Prognosis

Fletcher book

20.02.2023

Prognosis and prognostic factors

Prognosis = to predict future as closely as possible

- Clinical course
- Natural history (asympromatic diseases, underestimation of clinical symptoms)

Prognostic factors = tailored information on individual patient

- Patients characteristics

	Prognostic factors	**Risk factors**
	Prognostic study	Cohort study
Subjects	Sick people	Healthy people
Outcomes	Onset of the disease	Disease consequences
Rates	↓	↑
Factors itself		

Prognostic studies

1. Patients sample

Goegraficaly or clinicaly defiend population at the same stage of the disease (zero time*)

→ GENERALIZABILITY

Population based study

Pupulation sample based study

→ it is always important to make it clear who the study population is so that others can use the results appropriately

Patients characteristics

Patients setting

Way of sampling

Prognostic studies

1. Patients sample

Zero time

=

All patients entre the study at the same poit in the time of the disease course

→ GENERALIZABILITY

→ it is always important to make it clear who the study population is so that others can use the results appropriately

Prognostic studies

1. Patients sample

Zero time

=

Onset of the symptoms, diagnosis (inception cohort), beginning of the treatment

→ GENERALIZABILITY

→ it is always important to make it clear who the study population is so that others can use the results appropriately

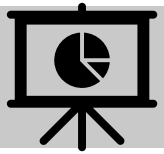
Prognostic studies

2. Follow-up time

Too short → Too long

Outcome matters the most

3. Outcomes

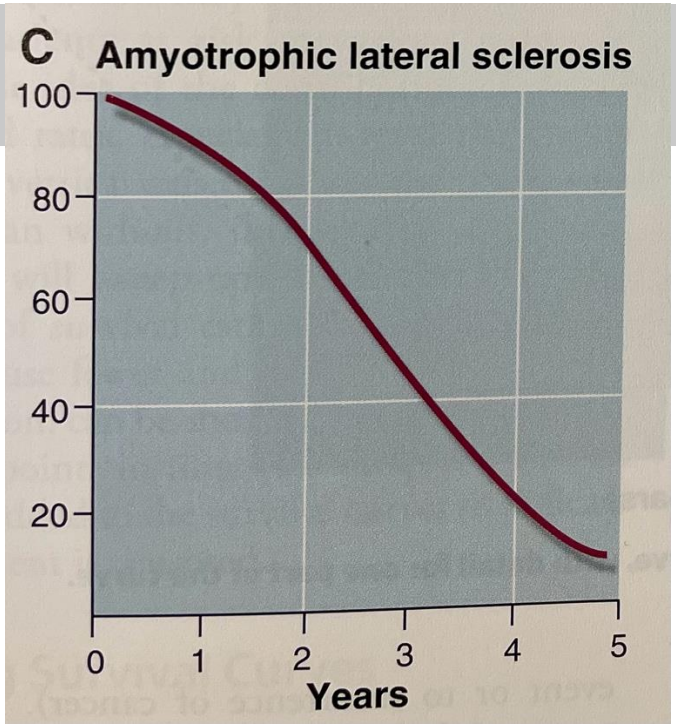


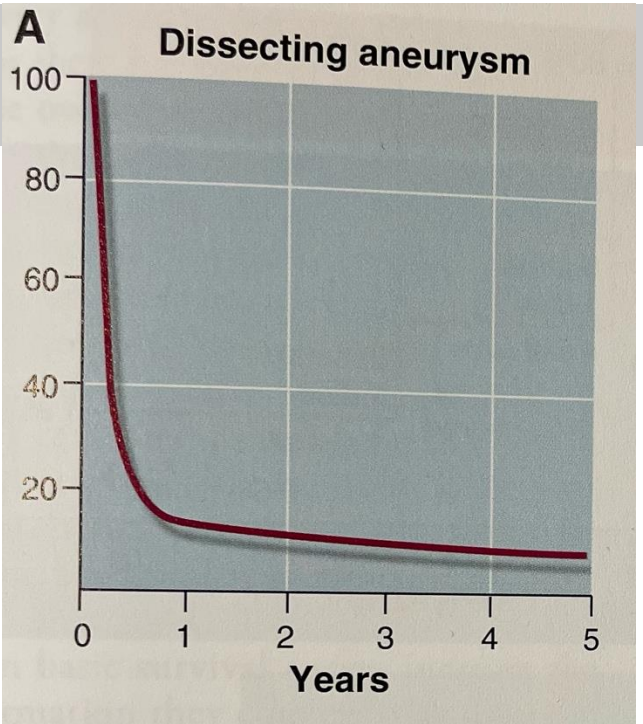
The 5 Ds	Discomfort
Death	Disability
Disease	Dissatisfaction

Description of prognosis

RATE	Definition	RATE	Definition
5-year survival	Percent of patients surviving 5 years from some poit in the course of disease	**Response**	Percent of patients showing some evidence of improvement following an intervetion
Case fatality	Percent of patients with a disease who die of it	**Remission**	Percent of patients entering a phase in which disease is not longer detectable
Disease-specific mortality	Number of people pe 10 000 population dying of a disease	**Recurrence**	Percent of patients who have retur of disease after a disease free interval

10% ≠ 10%

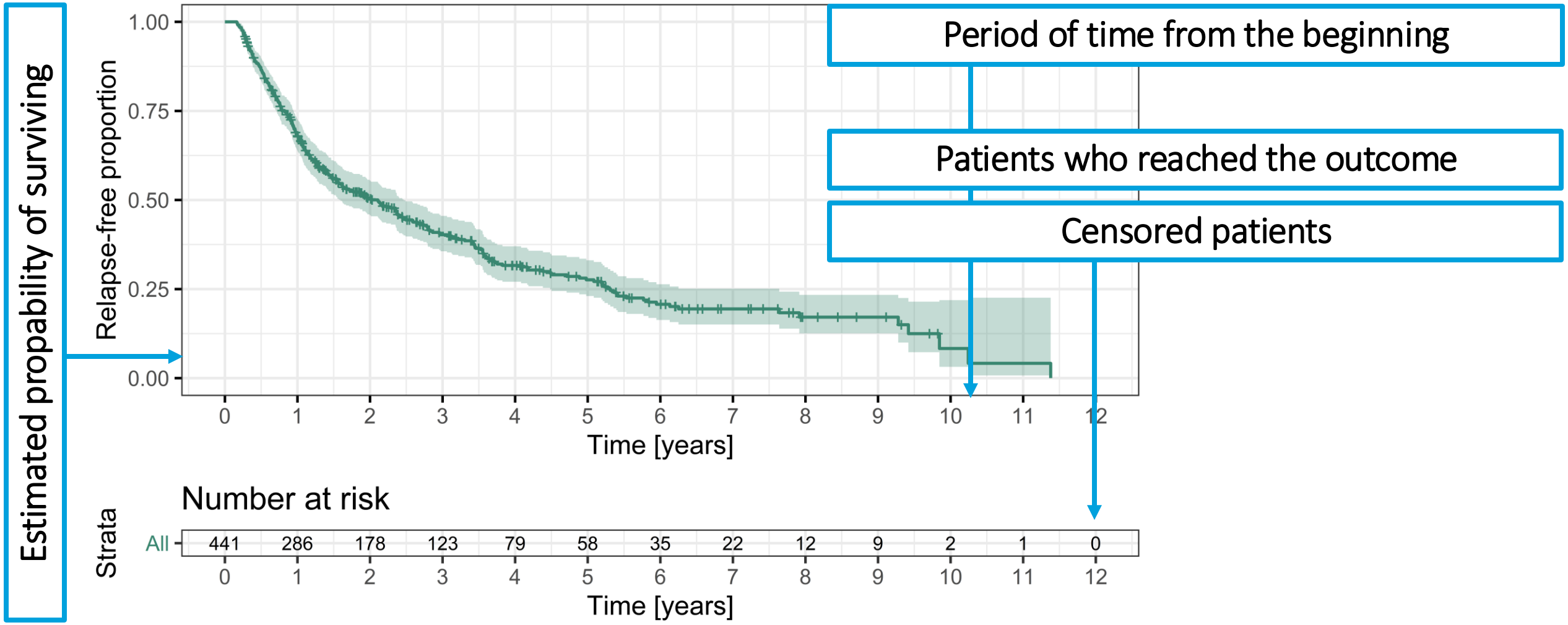




Description of prognosis

Survival analysis

Dichotomous outcome which **can happen only once**



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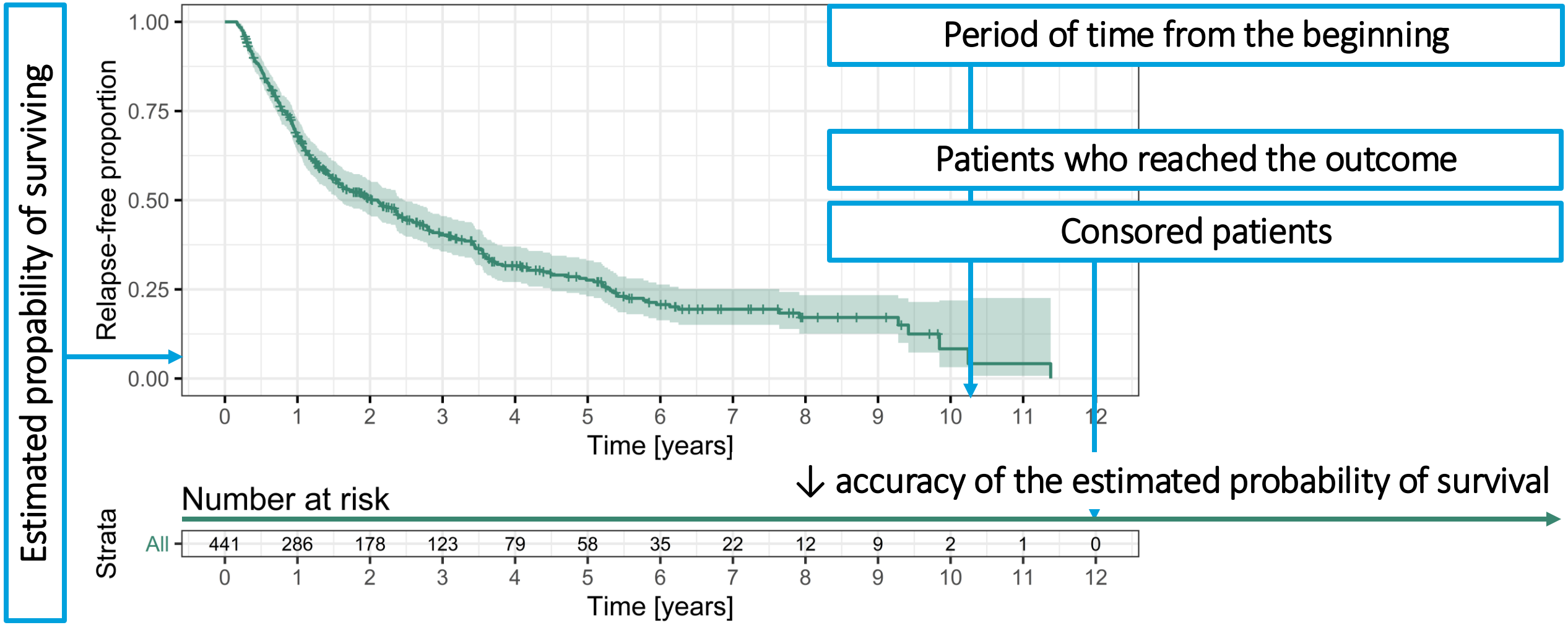

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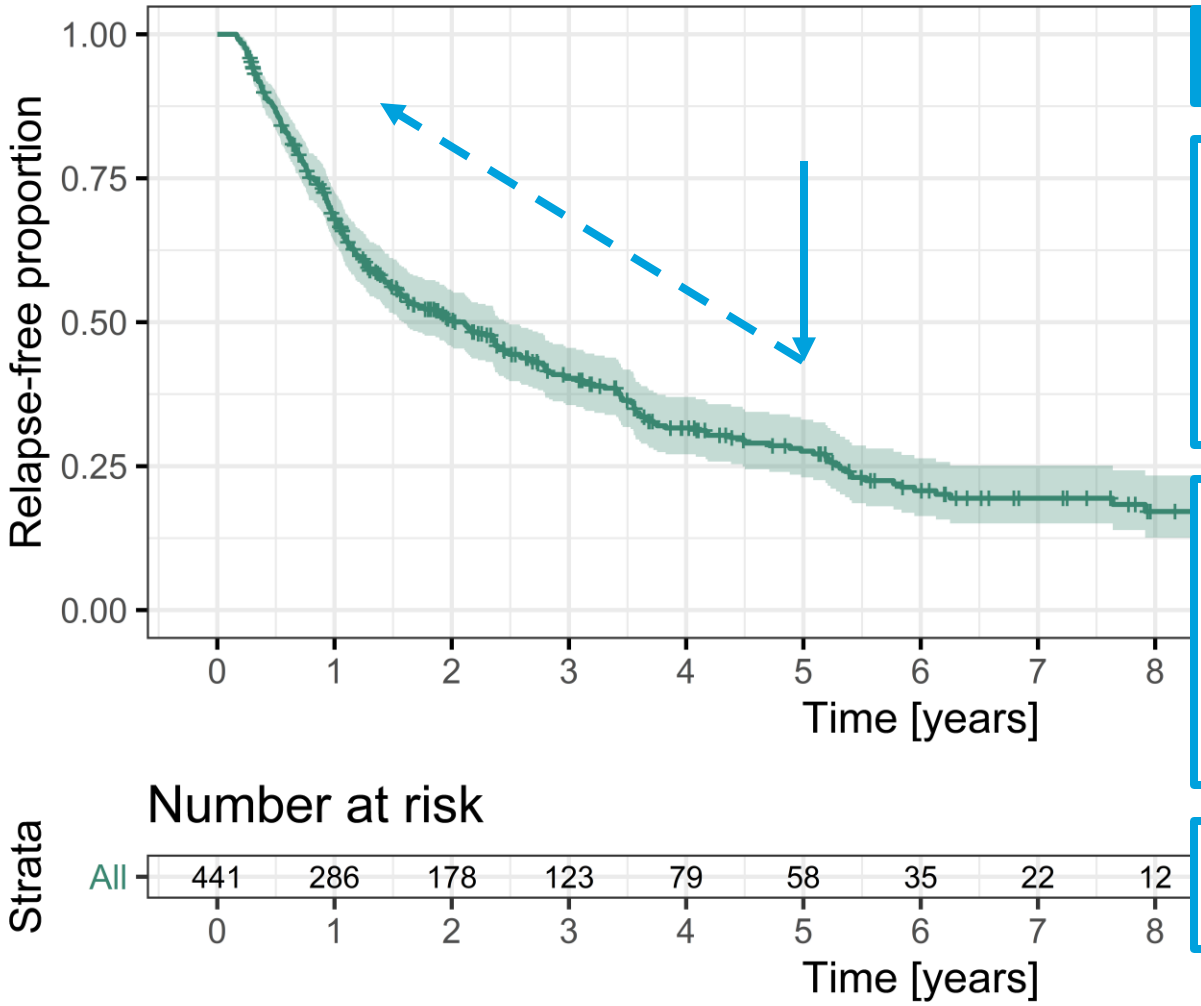


Estimated propability of surviving

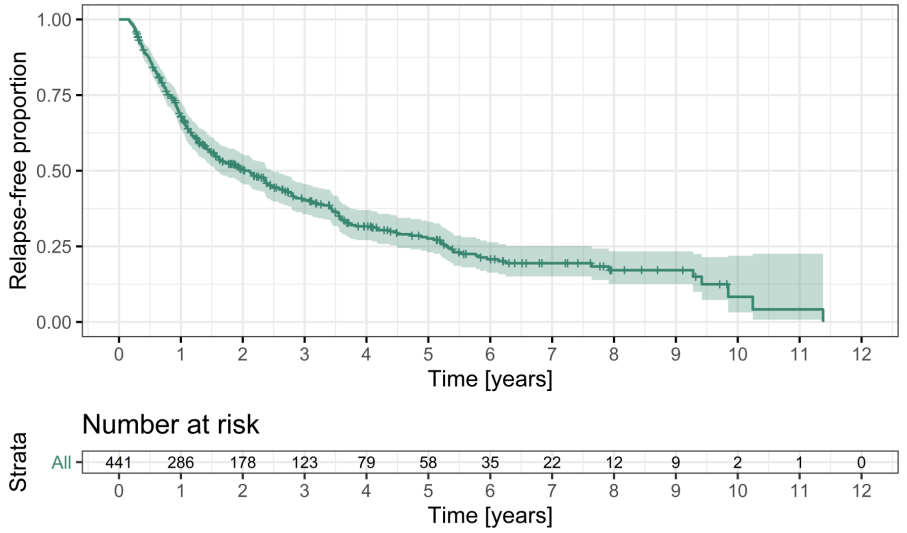
The propalibity of surviving to any point is estimated form cumulative probility of surviving in each of the time intervals that precede it.

Ratio of the number of patients surviving to the number of patients at risk at the same moment

5 at risk, 1 died → 4 : 5

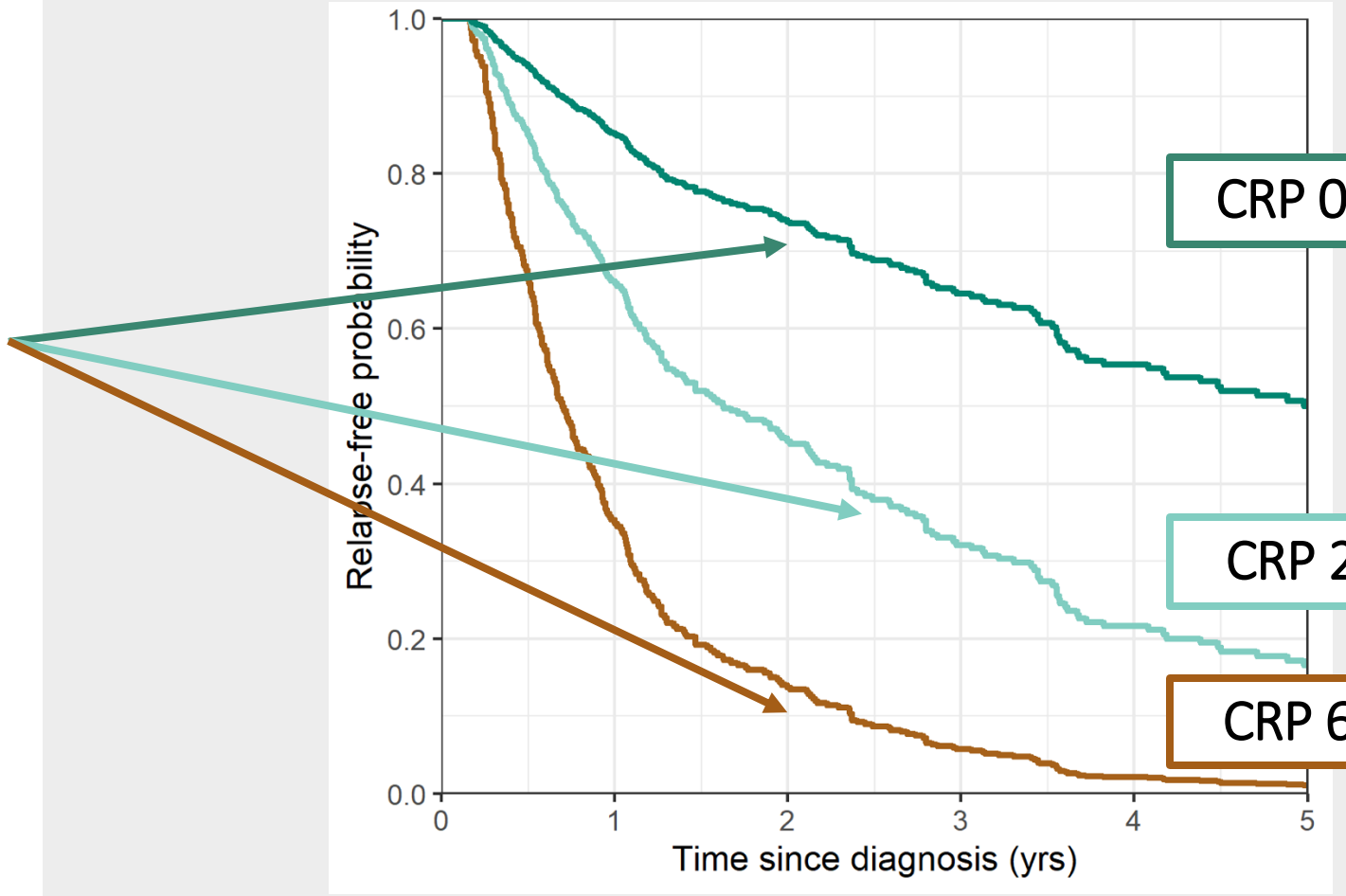
Prognostic factors

Prognosis of a group



Newly diagnosed paediatric CD patients starting treatment with azatioprin at the time of diagnosis

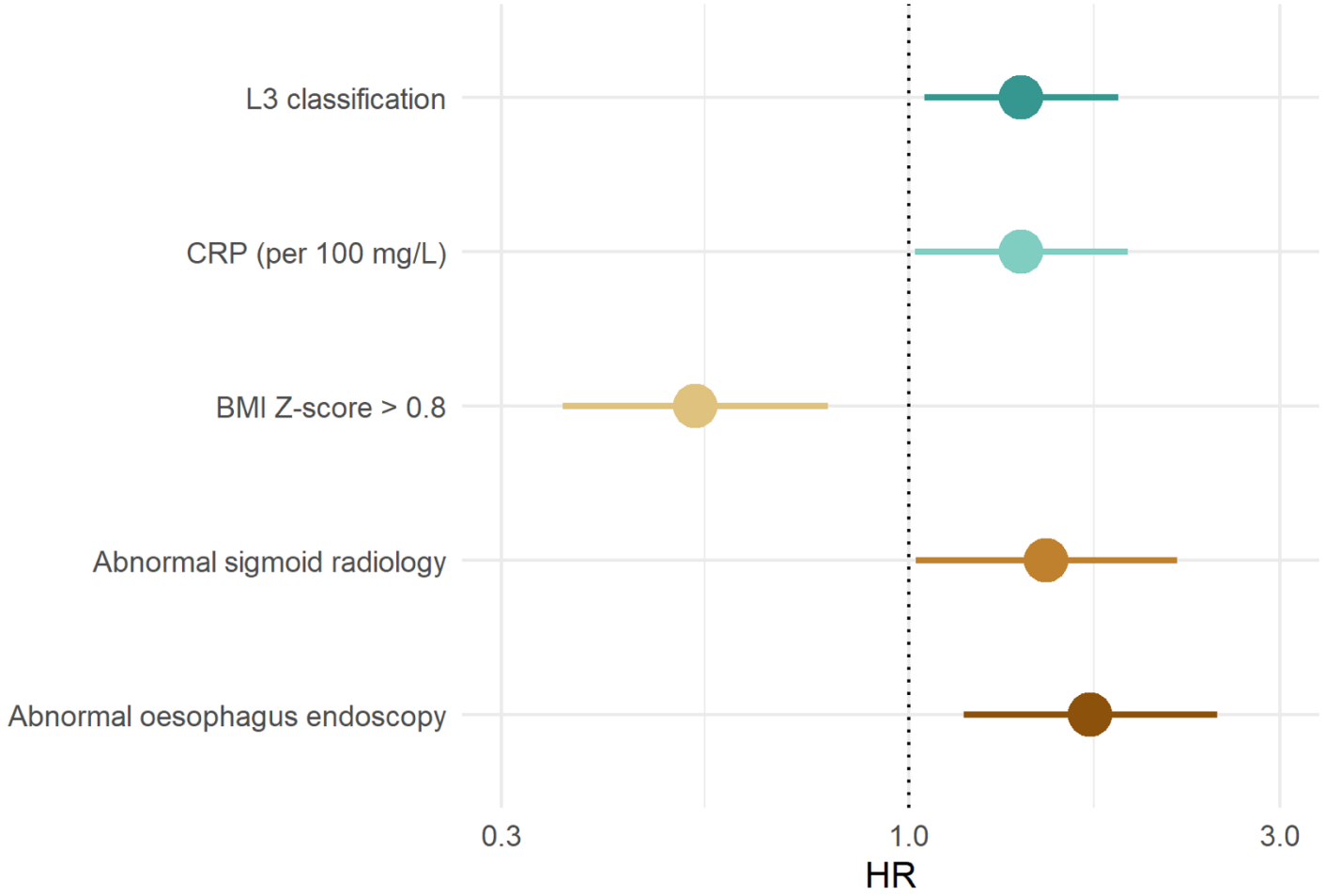
Prognosis in patients with different characterisc



CRP level at diagnosis = prognostic factor

Prognostic factors

Effects of one prognostic factor relative to the effect of another can be summarized from data in a time to event analysis by Hazard ratio (HR)



Study designes

Case series

Clinical prediction rule

→ combination of different variables
→ fix point in a time
→ trainning and testing set

Cohort studies

→ sampling bias
→ migration bias
→ measurement bias (equality, unawerness, clear rules)
→ bias from non-differential misclassification
→ bias from missing data (imputation)
→ Recognize the bias and consider its implication on clinical question

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→ Sensitivity analysis

Conclusion

- Prognosis
- Prognostic factors
- Clinical course
- Nature history
- Zero time
- Inception cohort
- Event
- Survival analysis
- Kaplan-Mayer analysis
- Censored
- Hazard ratios
- Case series
- Case report
- Clinical prediction rule
- Training set
- Test set
- Validation
- Prognostic stratification
- Sampling bias
- Migration bias
- Dropouts
- Measurement bias
- Multiplne imputation
- Senzitivity analysis
- Best-case / worst-case analysis