Chapter 5. Conclusions

We believe several conclusions can be drawn from this evidence report. For the purposes of discussion, we divide these conclusions into those that pertain to methodological considerations, those that pertain to clinical issues, and those that pertain to the cost-effectiveness analysis.

Methodological Conclusions

1. A large enough number of placebo-controlled, randomized trials of ACE inhibitors or beta-blockers have been conducted to assess their efficacy for the prevention and treatment of heart failure.

2. Few of these studies have reported data stratified by patient subpopulations of interest to clinicians.

3. Obtaining these subgroup data by attempting to contact authors of the original studies is both time consuming and not particularly successful. Attempts on the scale used to generate this report are not within the time– and resource–constraints of typical AHRQ evidence reports.

4. Obtaining subpopulation data by inspecting data submitted to the FDA is a potentially fruitful area but only to the extent that the data are already in electronic form. Paper-based records are too difficult to retrieve and too voluminous to review efficiently.

5. Two Evidence-Based Practice Centers can successfully collaborate on the same evidence report. In this case, the cost-effectiveness analyses were performed at the Stanford-UCSF Evidence Based Practice Center.

Clinical Conclusions

1. For most of the subpopulations assessed in our meta-analysis, our results are reassuring in that we found evidence supporting beneficial reductions in all-cause mortality with the use of beta-blockers in men and women, the use of ACE inhibitors in black and white patients, and the use of either drug in patients with diabetes.

2. We did, however, find evidence suggesting that women with asymptomatic left ventricular dysfunction may not have reduced mortality when treated with ACE inhibitors. The evidence we found does not constitute proof, and additional evidence is needed to analyze the effect of ACE inhibitors in women with asymptomatic left ventricular dysfunction.

3. We also found conflicting evidence regarding the effect of beta-blocker use in black patients. For three of the beta-blocker studies, the pooled estimate of effect suggested that black patients and white patients have similar reductions in all-cause mortality when treated with beta-blockers. However, one study, which was unique in that it assessed the beta-blocker bucindolol, reported a statistically significant adverse effect on mortality in blacks relative to whites, even suggesting that use of bucindolol caused harm. These results suggest that all beta-blockers cannot be assumed to have similar effects.

Cost-Effectiveness Conclusions

1. We found that treatment of asymptomatic left ventricular dysfunction with ACE inhibitors was very cost-effective under virtually all assumptions, with typical costs per QALY gained of between $5,000–$10,000, which makes this treatment much more cost-effective than many other treatments considered standard medical practice.

2. The analysis of the cost-effectiveness of screening showed that screening with brain natriuretic peptide followed by echocardiography in a cohort of asymptomatic individuals aged 55 was also cost-effective compared with the costs of other therapies currently considered standard medical care. This strategy cost $19,000 per life year gained compared to a strategy without screening, with the number needed to screen equal to 77 in order to gain one year of additional life.

3. These results were only modestly sensitive to cost and were most sensitive to the prevalence of asymptomatic decreased left ventricular ejection fraction. When the prevalence falls below about 1%, a strategy of screening becomes less cost-effective than accepted thresholds for cost-effective care.