

THE LANCET Oncology

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Majano SB, Di Girolamo C, Rachet B, et al. Surgical treatment and survival from colorectal cancer in Denmark, England, Norway, and Sweden: a population-based study. *Lancet Oncol* 2018; published online Dec 10. [http://dx.doi.org/10.1016/S1470-2045\(18\)30646-6](http://dx.doi.org/10.1016/S1470-2045(18)30646-6).

Data received according to data specification	Colon tumours											
	Denmark			England			Norway			Sweden		
	Records	Patients	Percentage	Records	Patients	Percentage	Records	Patients	Percentage	Records	Patients	Percentage
	8,856	8,815	100.00	71,292	71,292	100.00	9,006	8,668	100.00	12,168	11,790	100.00
Ineligible morphology*	206	204	2.31	1,359	1,359	1.91	241	222	2.56	0	0	0.00
Ineligible topography**	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Aged < 18 years	0	0	0.00	4	4	0.01	0	0	0.00	0	0	0.00
Aged 100+ years	2	2	0.02	0	0	0.00	2	2	0.02	1	1	0.01
Total ineligible	208	206	2.34	1,363	1,363	100.00	243	224	2.58	1	1	0.01
Total eligible	8,648	8,609	100.00	69,929	69,929	100.00	8,763	8,444	100.00	12,167	11,789	100.00
Age-site mismatch	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Age-site-morphology mismatch	3	3	0.03	3	3	0.00	1	1	0.01	1	1	0.01
Invalid dates	3	3	0.03	0	0	0.00	5	5	0.06	2	2	0.02
Death certificate only	36	36	0.42	0	0	0.00	99	99	1.17	0	0	0.00
Duplicate registration***	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Synchronous tumour***	0	0	0.00	0	0	0.00	4	2	0.02	193	95	0.81
Multiple primary same site***	77	38	0.44	0	0	0.00	607	290	3.43	539	259	2.20
Total exclusions	81	42	0.49	3	3	0.00	424	105	1.24	381	3	0.03
Included in analysis	8,567	8,567		69,926	69,926		8,339	8,339		11,786	11,786	

*: Specific non-adenocarcinoma ICD-O-3 morphological codes; **: Topographical codes C21.X (anal tumours). ***: Total exclusions do not include patients in this row because one record is kept for each.

Appendix Table 1. Data quality control (ineligible and excluded records) by country - Colon cancer diagnoses 2010-2012.

Data received according to data specification	Rectal tumours											
	Denmark			England			Norway			Sweden		
	Records	Patients	Percentage	Records	Patients	Percentage	Records	Patients	Percentage	Records	Patients	Percentage
	4,476	4,474	100.00	28,650	28,650	100.00	3,453	3,438	100.00	5,832	5,800	100.00
Ineligible morphology*	72	70	1.56	948	948	3.31	291	288	8.38	0	0	0.00
Ineligible topography**	0	0	0.00	103	103	0.36	17	17	0.49	0	0	0.00
Aged < 18 years	1	1	0.02	0	0	0.00	0	0	0.00	1	1	0.02
Aged 100+ years	1	1	0.02	0	0	0.00	1	1	0.03	1	1	0.02
Total ineligible	74	72	1.61	1,051	1,051	100.00	309	306	8.90	2	2	0.03
Total eligible	4,402	4,402	100.00	27,599	27,599	100	3,144	3,132	100.00	5,830	5,798	100.00
Age-site mismatch	0	0	0.00	0	0	0.00	0	0	0.00	1	1	0.02
Age-site-morphology mismatch	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Invalid dates	7	7	0.16	0	0	0.00	4	4	0.13	0	0	0.00
Death certificate only	4	4	0.09	0	0	0.00	17	17	0.54	0	0	0.00
Duplicate registration***	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Synchronous tumour***	0	0	0.00	0	0	0.00	2	1	0.03	56	28	0.48
Multiple primary same site***	0	0	0.00	0	0	0.00	22	11	0.35	8	4	0.07
Total exclusions	11	11	0.25	0	0	0.00	33	21	0.67	33	1	0.02
Included in analysis	4,391	4,391		27,599	27,599		3,111	3,111		5,797	5,797	

*: Specific non-adenocarcinoma ICD-O-3 morphological codes; **: Topographical codes C21.X (anal tumours). ***: Total exclusions do not include patients in this row because one record is kept for each.

Appendix Table 2. Data quality control (ineligible and excluded records) by country - Rectal cancer diagnoses 2010-2012.

	Colon tumours				Rectal tumours			
	Denmark	England	Norway	Sweden	Denmark	England	Norway	Sweden
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age								
15-54	463 (70.2)	4,237 (74.3)	495 (75.5)	712 (82.5)	371 (77.1)	2,065 (66.4)	248 (71.7)	465 (74.3)
55-64	1,091 (73.7)	8,956 (75.7)	990 (73.6)	1,442 (80.3)	705 (75.4)	4,083 (68.8)	499 (73.5)	860 (78.0)
65-74	2,077 (73.1)	15,554 (76.2)	1,844 (75.5)	2,999 (82.1)	1,072 (71.4)	5,733 (68.6)	664 (70.2)	1,439 (75.7)
75-84	1,818 (70.8)	14,855 (67.6)	1,974 (73.9)	3,255 (83.3)	698 (63.1)	3,962 (54.4)	510 (63.0)	1,090 (69.0)
84-99	468 (62.8)	3,386 (48.3)	553 (62.2)	915 (77.2)	118 (44.5)	593 (28.9)	124 (52.3)	208 (47.4)
Sex								
Male	2,875 (70.7)	25,362 (70.0)	2,869 (72.1)	4,614 (80.5)	1,837 (69.6)	10,772 (62.1)	1,232 (68.2)	2,410 (71.5)
Female	3,042 (72.0)	21,626 (70.5)	2,987 (74.3)	4,709 (83.0)	1,127 (68.3)	5,664 (60.2)	813 (67.2)	1,652 (72.6)
Stage at diagnosis								
I	741 (89.7)	6,860 (93.9)	816 (86.3)	1,299 (91.0)	739 (93.5)	5,058 (90.6)	599 (85.9)	1,106 (90.5)
II	2,463 (93.0)	16,040 (94.4)	2,115 (88.3)	3,434 (97.3)	922 (90.2)	3,927 (80.0)	551 (84.8)	1,134 (91.4)
III	1,816 (90.9)	15,280 (91.0)	1,637 (88.0)	3,184 (95.8)	892 (85.4)	5,269 (71.2)	534 (84.1)	1,344 (88.3)
IV	870 (39.7)	6,185 (41.0)	1,139 (56.9)	1,334 (51.2)	305 (33.3)	1,287 (26.3)	328 (48.2)	376 (29.6)
Unknown	27 (4.3)	2,623 (24.4)	149 (18.7)	72 (13.9)	106 (20.5)	895 (22.6)	33 (9.3)	102 (26.1)
Total	5,917 (71.3)	46,988 (70.2)	5,856 (73.2)	9,323 (81.7)	2,964 (69.1)	16,436 (61.5)	2,045 (67.8)	4,062 (71.9)
<p>Resectional surgery: Surgery removing the primary tumour, within nine months of diagnosis, excluding diagnostic, and palliative procedures.</p>								
<p>Appendix Table 3. Proportion of surgically-treated patients below age 90 years by age, sex and stage at diagnosis, colorectal adenocarcinoma diagnoses, 2010-2012.</p>								

Age	Life expectancy in years			
	Denmark	England	Norway	Sweden
Females				
70	15.8	16.3	16.8	16.8
75	12.3	12.7	13.0	13.0
80	9.2	9.5	9.6	9.6
85	6.6	6.7	6.8	6.8
90	4.4	4.5	4.4	4.4
Males				
70	13.3	14.0	14.0	14.3
75	10.2	10.7	10.6	10.9
80	7.5	7.9	7.7	7.9
85	5.3	5.6	5.4	5.5
90	3.6	3.8	3.6	3.6

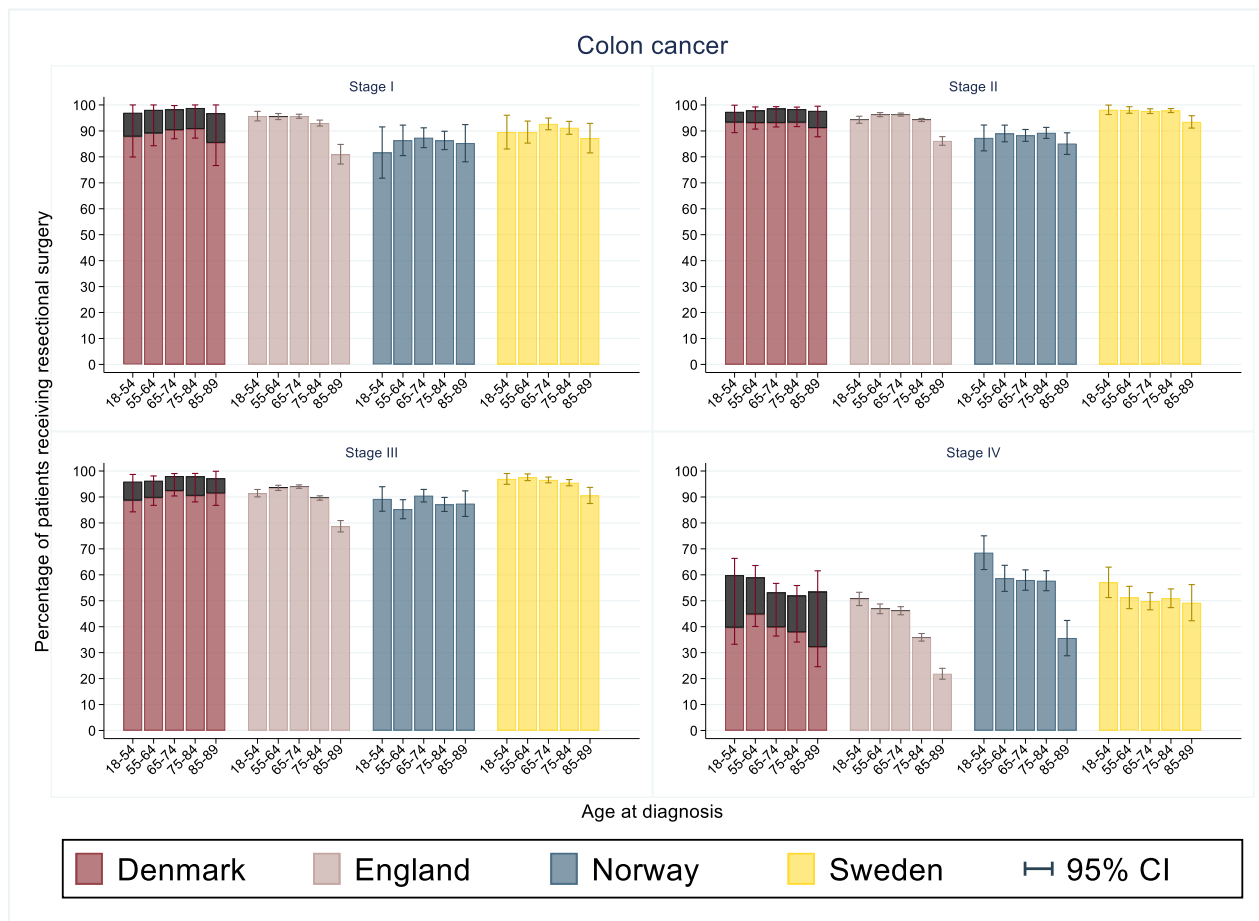
Based on population-based life tables produced by the London School of Hygiene & Tropical Medicine.¹

Appendix Table 4. Life expectancy in people aged 70+ years in the general population, 2010.

	Colon tumours				Rectal tumours			
	Denmark	England	Norway	Sweden	Denmark	England	Norway	Sweden
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Stage I								
Radiotherapy	2 (0.2)	132 (1.8)	2 (0.2)	2 (0.1)	218 (27.5)	1,934 (34.1)	260 (36.9)	613 (49.2)
Chemotherapy	36 (4.3)	137 (1.8)	12 (1.2)	21 (1.4)	207 (26.1)	649 (11.4)	162 (23.0)	118 (9.5)
Stage II								
Radiotherapy	21 (0.8)	389 (2.2)	19 (0.8)	23 (0.6)	282 (27.3)	2,414 (48.1)	344 (52.2)	817 (64.6)
Chemotherapy	527 (19.4)	2,798 (16.0)	115 (4.6)	417 (11.4)	371 (35.9)	1,369 (27.3)	241 (36.6)	266 (21.0)
Stage III								
Radiotherapy	20 (1.0)	662 (3.8)	19 (1.0)	11 (0.3)	303 (28.5)	4,084 (54.3)	305 (47.3)	991 (63.9)
Chemotherapy	1,254 (61.6)	8,143 (47.2)	827 (42.8)	1,774 (51.6)	720 (67.8)	3,488 (46.4)	233 (36.1)	741 (47.8)
Stage IV								
Radiotherapy	81 (3.6)	564 (3.6)	54 (2.6)	14 (0.5)	217 (23.2)	1,776 (35.3)	286 (40.9)	390 (30.1)
Chemotherapy	1,361 (60.3)	6,426 (41.0)	672 (32.3)	298 (11.2)	624 (66.7)	2,516 (50.1)	271 (38.8)	205 (15.8)
Missing stage								
Radiotherapy	10 (1.4)	350 (2.9)	15 (1.7)	4 (0.7)	162 (28.5)	1,091 (25.0)	126 (31.3)	124 (28.1)
Chemotherapy	94 (13.2)	1,136 (9.5)	28 (3.2)	15 (2.6)	138 (24.3)	462 (10.6)	24 (6.0)	74 (16.8)

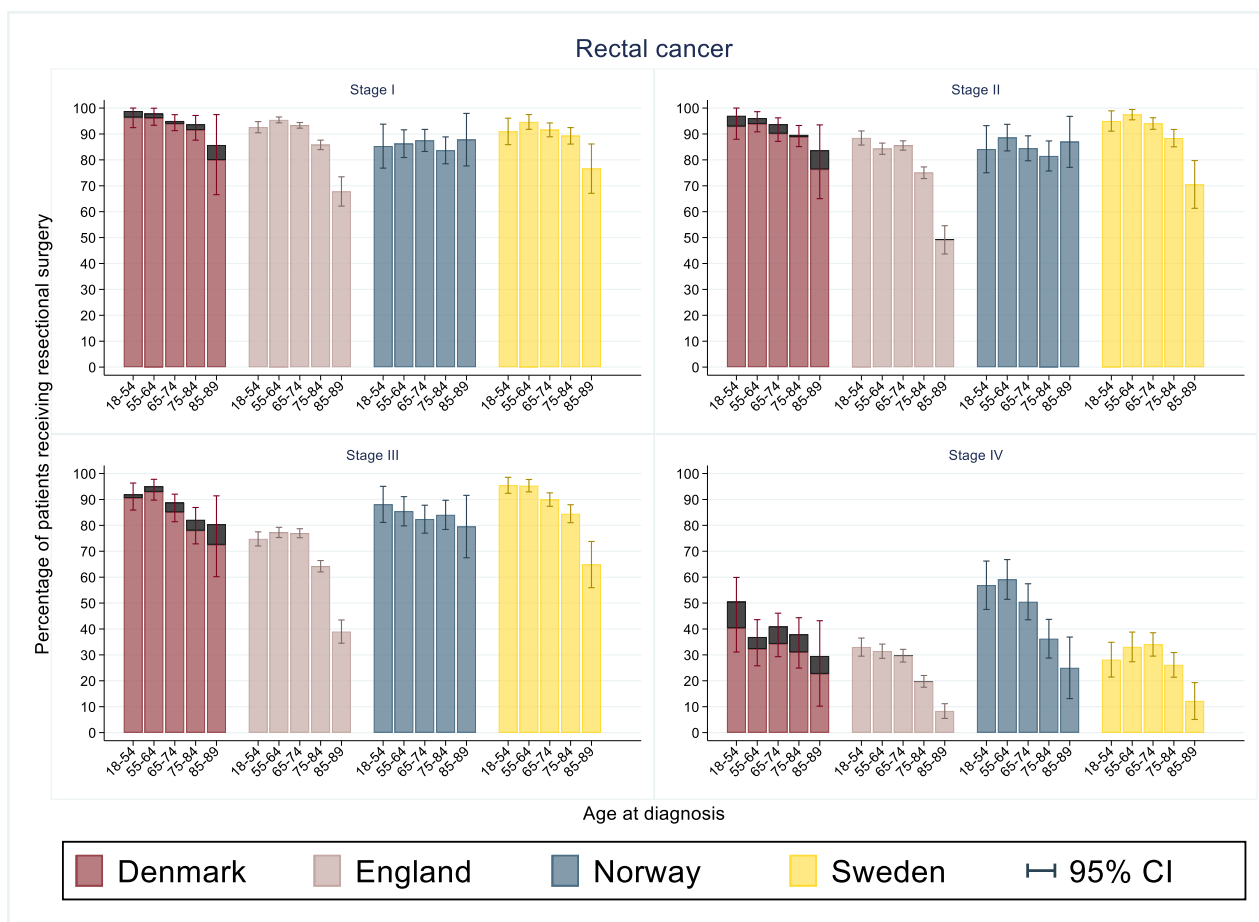
Notes: Missing data on chemotherapy (all countries), and radiotherapy (Denmark and England) mean that the figures presented are not fully comparable. Cautious interpretation is advised.

Appendix Table 5. Proportion of patients with evidence of receiving radiotherapy and chemotherapy by stage, colorectal adenocarcinoma diagnoses 2010-2012.



Appendix Figure 1a: Proportion of patients younger than 90 years with evidence of receiving resectional surgery for colon adenocarcinoma, by stage at diagnosis and age group, diagnoses 2010-2012.

To be compared with Figure 2a; Resectional surgery: Surgery removing the primary tumour, within nine months of diagnosis, excluding diagnostic and palliative procedures. For Norway and Sweden, we had information on surgical status for all patients. Information on surgery was missing for some patients in Denmark and for a tiny proportion of patients in England. The dark shaded areas at the top of the bars for Denmark and (less visible) for England represent the proportion of patients with unknown surgical status, by stage and age-group. The overall height of the bars represents the proportion we would observe if all of the patients with missing treatment data had received surgery.



Appendix Figure 1b: Proportion of patients younger than 90 years with evidence of receiving resectional surgery for rectal adenocarcinoma, by stage at diagnosis and age group, diagnoses 2010-2012.

To be compared with Figure 2b; Resectional surgery: Surgery removing the primary tumour, within nine months of diagnosis, excluding diagnostic and palliative procedures. For Norway and Sweden, we had information on surgical status for all patients. Information on surgery was missing for some patients in Denmark and for a tiny proportion of patients in England. The dark shaded areas at the top of the bars for Denmark and (less visible) for England represent the proportion of patients with unknown surgical status, by stage and age-group. The overall height of the bars represents the proportion we would observe if all of the patients with missing treatment data had received surgery.

References

1. London School of Hygiene & Tropical Medicine Cancer Survival Group. Cancer Survival Group UK life tables London: London School of Hygiene & Tropical Medicine; 2015 [Last accessed 10/08/2018]. Available from: <http://csg.lshtm.ac.uk/tools-analysis/uk-life-tables/>.