**Automation of an Abbreviated Medication Regimen Complexity Index (A-MRCI)**

**Authors:** Rebekah Placide, PharmD1,2; Zack Deyo, PharmD, BCPS, CPP1; Ina Liu, PharmD, MS, BCPS1; Evan Colmenares, PharmD1,2; Mary-Haston Vest, PharmD, MS, BCPS1

**Practice Site:** 1UNC Medical Center, 2UNC Eshelman School of Pharmacy

**Background:** The 65-item Medication Regimen Complexity Index (MRCI) is a reliable and valid tool that is widely utilized to quantify the complexity of prescribed medication regimens. The MRCI is composed of three weighted elements (i.e. dosage forms, dosage frequency, and administration instructions) which are calculated into a predictive score that will infer the likelihood of poor adherence and additional suboptimal outcomes. Although the MRCI has been validated via expert panel consensus, the development process involved a single cohort of chronic obstructive pulmonary disease (COPD) patients and solely included prescription medications in the assessment of medication regimen complexity. A gap exists in the study of medication regimen complexity for defined cohorts across a broad range of disease-specific populations, although there is an apparent desire to use the MRCI as a risk assessment tool to identify patients for subsequent interventions.

**Objective:** The primary objective of this study is to compare MRCI and abbreviated MRCI (A-MRCI) weighted scores among primary care patients. Secondary objectives include the development of an institution-specific, automated A-MRCI to augment risk-stratification measures in identifying patients who may benefit from pharmacy interventions across an integrated health care system.

**Methods**: This is a retrospective, cross-sectional study in patients enrolled in UNC clinics with a pharmacy presence. Survey items with the potential to be automated, truncated, substituted, or discarded from the long-form MRCI will be evaluated to develop the A-MRCI. Weighted MRCI and A-MRCI scores will be calculated from the medication regimens of a subset of clinic patients. A regression analysis will be conducted to examine the accuracy of final weighted scores and classifications between both indices.

**Preliminary Results:** MRCI survey items pertaining to medication dosage forms may be abbreviated as well as extrapolated from the electronic medical record, often in the form of discrete data (~50%). However, those survey items within the dosage frequency and additional instructions sections may be more complex to abbreviate and/or automate due to the variability of available discrete data (i.e. free-text sigs) and ambiguity of administration instructions (e.g. as needed, use as directed, ACHS etc.). Approximately 25% of these survey items are not expected to be automated from the A-MRCI.

**Conclusion:** Reducing medication complexity has positive effects on clinically relevant health care outcomes, such as medication adherence and hospitalization. The A-MCRI may serve as a mechanism to mitigate medication regimen complexity, as well as a quantifiable tool to demonstrate the value of pharmacy services and patient outcomes. However, further assessment is needed to support the automation of survey items encompassing dosage frequency and additional instructions.