Chapter 6. Future Research

The findings of this evidence report suggest several important future research studies. The first and most important would be for additional data to support or refute the evidence that different beta-blockers may have different effects on all-cause mortality in black patients. We do not think it likely that additional analysis of existing data will be able to conclusively settle this issue. New placebo-controlled randomized clinical trials of beta-blocker therapy in black patients are likely the only way to definitively answer this question. Future studies of existing or new beta-blocker drugs for heart failure should include sufficient numbers of black patients to separately assess outcomes in this population because a similar effect in black patients and white patients cannot be assumed.

A second area for future research is further assessment of the effect of ACE inhibitors in women with heart failure, particularly the effect on women with asymptomatic left ventricular dysfunction. It may be possible to answer this question by a more complete assessment of existing data from randomized clinical trials. This would require an individual patient data meta-analysis, which in turn would require obtaining individual patient data from all of the randomized trials. While such an effort would be expensive, it may be less expensive and more ethical than mounting a new clinical trial designed to answer this question.

Additionally, other outcomes of interest, including cardiac mortality, symptoms, and health care utilization, should be examined for all patient subpopulations. Individual patient-level data from the major RCTs may be sufficient to answer these and other original key questions regarding more patient subpopulations (the aged and those with renal failure).

An additional implication of our finding is that inadequate attention has been paid to enrolling sufficient numbers of patients in important clinical subpopulations in randomized trials. Such attention would make meta-analyses like those contained in this report unnecessary.

If our findings of differential efficacy are sustained, additional research aimed at identifying the cause for these findings should be undertaken. One possibility is that these findings do not represent differences in men and women or black patients and white patients, but rather reflect differing efficacy of these drugs according to the cause of heart failure (e.g., ischemic or nonischemic), which then may differ by sex or race. Alternatively, there could be a molecular basis for these results that differs by gender and race. .

Given the robust evidence of benefit for ACE inhibitors and beta-blockers in reducing mortality, future work should also address how to improve the use of these therapies by focusing on potential barriers for practitioners and patients. Yet another area for future research is empirical tests of our conclusions from our cost-effectiveness analyses.

Additional studies are needed to determine the true prevalence of asymptomatic left ventricular dysfunction and to determine the costs associated with making a new diagnosis of heart failure. Further research is needed to determine which patient characteristics identify a population at risk for left ventricular systolic dysfunction (prevalence greater than 1%). In addition, a study evaluating the health and economic outcomes of screening asymptomatic patient with BNP is warranted.