

Andrew Moran

Project Summary

About 80 million U.S. adults have hypertension, and hypertension treatment costs the nation about \$80 billion annually. Effective and inexpensive antihypertensive medications are available, but many patients remain inadequately treated. The Systolic Blood Pressure Intervention Trial (SPRINT) showed that in high CVD risk patients intensive treatment to a lower systolic blood pressure (SBP, <120 mm Hg) reduced CVD risk and allcause mortality compared to standard treatment (SBP <140 mm Hg). We estimated that 16.8 million adults in the US meet the SPRINT eligibility criteria. Given this large number of eligible patients and the additional resources (e.g., health care provider time, laboratory visits) required to deliver intensive treatment, we need a method for selecting “high-value” patients most likely to benefit safely from intensive SBP treatment.

Optimize-SPRINT is a SPRINT ancillary study. Optimize-SPRINT will apply predictive modeling methods to SPRINT to build a clinical decision tool that will be able to select optimal patients (e.g., high absolute benefit and cost-effectiveness) for intensive SBP treatment both at the point of care (for health care providers and patients) and in the population (for private health system and government payers). Our innovative predication modeling methods will identify the highest benefit patients underlying the average summary treatment effect reported from SPRINT, while preserving the advantages of SPRINT’s randomized design. We aim to:

- **Develop and validate a predictor of clinical benefit with intensive SBP treatment (SPRINT Clinical Benefit Tool) using baseline characteristics.**
- **Determine cost-effectiveness of intensive versus standard SBP treatment in SPRINT overall and by level of predicted SPRINT clinical benefit, and predict cost-effectiveness of intensive SBP treatment based on baseline characteristics.**
- **Determine the population health impact of implementing intensive SBP treatment based on predicted SPRINT Clinical Benefit and cost-effectiveness.**

Relevance: The results of this study may change the way health care providers, payers, and clinical guideline makers treat hypertension in the US and abroad. This study will inform treatment choice decisions by health care providers and patients, and improve implementation strategies for private and government payers.