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Project Summary

There are presently >65 million adults with hypertension in the United States.4 As the population ages, the prevalence of hypertension continues to increase. The health care costs due to hypertension are estimated at $76.6 million in 20104 and approximately 395,000 deaths, or one in six deaths were attributed to elevated blood pressure in 2005.

Traditionally, U.S. blood pressure guidelines have based treatment recommendations on blood pressure levels and targets—a “treat-to-target” approach. Alternative approaches base treatment recommendations on shortor long-term risk for cardiovascular events, predicted using age, sex, blood pressure, and other major risk factors to estimate risk—a risk-based or “tailored” approach. Important demographic changes in the U.S. population have the potential to impact the relative cost effectiveness of these strategies. These demographic changes include aging of the population, growth of the proportion of African Americans and Hispanic Americans in the population, and increases in the prevalence of overweight and obesity. No formal clinical effectiveness analysis or cost-effectiveness analysis comparing these two approaches to blood pressure treatment has been published for the U.S., though such analyses have recently been published for other countries. Further, comparative analyses of these strategies in demographic groups defined by age, sex, race/ethnicity and obesity status have not been published. Such analyses have the potential to inform treatment recommendations in important ways.

The Coronary Heart Disease (CHD) Policy Model is an epidemiologic and comparative effectiveness computer model of cardiovascular disease in U.S. adults. Using a version of the CHD Policy Model adapted and validated to predict stroke, heart failure and end-stage renal disease as well as CHD, we propose to:

• Compare “treat-to-target” guidelines to “tailored” guidelines based on patients’ predicted medium term (10-year) and long term (30-year) risk for cardiovascular events

• Assess the impact of both “treat-to-target” and “tailored” guidelines in U.S. adults during the years 2010-2030 in the context of 1) the aging of the population, 2) the relatively faster growth of African American and Mexican American populations (populations with higher hypertension prevalence and lower blood pressure treatment rates, respectively) and 3) various obesity and overweight trend scenarios

The results of these analyses have the potential to help better define the optimal blood pressure control guidelines for the U.S. and identify population subgroups that may benefit most from complete implementation of guidelines. An optimally designed national BP control program has the potential to greatly alleviate the burden of BP-related morbidity and mortality while saving tens of millions of health care dollars annually in coming decades.