Trend for decreasing Multiple Sclerosis Severity Scores (MSSS) with increasing calendar year of enrollment into the New York State Multiple Sclerosis Consortium.

BACKGROUND: Although the natural history of multiple sclerosis has been charted extensively, it is still not known whether the trajectory of disability accumulation has changed in the era of disease-modifying therapies (DMTs).

OBJECTIVE: The objective of this study was to examine trends in Multiple Sclerosis Severity Score (MSSS) with regard to calendar year of enrollment into the New York State MS Consortium (NYSMSC).

METHODS: Distributions of MSSS were calculated for each year of enrollment, from 1996 to 2007. Quantile regression was used in a multivariable analysis to model for conditional distribution of MSSS quantiles as functions of potential confounders.

RESULTS: The cohort consisted of 6238 patients. Mean age at enrollment was 38 years (SD=10) and mean disease duration was 10.1 years (SD=7.3); 57% were on DMTs. The quantile regression model of trends in MSSS between 1996 and 2007 controlled for age, sex, ethnicity, diagnostic delay, and disease duration and demonstrated a robust trend toward lower MSSS with increasing year of enrollment. The model-
predicted median MSSS at enrollment in 1996 was 5.04 (95% CI, 4.86-5.21), and in 2007 was 3.78 (95%CI, 3.36-4.20; p<0.001). The downward trend in MSSS during the enrollment period was confirmed by analysis of Expanded Disability Status Scale (EDSS) distributions, adjusted for disease duration, in successive years of enrollment.

**CONCLUSIONS:** The recent enrollees into the NYSMSC had lower MSSSs compared to the earlier enrollees. The apparent slowing in disability accumulation is likely due to a complex combination of factors: advent of DMTs and improvements in MS care, as well as selection, migration, and recall biases.