

Informativeness of clinical lymph node metastasis staging for patients undergoing curative intended surgery for colorectal cancer:

A national multi-register study

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INTRO:
Lymph node involvement is a driving factor for long-term oncological outcomes for patients undergoing surgery for colorectal cancer. Multidetector computed tomography is used for clinical staging of size of lymph nodes is used as a surrogate of lymph node involvement in clinical staging. Increased lymph nodes sized is also associated with better survival, possible being a proxy for a strong antitumoral immune response.

METHODS
 Four national register were used to identify all patients undergoing curative intended, surgery for colorectal cancer in an elective setting, with available clinical and pathological lymph node staging and assessment of mismatch repair proteins. Patients were divided by clinical N category into N0 or N1+ and compared to each other by the pathological N category. Numbers of covariates with a standardized difference of mean ≥ 0.1 were recorded. Recurrence, survival and recurrence free-survival were investigated with incidence rates at 3 years and with Cox proportional Hazards and Kaplan Meier for 5 years.

RESULTS

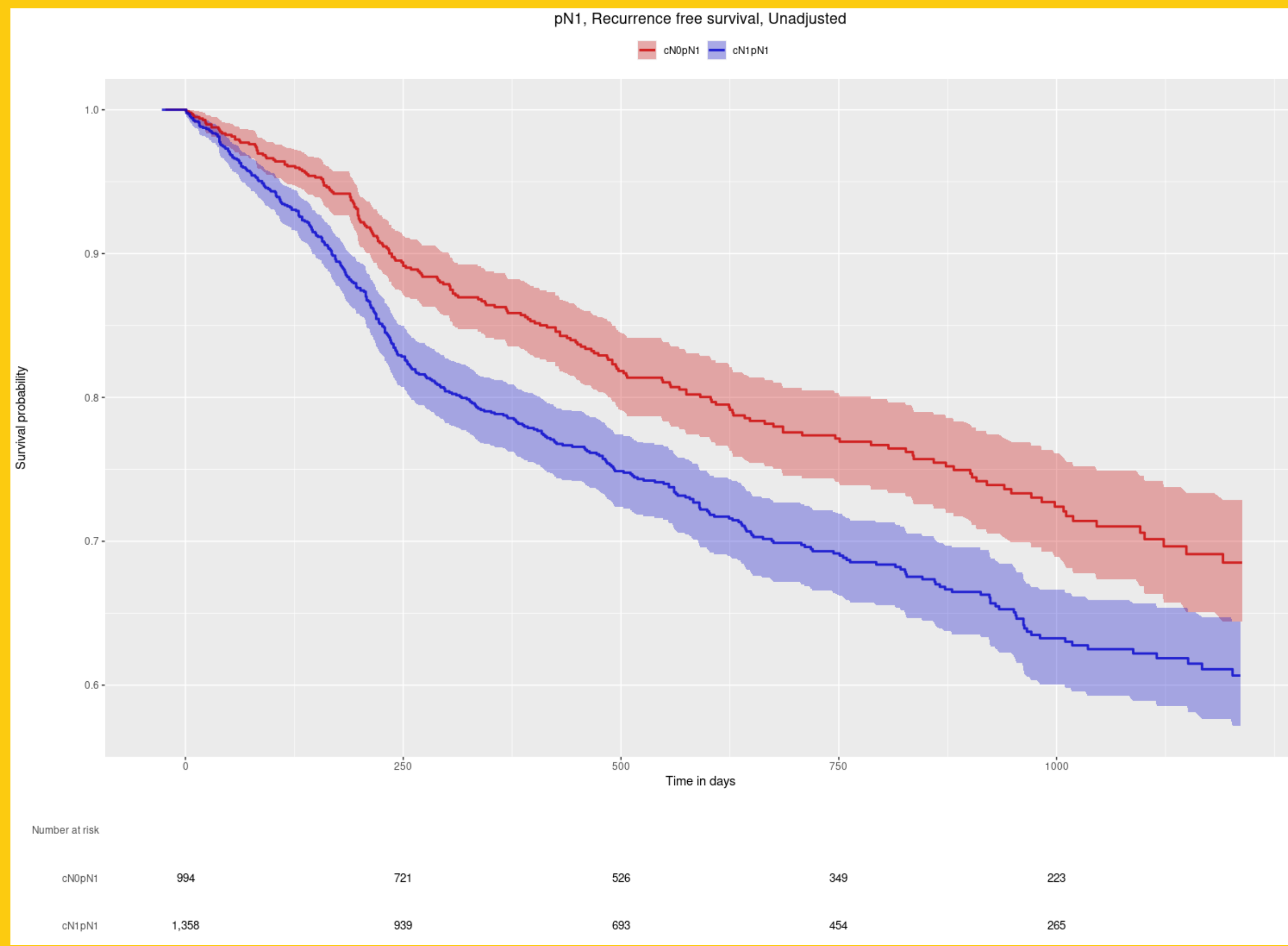
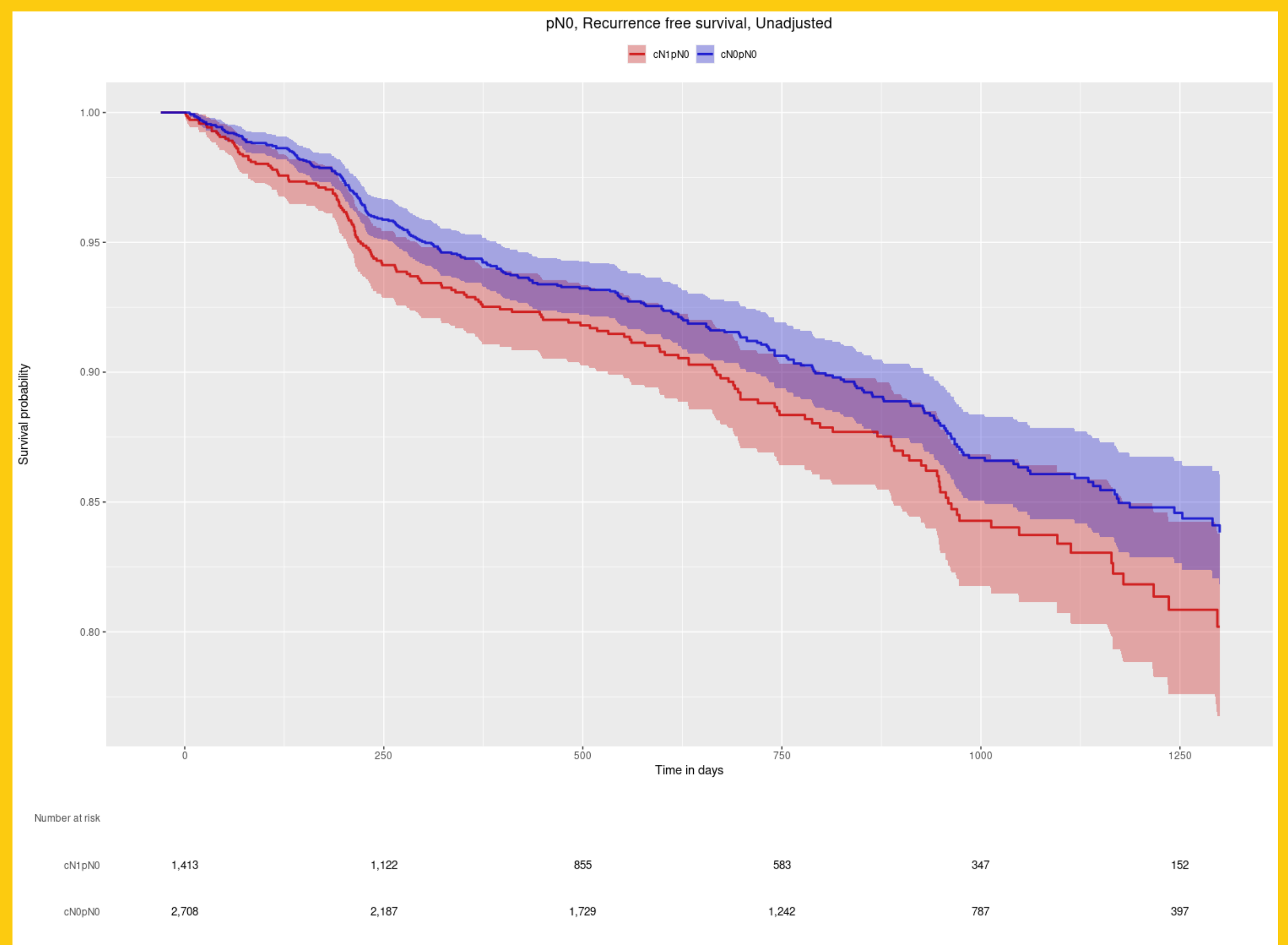
Outcome	HR (95%CI)	p-value
cN1pN0 vs cN0pN0		
Overall survival	1.07 (0.794-1.43)	0.65
Recurrence free survival	1.25 (1.027-1.516)	0.025
Recurrence	1.37 (1.077-1.735)	0.01
cN0pN1 vs cN1pN1		
Overall survival	0.668 (0.522-0.848)	0.0011
Recurrence free survival	0.69 (0.581-0.816)	0.00002
Recurrence	0.676 (0.556-0.82)	0.00008

Hazard ratios of the various outcomes

	cN1pN0 vs cN0pN0	cN0pN1 vs cN1pN1
Demographics	0/2	0/2
Condition occurrence	26/513	20/513
Procedure occurrence	21/576	21/576
Measurement occurrence	11/276	10/276
Observation occurrence	7/222	1/222
Drug exposure	0/667	0/667

Number of covariates with a standardized difference $\geq |0.1|$

Divergence between clinical and pathological N category is associated with long-term oncological outcomes – but not in the way we would suspect



	Persons	Deaths	Proportion per 1k persons	Time at risk (years)	Rate per 1k years
Clinically correct staged N0 disease	2896	103	35.57	6284	16.39
dMMR	414	21	50.72	839	25.03
pMMR	2394	77	32.16	5242	14.69
Clinically misstaged N0 disease	1516	50	32.98	3215	15.55
dMMR	338	17	50.30	680	25.00
pMMR	1129	32	28.34	2438	13.13
Clinically correct staged N1+ disease	1440	178	123.61	2972	59.89
dMMR	200	21	105.00	394	53.30
pMMR	1196	153	127.93	2499	61.22
Clinically misstaged N1+ disease	1051	83	78.97	2140	38.79
dMMR	101	12	118.81	203	59.11
pMMR	927	70	75.51	1893	36.98

3-year incidence rates of the various outcomes for patients with pN0 disease, stratified by MMR status.

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3-year incidence rates of the various outcomes for patients with pN1 disease, stratified by MMR status

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