

Figure S1 (A) Approximation of a linear quadratic model in dose to the radiation dose partial volumes of pulmonary infiltrates per 0.1 Gy dose step curves from 104 patients with pneumonitis of grade 0-2. Random intercepts, and random coefficients of the linear and quadratic terms in dose were allowed. The fitted linear quadratic curves were given in the same colour per patient as the pulmonary infiltrates per 0.1 Gy dose step from the dose volume histograms. (B) Three dose response curves from Figure S1B that follow more closely a linear quadratic dose response relationship. (C) Predicted partial volumes of lung infiltrates per 5 Gy dose bin by the stepwise mixed model in dependence of Durvalumab consolidation (yes, blue circles; no, red triangles) for patients with no or subclinical pneumonitis of grade 0-1. (D) Predicted partial volumes of lung infiltrates per 5 Gy dose bin by the stepwise mixed model in dependence of Durvalumab consolidation (yes, blue circles; no, red triangles) for patients with grade 2 pneumonitis.

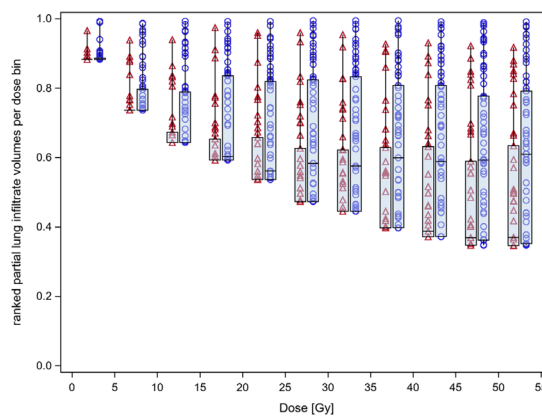


Figure S2 Predicted mean ranks per patient and 5 Gy dose bin from the Step model fitted to ranks from the partial volume of infiltrate data from the different patients ranked per 5 Gy dose bin. Estimates for patients with and without Durvalumab consolidation were plotted with blue circles and red triangles were plotted with an horizontal offset around the median of the respective dose bin. The boxes extend from the 25th to the 75th percentile of the normal score estimates per dose bin for patient with and without Durvalumab consolidation, and were filled with half ransparent light blue color. The median of the respective distribution of ranks is indicated by a horizontal bar. There was a significant main effect and interaction effect with the dose bins of Durvalumab consolidation on the infiltrate normal scores, each ($P < 0.0001$, F -test).

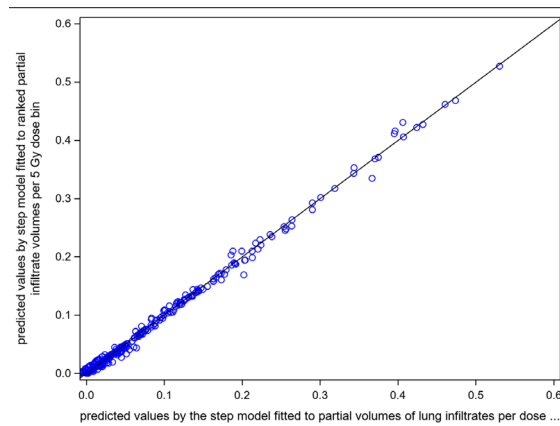


Figure S3 Scatter plot of the predicted partial volumes per 5 Gy dose bin from the step model fitted to the partial volumes of pulmonary infiltrates from the dose volume histograms versus to the ranked partial infiltrate volumes per dose bin by the mixed stepwise model. The predicted ranks per patient and dose bin were back transformed to partial lung infiltrate volumes per dose bin using penalized B-splines. The ranks were back transformed by restricted b-splines to partial There was a good correlation between both estimates characterized by a Pearson correlation coefficient of $r=0.9982$ (95% CI, 0.9980 – 0.9984). For comparison, the 1:1 reference line is given.

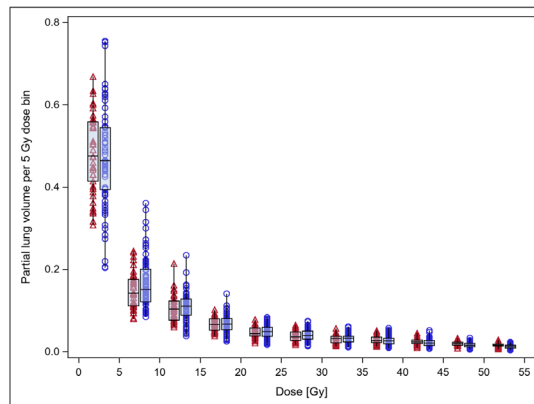


Figure S4 Partial lung volumes exposed to doses within the indicated 5 Gy dose bins for patients with (blue circles) or without (red triangles) Durvalumab consolidation. There was a significant dependence on the respective dose bin ($P<0.0001$, F -test) but no significant main effect of Durvalumab consolidation ($P=0.9023$, F -test) and no interaction effect of dose bin and Durvalumab consolidation ($P=0.9096$, F -test). The bottom and the top edges of the boxes indicate the ranges between the 25th to 75th percentiles, the horizontal line inside the box the median of the distribution of partial lung volumes exposed to doses within the respective dose bin.