Chapter 5: Future Research

The optimal approach to measure BP remains uncertain. In view of the high prevalence of uncontrolled hypertension, the continuing epidemic of BP-related diseases and the potential for alternative measurement techniques to improve diagnosis and target therapy, there is a need for comparative studies that assess the relative efficacy, feasibility, and costs of ABP, contemporary SMBP technology, and clinic BP. Specific types of research needs are as follows:

- ❑ Prospective observational studies that include SMBP, ABP and clinic BP. Specific research questions include:
  - What is the reproducibility of WCH?
  - What are the risks associated with WCH? In particular, is the risk associated with WCH sufficiently low to justify non-treatment? If yes, in what patients?
  - Does WCH as assessed by SMBP carry the same risk as WCH as assessed by ABP?
  - What are the risks associated with non-dipping status?
  - Is non-dipping status a surrogate for some other variable that might be measured more easily, that is, without ABP?
  - What is incremental gain from use of SMBP or ABP over clinic BP alone?
  - Can ABP and SMBP identify candidates who respond to lifestyle modification?
- ❑ Clinical trials that test whether contemporary SMBP technology, compared to conventional management by clinic BP, can improve BP control and health outcomes. An additional comparison group might include BP management by ABP. These trials should also compare the aggregate costs of these approaches.
- ❑ Decision analyses that determine the costs and effects of strategies that integrate clinic BP, SMBP and ABP. These decision analyses should also identify key parameters (probability, utility, or cost) that are the strongest determinants of the relative cost-effectiveness of different strategies. The importance of this research is highlighted by high prevalence of WCH and the potential for cost savings from reduced medication use or side effects, or conversely, the potential for increased CVD events if medications are inappropriately withdrawn. Subsequent research should then focus on the key parameters for which we need more information before drawing firm conclusions about the most cost-effective strategy. In the end, such analyses could guide policy makers in developing algorithms that incorporate, if appropriate, these techniques.
- ❑ Synthesis of evidence on BP measurements in a clinic setting, including issues related to the accuracy and performance of different devices (mercury, aneroid, automated BP) and different observers (physicians, nurses, technicians).
- ❑ Feasibility studies that assess the performance of ABP and SMBP in routine use, including for example, an evaluation of self-reporting bias of SMBP measurements.

In this research, clinic BP should be measured appropriately by trained observers using validated equipment; clinic measurements should also be obtained at several visits. Also, because of the dearth of large-scale, high-quality studies, there is a clear need for government sponsorship of key studies.

To improve the quality of ABP and SMBP publications, standardized methods should be disseminated to researchers and authors. Also, journals should require standardized approaches to presenting ABP data. For published articles, full copies of protocols should be made available, perhaps on the Web. This is especially important because the intense pressure from editors to shorten manuscripts is typically accomplished through reductions in the methods section.