## Supplemental Figure 1: The original clinical/biomarker model to predict the hospital mortality in the ALVEOLI

$$\text{Prob}\{\text{mort} == \text{"dead"}\} = \frac{1}{1+\exp(-X\beta)}, \quad \text{where}$$

$$\begin{aligned} X\hat{\beta} = & \\ & -5.05 \\ & +0.0261\text{apache} + 0.000000593(\text{apache} - 53.7)_+^3 - 0.0000011(\text{apache} - 92)_+^3 \\ & +0.000000505(\text{apache} - 137)_+^3 \\ & +0.0288\text{age} + 0.00000661(\text{age} - 28.7)_+^3 - 0.0000122(\text{age} - 50)_+^3 \\ & +0.00000557(\text{age} - 75.3)_+^3 \\ & -0.279\text{spd} + 0.149(\text{spd} - 3.46)_+^3 - 0.267(\text{spd} - 4.59)_+^3 + 0.118(\text{spd} - 6.03)_+^3 \\ & +0.00311\text{il}_8 + 0.0705(\text{il}_8 - 3.24)_+^3 - 0.105(\text{il}_8 - 4.3)_+^3 + 0.0344(\text{il}_8 - 6.48)_+^3 \end{aligned}$$

and $(x)_+ = x$ if $x > 0,\ 0$ otherwise.

**Pre–Transformations**

| Variable | Transformation |
|---|---|
| spd | log(spd) |
| $\text{il}_8$ | $\log(\text{il}_8)$ |