

## Appendix

### Participants

Consecutive patients attending the Renal Clinic or a general medicine clinic at the Roudebush VA Medical Center at Indianapolis were recruited if they met the following criteria.

### Inclusion criteria

1. Chronic kidney disease from stages 2 through 4 (Estimated GFR <90 mL/min/1.73 m<sup>2</sup> but >15 mL/min/1.73 m<sup>2</sup>). For those with stage 2 CKD, albuminuria (A2 or >300 mg/g creatinine) was required.
2. Age >18 years but <90 years.
3. Clinic systolic blood pressure >90 mm Hg but ≤140 mm Hg. Those with very low systolic blood pressure in the clinic are unlikely to have masked hypertension at home. Clinic systolic blood pressure will be the average of three separate visits.
4. Clinic diastolic BP of <90 mmHg.

### Exclusion Criteria

1. Planning to move or unable to make 5-6 visits in the next 4-6 weeks.
2. Morbid obesity (BMI of 40 kg/m<sup>2</sup> or more)—difficult to perform ambulatory BP monitoring in the morbidly obese subjects.
3. Six or more irregular heart beats per minute, including atrial fibrillation—these events make BP measurement difficult by any technique.
4. Renal transplantation or end-stage renal disease requiring dialysis.
5. Advanced coexisting illness (e.g. terminal cancer, advanced heart failure or advanced liver cirrhosis).
6. Nursing home resident.
7. Non-English speaking.
8. Pregnant or nursing mothers.
9. Unable or unwilling to learn home BP monitoring.

## BP measurement methods

### Ambulatory Blood Pressure Monitoring

Ambulatory blood pressure (ABP) monitoring was performed in all patients at baseline and at the end of the four week follow-up using the Spacelabs 90207 monitor which has been shown to be accurate by two protocols: the British Hypertension Society (BHS) and the Association for the Advancement of Medical Instruments (AAMI) <sup>1</sup>. In all study patients, appropriately sized cuffs, with bladder sizes that encircled 80–100% of arm circumference and widths that are at least 40% of arm circumference were placed on the non-dominant arm and patients were instructed in the use of the ABP monitor <sup>1</sup>. Measurements were taken every 20 minutes from 06:00 – 22:00 and every 30 minutes

from 22:00 – 06:00 based upon a prior protocol<sup>2</sup>. The patients recorded their awake and sleep times into diaries that were used to help calculate daytime and nighttime ABP. The patients were told to pursue normal activities during the data collection. ABP monitoring was considered adequate if there were at least 14 daytime readings and at least 7 night time readings. Blood pressures were averaged by the hour in which the blood pressure was taken and then by awake or asleep state.

### Clinic blood pressure

Clinic oscillometric blood pressures were obtained in triplicate by a trained technician using the non-dominant arm. With the arm and the forearm supported at the level of the heart, oscillometric blood pressure measurements were taken using a digital sphygmomanometer (Model HEM-907, Omron Healthcare, Vernon Hills, IL) with an appropriate cuff size after 5 minutes at rest. Following the oscillometric measurements, auscultatory blood pressures were measured using methodology recommended by the European Society of Hypertension<sup>1</sup>. The monitor was set to manual mode which allowed the automatic sphygmomanometer to be used as a manual recorder. The first Korotkoff's sound (K1) and the last (K5) were used as systolic and diastolic blood pressure, respectively. There was a 30 second pause between readings. The average of the three oscillometric readings was used as the visit BP. The clinic BP was calculated by averaging the visit BP from three visits on day 1, 7, and 8. For purposes of this study, auscultated measurements were ignored.

### Home blood pressure

Each patient was dispensed a home digital sphygmomanometer with an automatic inflator (Model HEM790IT, Omron Healthcare, Inc, Vernon Hills, IL) with a cuff size appropriate for arm size. This monitor stores up to 200 measurements in memory that can be retrieved. Subjects were asked to record their blood pressure after 5 minutes of seated rest in triplicate twice daily for one week. All patients were given instructions in use of the monitor prior to participation in the study. Data from subjects with <9 readings at home were not used.

### Reference List

1. O'Brien E, Asmar R, Beilin L, Imai Y, Mallion JM, Mancia G, Mengden T, Myers M, Padfield P, Palatini P, Parati G, Pickering T, Redon J, Staessen J, Stergiou G, Verdecchia P: European Society of Hypertension recommendations for conventional, ambulatory and home blood pressure measurement. *J Hypertens* 21:821-848, 2003
2. Agarwal R, Lewis RR, Davis JL, Becker B: Lisinopril therapy for hemodialysis hypertension – Hemodynamic and endocrine responses. *Am J Kidney Dis* 38:1245-1250, 2001