

INVITED SPEAKERS

Big Data and Arthritis

Methods for Moving Towards Pre-Clinical Diagnosis for Rheumatoid Arthritis

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The Arthritis Foundation is developing new data-driven approaches to improve the care of peoples with arthritis. This research analyzes the comprehensive Electronic Medical Records of the Department of Veterans Affairs (VA). The VA has detailed patient information for roughly 25 million veterans.

Big Data analytics will empower physicians at the point of care to diagnose early arthritis stages, choose treatment approaches, and decide when to refer to a subspecialist.

Preliminary Findings of our research pending validation:

- Defined a cohort of 150,000 people with RA from among the 25 million VA EMR records. Outcome: This large cohort will enable data-driven studies to identify clinically important subsets of RA profiles not otherwise recognized in routine clinical care. Now, there is a basis for performing large-scale studies of specific treatments best suited to any profiles of people with RA.
- Best choice of medication depends on race and age of people as well as on their blood test profile. Outcome: Medications can be customized based on clinical data of the person with arthritis. Optimal treatment choice depends on the presenting signs and symptoms of RA, and is further modified based on patient factors such as age and comorbidities. Future work: customize medications based on both clinical and genetic data of the patient.
- Some groups of people with RA have normal cholesterol level even though they have higher incidence of heart disease. Outcome: Provides guidance to physicians to use factors other than cholesterol in screening for heart disease in people with RA with normal cholesterol level.
- Cardiovascular disease is the leading cause of death among people with RA. The disease risk is double that of the general population of same age and gender. Outcome: Provides guidance to physicians on management of cardiovascular risk factors in people with RA.

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