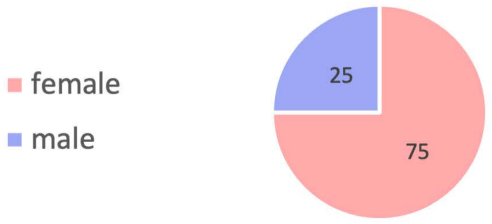
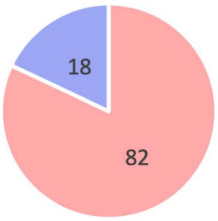
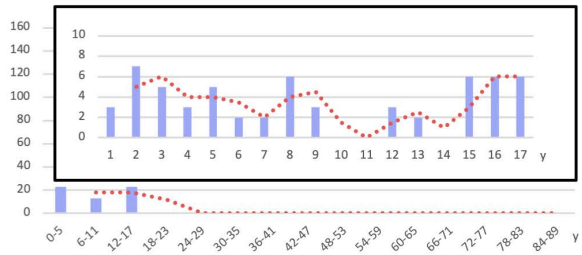
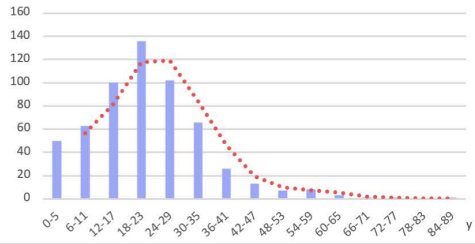
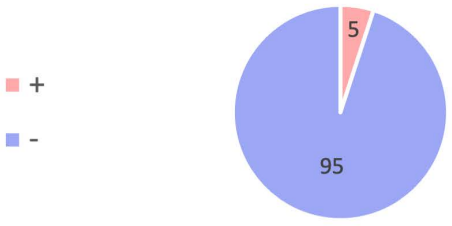
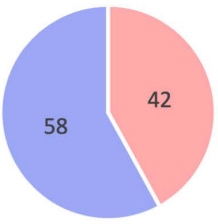
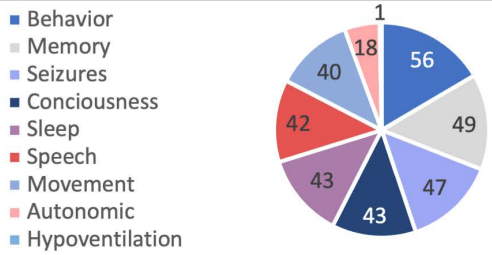
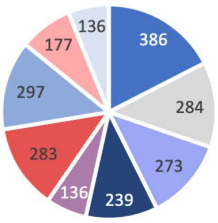
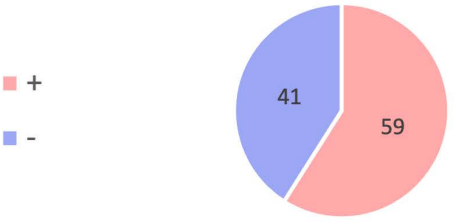
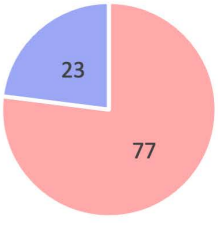
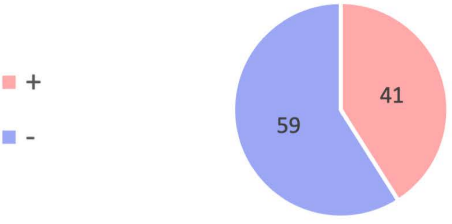
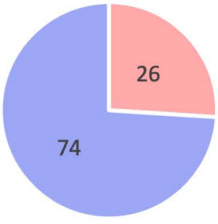
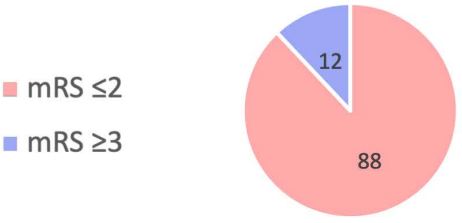
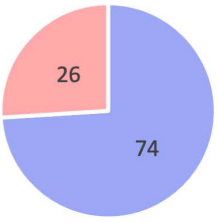
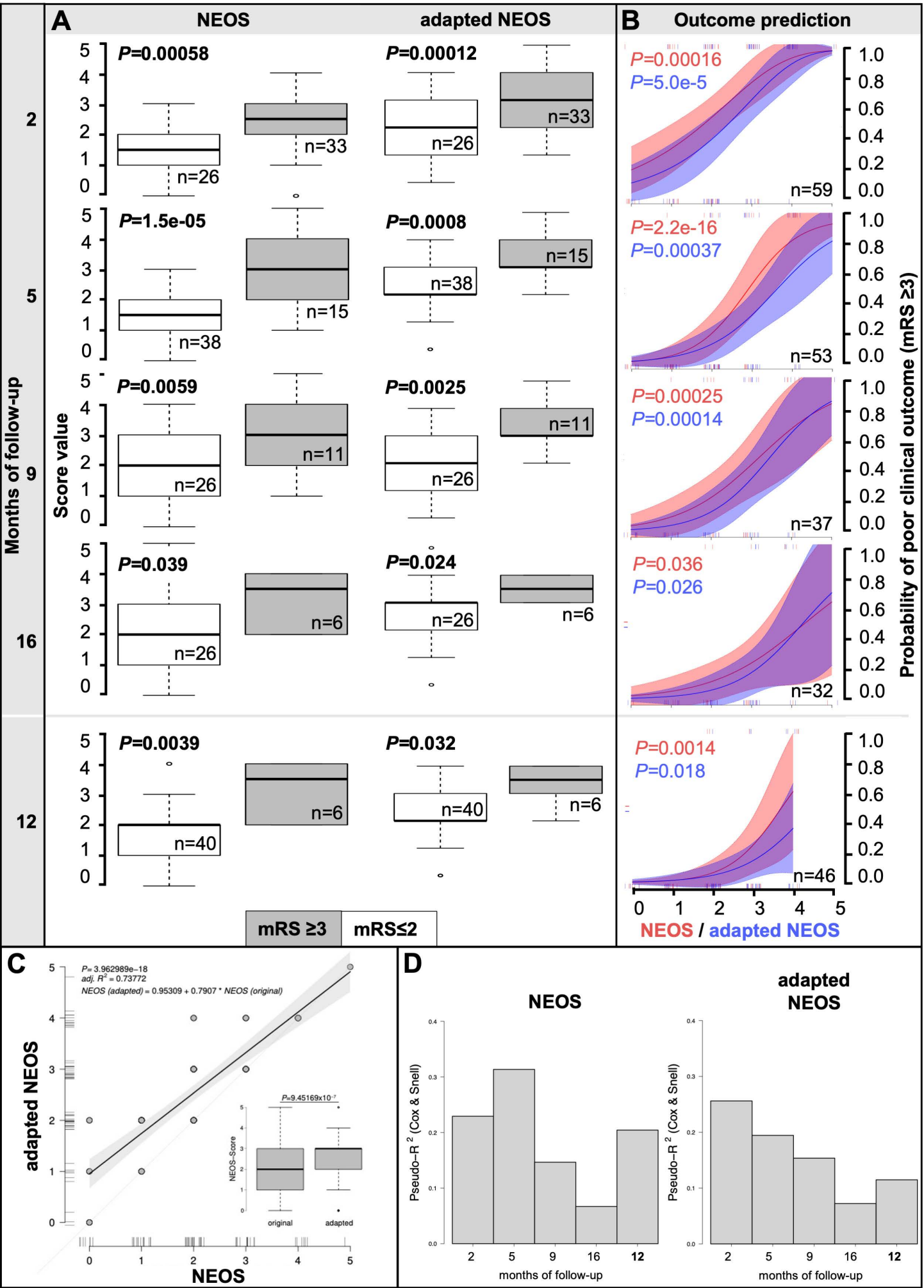
Supplementary Figures

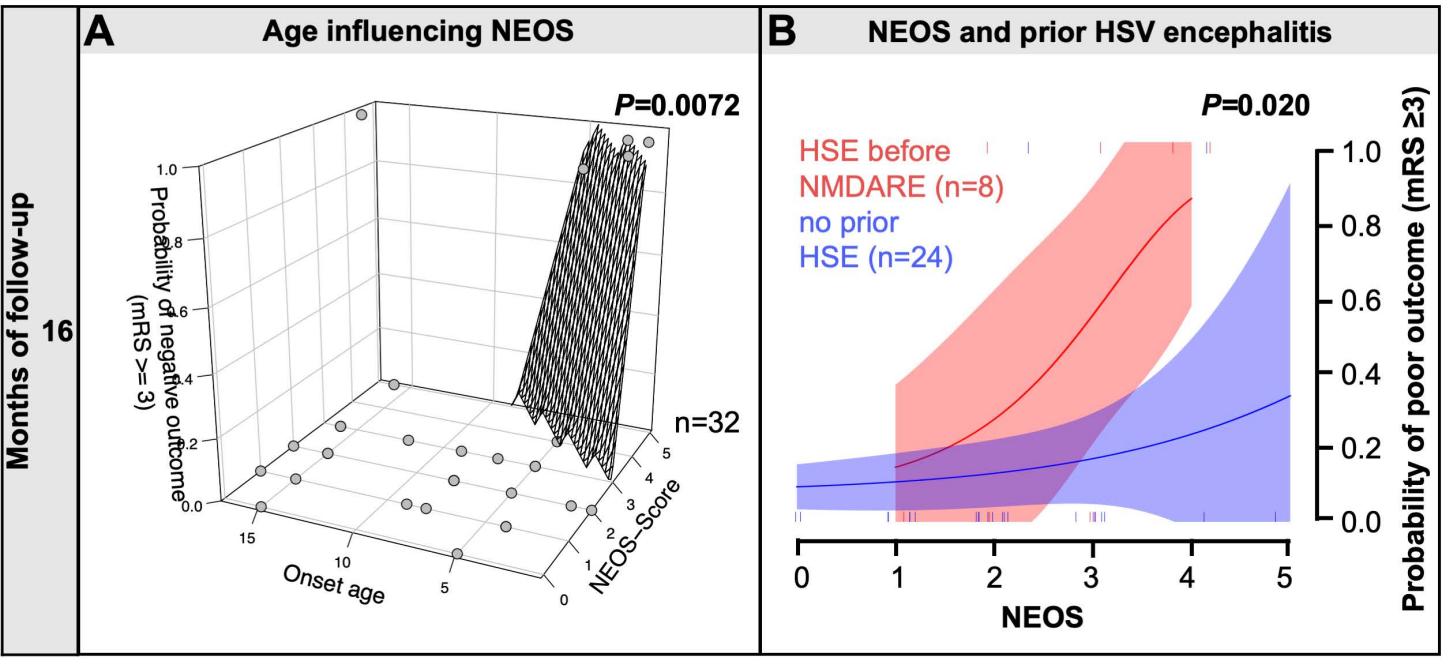
eFigure 1 Cohort description and comparison with Balu *et al.*[16]

Cohort	Pediatric	Original (Balu *et al.*)
N	59	382
Sex		% 
Age		
Tumor		% 
Main symptoms		absolute numbers 
ICU		% 
Second-line therapy		% 
Outcome after 1y		% 

eFigure 2 Evaluation of an adapted NEOS score



eFigure 3 Influence of additional patient characteristics on the predictive power of the NEOS score



Captions

eFigure 1 Demographic and epidemiological characteristics of our pediatric cohort in comparison with the cohort of Balu *et al.*[16] Number of patients included, sex and age distribution, tumor frequency, distribution of major symptoms, need for intensive care unit (ICU) admission, rate of second-line therapy (rituximab, cyclophosphamide) applied, ratio of "good" (mRS ≤ 2) to "poor" (mRS ≥ 3) outcome at 1 year.

eFigure 2 Evaluation of an adapted NEOS score (A) Association of the original and adapted NEOS score with mRS-based outcomes (good outcome mRS ≤ 2, poor outcome mRS ≥ 3) during the follow-up period (from discharge up to 16 months after diagnosis). Box plots represent IQR, solid lines mark the median, whiskers display range (upper/lower quartile +/- 1.5*IQR), circles show outliers. "n" indicates the number of subjects included at each time point. **(B)** Predictability analysis of mRS-based outcomes by the NEOS score with binomial generalized linear models (GLM). Line plots show association of the original (red curve) and adapted NEOS score (blue curve) with poor clinical outcome (mRS ≥ 3) during the follow-up period. Solid lines represent best fit, shadows indicate confidence intervals. Tick marks on the upper and lower X axes indicate the number of subjects (also written out next to every graph) for the respective NEOS score and good or poor mRS-based clinical outcome. A small random jitter was added to spread ticks around the discrete NEOS score values, to discriminate single data points. The p-values were adjusted for multiple testing. **(C)** Correlation analysis of original and adapted NEOS score using a linear model. Additional tick marks on the X and Y axes again indicate the number of individuals (discrete scale). The adapted score shows a higher average value than the original NEOS (boxplot; paired Wilcoxon test) but converges at higher values, which may reflect a more appropriate severity scaling for adolescent subjects. **(D)** Time-dependent loss of significance from NEOS to mRS. Distribution of pseudo-R2 values for Prediction of mRS during follow-up using the original and adapted NEOS score.

eFigure 3 Influence of additional patient characteristics on the predictive power of the NEOS score For the complete analysis of patient characteristics affecting the NEOS score in the prediction of clinical outcomes see e**Table 4**. Among these factors, particularly two seem of clinical relevance and useful to define risk groups: **(A)** Younger individuals show a higher risk of poor outcome (mRS ≥ 3) already at lower NEOS scores. 3D plot shows data from 16 months after diagnosis. **(B)** Within the subgroup of individuals with HSV encephalitis (HSE) before NMDARE (red curve), the NEOS score predicts an increased risk of poor outcome (mRS ≥ 3) beyond one year after diagnosis. Solid lines represent best fit, shadows indicate confidence intervals. Tick marks on the upper and lower X axes indicate the number of subjects for the respective NEOS score and good or poor mRS-based clinical outcome. A small random jitter was added to spread ticks around the discrete NEOS score values, to discriminate single data points. "n" indicates the number of subjects included at this time point.