# Musculoskeletal case-mix adjustment in a UK primary/community care cohort: Testing Musculoskeletal models to make recommendations in this setting.

### Abstract

Benchmarking musculoskeletal (MSK) services is limited by the need to adjust for differences in patient characteristics/case-mix. Without this providers and services cannot be usefully compared. This paper investigates the predictive ability of case-mix adjustment models in a primary/community care cohort.

Objectives: To investigate the predictive ability of two existing MSK case-mix adjustment models and compare to the predictive ability of an evidence informed and statistically informed model.

Method: A secondary analysis of the ‘Subgrouping for Targeted Treatment in Musculoskeletal Conditions’ cluster randomised controlled trial data (n=1211). Stepwise linear regression models were built and compared using available baseline variables. The MSK-HQ was used as the primary functional status outcome.

Results: Two existing models were compared (UK National PROMs Model, US FOTO Model) using available variables. Of these models the modified US FOTO model showed the best predictive ability in this cohort predicting 44% of the variation in MSK-HQ outcome, the modified UK National PROMs model predicted 41%. A newly developed evidence informed model (Keele Model 1) performed no better than the existing models, and a statistically informed model (Keele Model 2) gave only an additional 2% increase in model power compared to the modified US FOTO model.

Conclusion: All models showed strong predictive ability. The modified US FOTO model looks to be best suited to the UK primary/community care cohort of the existing models. This model performed so well that we recommend that this model is used in a UK setting moving forwards rather than development of an alternative UK model.