

## Appendix G. Example of Stakeholder Influence on the Model Development Process

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Stakeholders were strongly supportive of using both the pain and functional outcomes in patients' decision-making processes, although they were not of equal importance to all patient stakeholders. As the project progressed, the team continued to get more input from patient and clinician stakeholders, which influenced modeling. For example, the initial model built on the pooled OAI and MOST dataset predicted 1-year physical function with inclusion of a depression score, which was a variable included in the OAI and MOST data sets. We used the larger pooled dataset to see if any variables alone, or interacting with a treatment variable, should be added or removed to improve the model, and had the model re-reviewed by clinician and patient stakeholders and the team developing the user interface. In this case, the depression score had a p-value between .05 and .10 from model of the 1-year SF-12 outcome after corrected for imputation error. The depression scores available in our database came from a multi-item questionnaire. The research team was concerned the additional items needed to compute the depression score might be burdensome for the patient and/or clinician to collect, and we thus considered removing the variable from the model. We then compared model performance (*r*-square, calibration) with and without the variable, and although performance was slightly worse without the variable, the decline in *r*-square of <1% was considered insufficient to justify the data collection burden of retaining it, and the team decided to use the simpler version of the model.