


$$\text{EVSI} = \text{E}_{\mathbf{X}} \left[\max_t \underbrace{\text{E}_{\boldsymbol{\theta}|\mathbf{X}} [\text{NB}_t(\boldsymbol{\theta})]}_{\substack{\text{Value of decision based} \\ \text{on} \\ \textbf{sample} \text{ information} \\ \text{(for a given study} \\ \text{design)}}} \right] - \underbrace{\max_t \text{E}_{\boldsymbol{\theta}} [\text{NB}_t(\boldsymbol{\theta})]}_{\substack{\text{Value of decision based} \\ \text{on} \\ \textbf{current} \text{ information}}$$

Prior predictive
distribution



Posterior given data \mathcal{X}

