)



*359 patients with recorded referral source "Not Known" excluded and 49 patients not allocated a cancer alliance

Supplementary Figure 2 Pre-treatment staging* of patients diagnosed with bowel cancer between 01 April 2020 and 31 March 2021 by Cancer Alliance (England)/country (Wales)



*Stage I: T1/T2, N0, M0, Stage II: T3/T4, N0, M0, Stage III: any T, N1/N2, M0, Stage IV: any T, any N, M1. Unable to stage: missing N or M-stage

Supplementary Table 2 Description of the 7,393 patients who presented electively with stage T2 to T4 non-metastatic colon cancer in England and Wales, diagnosed between 01 January 2020 and 31 December 2020, by age band and major resection status

		< 60 years				60 - 74 years				75-84 years				>=85 years			
		MR		No MR		MR		No MR		MR		No MR		MR		No MR	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total no. patients		798		91		2,901		346		1,883		449		451		474	
Sex	Male	391	49.1	47	51.6	1,580	54.6	189	55.1	980	52.0	225	50.2	199	44.2	204	43.1
	Female	405	50.9	44	48.4	1,312	45.4	154	44.9	903	48.0	223	49.8	251	55.8	269	56.9
	Missing (% of total)	2 (0.3)		0 (0.0)		9 (0.3)		3 (0.9)		0 (0.0)		1 (0.2)		1 (0.2)		1 (0.2)	
Cancer site	Caecum/ascending colon	228	28.6	35	38.5	1,148	39.6	126	36.4	921	48.9	177	39.4	241	53.4	225	47.5
	Hepatic flexure	32	4.0	5	5.5	210	7.2	22	6.4	135	7.2	31	6.9	28	6.2	36	7.6
	Transverse colon	76	9.5	<5	-	263	9.1	29	8.4	226	12.0	63	14.0	63	14.0	57	12.0
	Splenic flexure/descending colon	88	11.0	8	8.8	252	8.7	28	8.1	143	7.6	43	9.6	26	5.8	38	8.0
	Sigmoid colon	374	46.9	41	45.1	1,028	35.4	141	40.8	458	24.3	135	30.1	93	20.6	118	24.9
Referral Source	GP	781	97.9	90	98.9	1,801	62.1	237	68.5	1,804	95.8	443	98.7	445	98.7	474	100.0
	Screening	17	2.1	<5	-	1,100	37.9	109	31.5	79	4.2	6	1.3	6	1.3	0	0.0
Pre-treatment TNM T-stage*	T2	181	22.7	18	19.8	823	28.4	95	27.5	420	22.3	106	23.6	104	23.1	103	21.7
	T3	466	58.4	35	38.5	1,652	56.9	167	48.3	1,136	60.3	213	47.4	272	60.3	267	56.3
	T4	151	18.9	38	41.8	426	14.7	84	24.3	327	17.4	130	29.0	75	16.6	104	21.9
Pre-treatment TNM N-stage*	N0	325	41.0	37	41.6	1,479	51.2	183	52.9	940	50.1	227	51.2	236	52.4	240	51.3
	N1	326	41.1	32	36.0	1,083	37.5	125	36.1	729	38.9	160	36.1	164	36.4	191	40.8
	N2	142	17.9	20	22.5	326	11.3	38	11.0	206	11.0	56	12.6	50	11.1	37	7.9
	Missing (% of total)	5 (0.6)		2 (2.2)		13 (0.4)		0 (0.0)		8 (0.4)		6 (1.3)		1 (0.2)		6 (1.3)	
Performance Status**	Normal activity	583	78.5	58	69.9	1,743	65.2	148	48.2	755	42.8	83	20.4	133	31.6	35	8.6
	Walk & light work	126	17.0	16	19.3	751	28.1	84	27.4	768	43.5	129	31.8	172	40.9	106	25.9
	Walk & all self care:up >50%	31	4.2	6	7.2	150	5.6	41	13.4	206	11.7	96	23.6	92	21.9	153	37.4

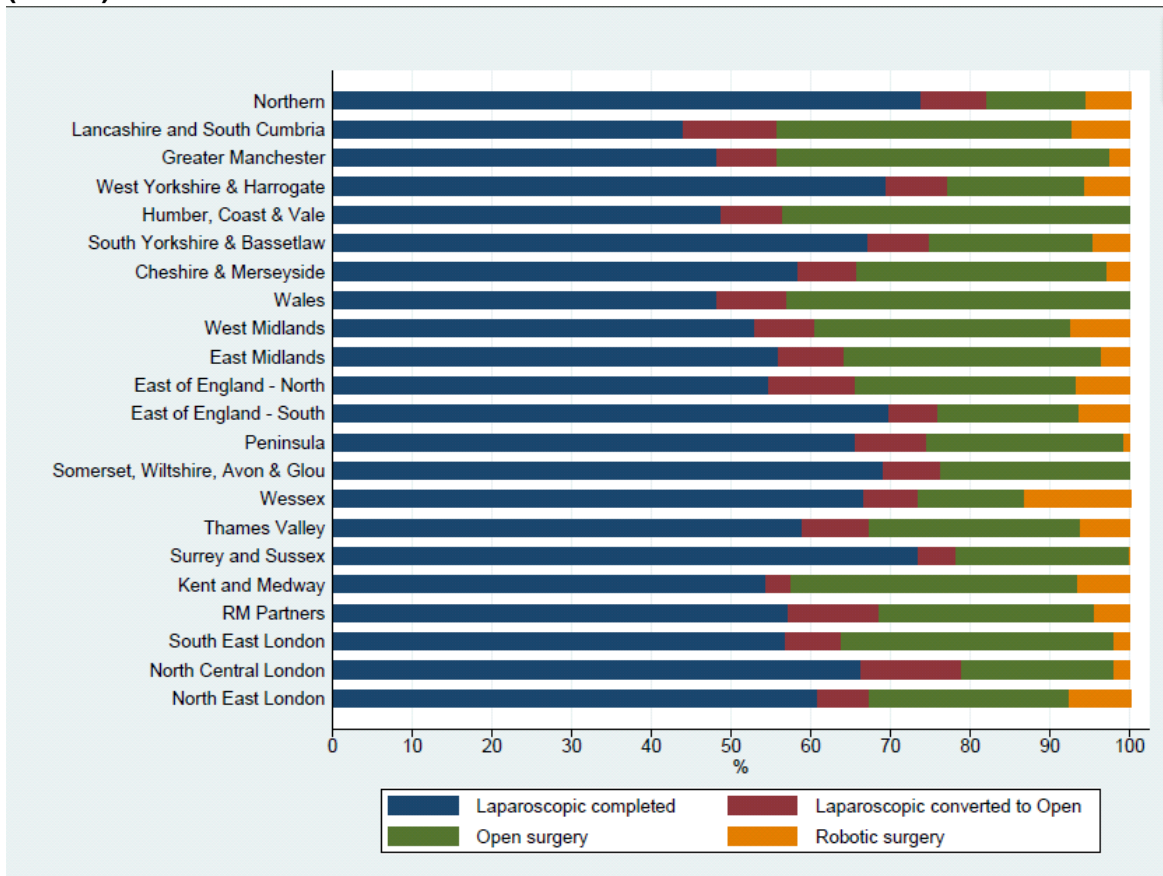
	Ltd self care: confined >50%	<5	-	<5	-	27	1.0	30	9.8	33	1.9	89	21.9	20	4.8	99	24.2
	Completely disabled	<5	-	<5	-	<5	-	<5	-	<5	-	9	2.2	<5	-	16	3.9
	Missing (% of total)	55 (6.9)		8 (8.8)		229 (7.9)		39 (11.3)		119 (6.3)		43 (9.6)		30 (6.7)		65 (13.7)	
Care Plan Intent	Curative	752	98.8	56	77.8	2,717	98.8	203	76.3	1,750	98.4	153	51.7	388	93.7	79	31.0
	Non curative	9	1.2	16	22.2	33	1.2	63	23.7	28	1.6	143	48.3	26	6.3	176	69.0
	Missing (% of total)	37 (4.6)		19 (20.9)		151 (5.2)		80 (23.1)		105 (5.6)		153 (34.1)		37 (8.2)		219 (46.2)	
CPET*** performed	Not Recorded	771	96.6	89	97.8	2,755	95.0	339	98.0	1,776	94.3	439	97.8	434	96.2	470	99.2
	Yes	27	3.4	<5	-	146	5.0	7	2.0	107	5.7	10	2.2	17	3.8	<5	-
Co-morbidities	0	490	65.2	45	59.2	1,459	52.9	132	46.8	685	38.6	107	31.6	168	39.6	92	29.6
	1	208	27.7	21	27.6	882	32.0	82	29.1	586	33.1	110	32.4	137	32.3	99	31.8
	2	38	5.1	8	10.5	283	10.3	39	13.8	342	19.3	70	20.6	75	17.7	62	19.9
	>=3	16	2.1	<5	-	132	4.8	29	10.3	160	9.0	52	15.3	44	10.4	58	18.6
	Missing (% of total)	46 (5.8)		15 (16.5)		145 (5.0)		64 (18.5)		110 (5.8)		110 (24.5)		27 (6.0)		163 (34.4)	
Treatment received	Other Surgery	0	0.0	41	45.1	0	0.0	103	29.8	0	0.0	76	16.9	0	0.0	30	6.3
	Chemotherapy	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	None	0	0.0	50	54.9	0	0.0	243	70.2	0	0.0	373	83.1	0	0.0	444	93.7
Planned treatment	Specialist Palliative Care	<5	-	<5	-	12	0.4	31	9.0	8	0.4	104	23.2	16	3.5	158	33.3
1 year mortality from diagnosis date	Alive	752	98.3	72	86.7	2702	96.3	242	74.5	1675	92.8	241	57.0	378	87.5	245	54.7
	Dead	13	1.7	11	13.3	105	3.7	83	25.5	129	7.2	182	43.0	54	12.5	203	45.3
	Missing (% of total)	33 (4.1)		8 (8.8)		94 (3.2)		21 (6.1)		79 (4.2)		26 (5.8)		19 (4.2)		26 (5.5)	

* TNM. Tumour Nodes Metastases. A system to describe the amount and spread of cancer in the body. The 'T' refers to 'Tumour' and describes the main tumour. The 'N' refers to 'Nodes' and describes how many lymph nodes or 'glands' have cancer. The 'M' refers to 'Metastases' and describes cancer that has spread to other parts of the body. Refer to [NBOCA dataset](#) for full description of each staging.

** WHO Performance Status. 0 = Fully active, 1 = Some restriction but cares for self, 2 = Ambulatory >50% of time, occasional assistance needed, 3 = Ambulatory ≤50% of time, nursing care needed, 4 = Bedbound

*** **Cardiopulmonary exercise testing.** A way of assessing the performance of the heart and lungs at rest and during exercise to provide an indication of how someone might cope with a major operation.

Supplementary Figure 3 Surgical access in patients undergoing major resection after diagnosis between 01 April 2020 and 31 March 2021, by Cancer Alliance (England)/country (Wales)



Supplementary Table 3 Patient characteristics by clinical group for 7,062 rectal cancer patients diagnosed in England between 01 January 2020 and 31 December 2020

		Early tumour		Locally advanced		Metastatic		Incomplete staging	
		N	%	N	%	N	%	N	%
Total rectal cancer patients		1,414		3,834		1,350		464	
Sex	Male	910	64.6	2,493	65.1	878	65.0	288	62.1
	Female	499	35.4	1,339	34.9	472	35.0	176	37.9
	Missing	5 (0.4)		2 (0.1)		0 (0.0)		0 (0.0)	
Age-group	<50 yrs	58	4.1	311	8.1	121	9.0	22	4.7
	50-59 yrs	160	11.3	569	14.8	235	17.4	44	9.5
	60-74 yrs	708	50.1	1,685	43.9	565	41.9	201	43.3
	75-84 yrs	365	25.8	968	25.2	304	22.5	112	24.1
	85+ yrs	123	8.7	301	7.9	125	9.3	85	18.3
Pre-treatment TNM T-stage*	T1	429	30.3	23	0.6	24	1.8	14	3.0
	T2	985	69.7	330	8.6	70	5.2	24	5.2
	T3			2,762	72.0	699	51.8	21	4.5
	T4			712	18.6	471	34.9	3	0.6
	TX/ T9			7	0.2	86	6.4	402	86.6
Pre-treatment TNM N-stage*	N0	1,414	100.0	1,199	31.3	194	14.4	104	22.4
	N1			1,750	45.6	553	41.0	9	1.9
	N2			858	22.4	520	38.5	5	1.1
	Nx/ N9			27	0.7	83	6.1	346	74.6
Pre-treatment TNM M-stage*	M0	1,414	100.0	3,834	100.0			335	72.2
	M1					1,350	100.0		
	Mx/ M9							129	27.8
Surgical Procedure	Anterior Resection	406	28.7	1,277	33.3	91	6.7	74	15.9
	APER/Pelvic Exenteration	173	12.2	646	16.8	42	3.1	26	5.6
	Hartmann's	56	4.0	231	6.0	26	1.9	9	1.9
	Local Excision	319	22.6	35	0.9	5	0.4	97	20.9
	Other Resection	25	1.8	60	1.6	4	0.3	13	2.8
	Stent/Stoma	8	0.6	195	5.1	206	15.3	8	1.7
	None	427	30.2	1,390	36.3	976	72.3	237	51.1
Mode of admission (from HES)	Elective	1,115	93.5	3,218	90.3	891	73.4	280	79.3
	Emergency	78	6.5	345	9.7	323	26.6	73	20.7
	Missing (% of total)	221 (15.6)		270 (7.0)		136 (10.1)		111 (23.9)	
Comorbidities (from HES)	0	639	53.6	1,833	51.5	664	54.6	171	49.1
	1	354	29.7	1,051	29.5	374	30.8	102	29.3
	2+	199	16.7	673	18.9	178	14.6	75	21.6
	Missing (% of total)	222 (15.7)		277 (7.2)		134 (9.9)		116 (25.0)	
Tumour height from anal verge (cm)	0-5	408	42.0	1,065	39.4	390	44.9	90	43.1
	6-10	396	40.8	1,117	41.4	352	40.6	63	30.1

	11-15	167	17.2	518	19.2	126	14.5	56	26.8
	Missing	443 (31.3)		1,134 (29.6)		482 (35.7)		255 (55.0)	
Grade (differentiation)	G1 Well	86	10.6	149	7.5	14	8.8	13	9.0
	G2 Moderate	684	84.0	1,699	85.5	127	79.9	120	82.8
	G3/G4 Poor/Undifferentiated/anaplastic	44	5.4	138	6.9	18	11.3	12	8.3
	Missing	600 (42.4)		1,848 (48.2)		1,191 (88.2)		319 (68.8)	
Vascular/ Lymphatic Invasion	None	473	60.3	983	51.9	50	32.9	88	57.5
	Vascular +/- Lymphatic	250	31.9	819	43.2	87	57.4	47	30.8
	Uncertain/Not assessed/NK	62	7.9	93	4.9	15	9.9	18	11.8
	Missing	629 (44.5)		1,939 (50.6)		1,198 (88.7)		311 (67.0)	
Neo-adjuvant Radiotherapy (RT)	None	1,224	86.6	1,961	51.1	978	72.4	403	86.9
	Long Course (LCRT)	51	3.6	967	25.2	104	7.7	25	5.4
	Short Course (SCRT)	128	9.1	857	22.4	239	17.7	28	6.0
	Other**	11	0.8	49	1.3	29	2.1	8	1.7

* TNM. Tumour Nodes Metastases. A system to describe the amount and spread of cancer in the body. The 'T' refers to 'Tumour' and describes the main tumour. The 'N' refers to 'Nodes' and describes how many lymph nodes or 'glands' have cancer. The 'M' refers to 'Metastases' and describes cancer that has spread to other parts of the body. Refer to [NBOCA dataset](#) for full description of each staging.

** Radiotherapy records that cannot be classified into long or short-course regimens

Clinical Groups

Early tumour: T1/2, N0, M0

Locally Advanced: any T, N1/N2, M0 or T3/4, N0, M0

Metastatic: any T, any N, M1

Incomplete: any other staging that includes missing data that prevents classification