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DISEASE ACTIVITY PATTERNS IN RHEUMATOID ARTHRITIS IN THE FIRST 3-YEARS OF FOLLOW-UP IN USUAL CARE: MARKOV MODELING SHOWS RAPID IMPROVEMENT IN DAS28 STATES IN THE 1ST YEAR FOLLOWED BY STABLE STATES IN THE LAST 2 YEARS. RESULTS FROM THE ONTARIO BEST PRACTICES RESEARCH INITIATIVE (OBRI)

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My abstract has been or will be presented at a scientific meeting during a 12 months period prior to EULAR 2015: No

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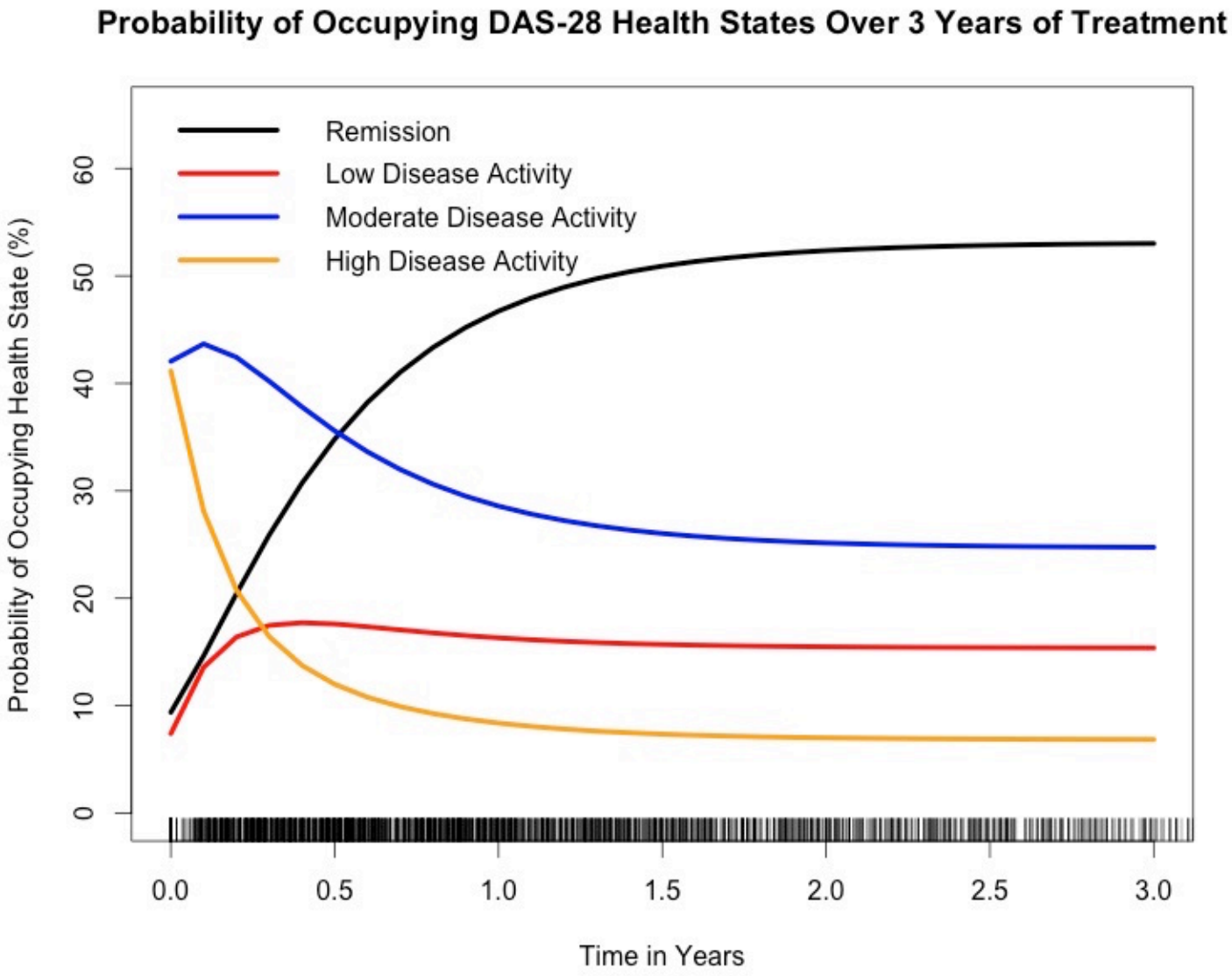
Background: Disease progression in longitudinal studies of rheumatoid arthritis (RA) is usually assessed by examining a measure of disease over fixed time intervals; results can be presented as the mean of the whole group or, for subgroups sharing common underlying characteristics. These approaches do not addresses individual within-patient changes over time. In contrast, a multi-state model classifies each patient into one of several pre-defined disease states at patient visit and examines moves between disease states over time.

Objectives: The objectives were: (1) to provide a descriptive analysis of patients' disease states defined by the DAS-28 throughout the first three years of treatment; (2) to determine the time spent in each disease state; and (3) to estimate the probabilities of changing between disease states.

Methods: From a large ongoing prospective study of RA in Ontario, Canada (OBRI), patients who met the following inclusion criteria were selected: 1) incident RA, 2) active disease (>= 1 swollen or tender joint) and 3) at least 2 follow-up visits to their rheumatologist. The DAS-28 disease score was collected at each visit and patients were classified in one of four DAS-28 categories, from remission to high disease activity. A multi-state (in this case 4-state) Markov model was fitted to describe patient progression through disease states over time. Traditional assumptions of Markov models are equal intervals between visits, which do not reflect the clinical reality of irregular visits. We fitted a novel Markov model to account for the irregular time intervals considering time as a continuous variable allowing us to examine real-world disease course over time.

Results: There were 3014 visits in 586 patients over the 3-year follow-up window (see figure). At baseline, 43% of patients were in DAS-28 high disease activity, but patients, moved out of this health state rapidly on average 0.17 years, 95% CI (0.19, 0.23). At baseline 9% of patients were in DAS-28 remission, increasing to 30% at 6 months and 45% at 1 year. Once a patient achieved remission, the mean duration before moving to another disease state was 0.81 years, 95% CI (0.67, 0.97). By 1.5 years after initiation of treatment, patients in each disease state remained relatively constant indicating no net movement between health states.

Image/graph:



Conclusions: We identified that individual patients transition between disease states rapidly in the first 3 years of treatment when observed in usual care. Our analysis indicates the critical first year of treatment before a steady disease state with no net movement will be reached. Major changes in the first year of treatment especially in the first 6 months could be a result of treat-to target strategy but do not occur as quickly as specified by treat-to-target guidelines indicating possible gaps in care. Future research will adjust for covariates including drug history and demographic factors while also examining between physician differences.

Disclosure of Interest: None declared