Appendix 1

*Extended methods on costs*

Depreciation of equipment costs was addressed by assuming a five year lifetime with no salvage value, and the standard 3.5% annual discount rate. Antihypertensive treatment comprised drug costs and an annual clinical review. Drug therapy costs were calculated using the British National Formulary prices [1](#_ENREF_1) of the commonest generic drugs in each class (Ramipril, Amlodipine, Indapamide) weighted by the number of antihypertensive drugs individuals were on from the Health Survey for England.[2](#_ENREF_2)

An individual surviving an acute cardiovascular event entailed permanent quality of life reduction, increased costs and higher mortality risk with respect to the cardiovascular event experiencedThe acute cost of a myocardial infarction (MI) is taken from a modelling study by Palmer and colleagues. Post MI costs were based on an updated cost taken from Taylor and colleagues. [3](#_ENREF_3) The cost of an unstable angina event and costs post event were assumed to be 60% of the costs of MI. The cost of a stable angina event was assumed to consist of an outpatient cardiology assessment plus non-invasive imaging as a typical package of care.[4](#_ENREF_4) Post stable angina costs comprised drugs based on relevant NICE guidance.[1](#_ENREF_1),[5](#_ENREF_5),[6](#_ENREF_6)

The cost of a Transient Ischaemic Attack (TIA) event is taken from a Lipids Health Technology Assessment report and consisted of tests and procedures from patients being assessed in outpatient clinics.[7](#_ENREF_7) Drug costs were included in the acute event based on recommended treatments based on NICE guidelines.[1](#_ENREF_1),[6](#_ENREF_6),[8](#_ENREF_8) Post-TIA only the cost of drugs was applied. The initial cost of stroke and post-event costs applied in the model was based on a UK study that looked at the cost of stroke over five years.[9](#_ENREF_9)

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| Appendix Table 1 PROOF-BP risk algorithm test characteristics |
| Test Characteristics | Adjusted clinic BP < 130/80mmHg | Adjusted clinic BP between 130/80mmHg & 144/89mmHg | Adjusted clinic BP ≥ 145/90mmHg |
| Screening clinic BP ≥ 140/90mmHg |
| False Negative (masked hypertension) | 0 |  |  |
| False Positive (white coat hypertension) |  |  | 40 |
| True Negative (normotension) | 0 | 76 |  |
| True Positive (sustained hypertension) |  | 209 | 304 |
| Screening Clinic BP between 130/80mmHg & 140/90mmHg |
| False Negative (masked hypertension) | 5 |  |  |
| False Positive (white coat hypertension) |  |  | 5 |
| True Negative (normotension) | 17 | 108 |  |
| True Positive (sustained hypertension) |  | 165 | 13 |
| Clinic BP between 120/70mmHg & 140/90mmHg |
| False Negative (masked hypertension) | 42 |  |  |
| False Positive (white coat hypertension) |  |  | 5 |
| True Negative (normotension) | 24 | 158 |  |
| True Positive (sustained hypertension) |  | 191 | 13 |

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| Appendix Table 2. Cohort split of 1000 patients with a clinic BP ≥ 120/70mmHg |
| Patients screening clinic BP by age and gender | PROOF-BP risk algorithm |
| Age | Sex | Clinic BP≥140/90mmHg | Clinic BP between 120/70mmHg & 140/90mmHg | Ignored(adjusted clinic BP <130/80mmHg) | Put on ABPM(adjusted clinic BP between 130/80mmHg & 144/89mmHg) | Offered Treatment(adjusted clinic BP ≥145/90mmHg) |
| 40 | Male | 167 | 833 | 127 | 747 | 126 |
| 40 | Female | 115 | 885 | 135 | 766 | 99 |
| 50 | Male | 281 | 719 | 110 | 707 | 184 |
| 50 | Female | 186 | 814 | 124 | 740 | 136 |
| 60 | Male | 358 | 642 | 98 | 680 | 222 |
| 60 | Female | 267 | 733 | 112 | 712 | 177 |
| 70 | Male | 391 | 609 | 93 | 668 | 239 |
| 70 | Female | 398 | 602 | 92 | 665 | 243 |
| 75 | Male | 449 | 551 | 84 | 648 | 269 |
| 75 | Female | 391 | 609 | 93 | 668 | 239 |

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| Appendix Table 3. Cohort split of 1000 patients with a clinic BP ≥ 140/90mmHg |
| Patients screening clinic BP by age and gender | PROOF-BP risk algorithm |
| Age | Sex | Clinic BP ≥140/90mmHg | Clinic BP <140/90mmHg | Ignored(adjusted clinic BP <130/80mmHg) | Put on ABPM(adjusted clinic BP between 130/80mmHg & 144/89mmHg) | Offered Treatment(adjusted clinic BP ≥ 145/90mmHg) |
| ≥40 | All | 1000 | 0 | 0 | 436 | 564 |

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| Appendix Table 4 Sensitivity Analysis: Model entry restricted to clinic BP ≥ 120/70mmHg results  |
| Strategy | **QALYs (95% CI)**  | **Costs (95% CI)** | **ICER** | **Most CE strategy probability** | **Strategy** | **QALYs (95% CI)** | **Costs (95% CI)** | **ICER** | **Most CE strategy probability** |
| 40 years, Male |  |  |  |  | 40 years, Female |  |  |  |  |
| ABPM | 18.004 (17.774 to 18.23) | £3334 (£3245 to £3447) |   | 0% | ABPM | 17.908 (17.688 to 18.095) | £2099 (£2010 to £2210) |   | 0% |
| HBPM | 17.999 (17.77 to 18.224) | £3368 (£3276 to £3474) | Dominated | 0% | HBPM | 17.906 (17.687 to 18.094) | £2160 (£2073 to £2263) | Dominated | 0% |
| CBPM | 17.998 (17.768 to 18.225) | £3376 (£3283 to £3481) | Dominated | 0% | CBPM | 17.905 (17.687 to 18.092) | £2176 (£2087 to £2274) | Dominated | 0% |
| PROOF-BP | 18.100 (17.877 to 18.322) | £3495 (£3414 to £3595) | £1687 | 100% | PROOF-BP | 17.95 (17.733 to 18.14) | £2368 (£2284 to £2469) | £6307 | 100% |
| 50 years, Male |   |   |  |  | 50 years, Female |   |   |  |  |
| ABPM | 15.425 (15.169 to 15.655) | £3462 (£3340 to £3595) |  | 0% | ABPM | 15.299 (15.089 to 15.501) | £2363 (£2243 to £2513) |  | 0% |
| HBPM | 15.418 (15.156 to 15.651) | £3479 (£3354 to £3611) | Dominated | 0% | HBPM | 15.296 (15.086 to 15.499) | £2429 (£2311 to £2570) | Dominated | 0% |
| CBPM | 15.417 (15.161 to 15.647) | £3484 (£3357 to £3615) | Dominated | 0% | CBPM | 15.296 (15.085 to 15.498) | £2447 (£2335 to £2586) | Dominated | 0% |
| PROOF-BP | 15.55 (15.308 to 15.777) | £3538 (£3434 to £3657) | £603 | 100% | PROOF-BP | 15.35 (15.14 to 15.55) | £2515 (£2411 to £2657) | £2926 | 100% |
| 60 years, Male |  |  |  |  | 60 years, Female |  |  |  |  |
| ABPM | 12.634 (12.38 to 12.842) | £3228 (£3070 to £3418) |  | 0%  | ABPM | 12.356 (12.132 to 12.579) | £2366 (£2207 to £2568) |  | 0% |
| PROOF-BP | 12.74 (12.49 to 12.94) | £3252 (£3123 to £3413) | £227 | 100% | CBPM | 12.352 (12.128 to 12.576) | £2432 (£2279 to £2624) | Dominated | 0% |
| HBPM | 12.628 (12.374 to 12.835) | £3261 (£3109 to £3447) | Dominated | 0% | HBPM | 12.352 (12.13 to 12.578) | £2417 (£2259 to £2611) | Dominated | 0% |
| CBPM | 12.626 (12.37 to 12.832) | £3271 (£3121 to £3460) | Dominated | 0% | PROOF-BP | 12.414 (12.19 to 12.639) | £2448 (£2308 to £2635) | £1426 | 100% |
| 70 years, Male |   |   |  |  | 70 years, Female |   |   |  |  |
| PROOF-BP | 9.642 (9.44 to 9.846) | £2675 (£2502 to £2888) | Dominant | 100% | ABPM | 9.144 (8.921 to 9.364) | £1992 (£1791 to £2250) |  | 0% |
| ABPM | 9.549 (9.346 to 9.753) | £2680 (£2458 to £2921) | Dominated | 0% | HBPM | 9.140 (8.917 to 9.36) | £2027 (£1835 to £2274) | Dominated | 0% |
| HBPM | 9.545 (9.342 to 9.751) | £2698 (£2477 to £2937) | Dominated | 0% | CBPM | 9.139 (8.916 to 9.359) | £2038 (£1848 to £2281) | Dominated | 0% |
| CBPM | 9.543 (9.342 to 9.749) | £2703 (£2480 to £2945) | Dominated | 0% | PROOF-BP | 9.184 (8.962 to 9.402) | £2041 (£1869 to £2275) | £1230 | 100% |
| 75 years, Male |  |  |  |  | 75 years, Female |  |  |  |  |
| PROOF-BP | 7.995 (7.75 to 8.239) | £2346 (£2147 to £2600) | Dominant | 100% | ABPM | 7.428 (7.146 to 7.694) | £1709 (£1460 to £2029) |  | 0% |
| ABPM | 7.940 (7.695 to 8.187) | £2348 (£2094 to £2636) | Dominated | 0% | HBPM | 7.425 (7.143 to 7.691) | £1731 (£1477 to £2044) | Dominated | 0% |
| HBPM | 7.935 (7.691 to 8.181) | £2371 (£2121 to £2664) | Dominated | 0% | CBPM | 7.425 (7.142 to 7.69) | £1740 (£1486 to £2048) | Dominated | 0% |
| CBPM | 7.934 (7.689 to 8.179) | £2379 (£2128 to £2669) | Dominated | 0% | PROOF-BP | 7.46 (7.181 to 7.725) | £1763 (£1549 to £2037) | £1707 | 100% |
| CI=Confidence Interval. CBPM= Clinic Blood Pressure Monitoring. HBPM= Home Blood Pressure monitoring. ABPM= Ambulatory Blood Pressure Monitoring. CE= cost-effective at £20,000 threshold. QALYs= quality-adjusted life years. ICER= Incremental Cost Effectiveness Ratio. |

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| Appendix Table 5 Sensitivity Analysis: Model entry restricted to clinic BP ≥ 140/90mmHg results |
| Strategy | QALYs (95% CI)  | Costs (95% CI) | ICER | Most CE strategy probability | Strategy | QALYs (95% CI) | Costs (95% CI) | ICER | Most CE strategy probability |
| 40 years, Male |  |  |  |  | 40 years, Female |  |  |  |  |
| ABPM | 18.101 (17.867 to 18.324) | £3312 (£3196 to £3542) |  | 57% | ABPM | 17.968 (17.77 to 18.166) | £2096 (£2006 to £2326) |  | 97% |
| PROOF-BP | 18.105 (17.873 to 18.328) | £3388 (£3284 to £3574) | £19879 | 44% | PROOF-BP | 17.971 (17.773 to 18.168) | £2196 (£2097 to £2382) | £33346 | 3% |
| HBPM | 18.103 (17.868 to 18.326) | £3522 (£3410 to £3661) | Dominated | 0% | HBPM | 17.971 (17.773 to 18.169) | £2355 (£2251 to £2491) | Extended domination | 0% |
| CBPM | 18.104 (17.870 to 18.327) | £3573 (£3483 to £3697) | Dominated | 0% | CBPM | 17.972 (17.774 to 18.17) | £2420 (£2332 to £2540) | £232908 | 0% |
| 50 years, Male |  |  |  |  | 50 years, Female |  |  |  |  |
| ABPM | 15.554 (15.311 to 15.787) | £3453 (£3297 to £3699) |  | 16% | ABPM | 15.362 (15.138 to 15.559) | £2357 (£2216 to £2630) |  | 38% |
| PROOF-BP | 15.557 (15.313 to 15.789) | £3492 (£3354 to £3701) | £14083 | 84% | PROOF-BP | 15.365 (15.14 to 15.562) | £2412 (£2282 to £2645) | £19210 | 62% |
| HBPM | 15.55 (15.302 to 15.78) | £3598 (£3472 to £3783) | Dominated | 0% | HBPM | 15.363 (15.136 to 15.561) | £2534 (£2405 to £2731) | Dominated | 0% |
| CBPM | 15.549 (15.304 to 15.78) | £3635 (£3525 to £3801) | Dominated | 0% | CBPM | 15.364 (15.135 to 15.562) | £2581 (£2468 to £2754) | Dominated | 0% |
| 60 years, Male |  |  |  |  | 60 years, Female |  |  |  |  |
| ABPM | 12.742 (12.507 to 12.961) | £3223 (£3039 to £3513) |  | 20% | ABPM | 12.423 (12.219 to 12.619) | £2348 (£2138 to £2653) |  | 29% |
| PROOF-BP | 12.744 (12.508 to 12.963) | £3243 (£3078 to £3507) | £10398 | 80% | PROOF-BP | 12.425 (12.222 to 12.62) | £2378 (£2197 to £2654) | £15533 | 71% |
| HBPM | 12.733 (12.498 to 12.955) | £3336 (£3189 to £3575) | Dominated | 0% | HBPM | 12.421 (12.217 to 12.614) | £2480 (£2293 to £2726) | Dominated | 0% |
| CBPM | 12.732 (12.497 to 12.95) | £3368 (£3229 to £3584) | Dominated | 0% | CBPM | 12.42 (12.217 to 12.615) | £2517 (£2357 to £2747) | Dominated | 0% |
| 70 years, Male |  |  |  |  | 70 years, Female |  |  |  |  |
| ABPM | 9.645 (9.431 to 9.853) | £2665 (£2433 to £2990) |  | 16% | ABPM | 9.184 (8.947 to 9.386) | £2039 (£1795 to £2363) |  | 16% |
| PROOF-BP | 9.646 (9.432 to 9.853) | £2669 (£2452 to £2967) | £3934 | 84% | PROOF-BP | 9.185 (8.948 to 9.386) | £2042 (£1821 to £2350) | £3376 | 84% |
| HBPM | 9.635 (9.42 to 9.845) | £2756 (£2555 to £3032) | Dominated | 0% | HBPM | 9.179 (8.941 to 9.381) | £2120 (£1910 to £2409) | Dominated | 0% |
| CBPM | 9.632 (9.416 to 9.838) | £2785 (£2587 to £3057) | Dominated | 0% | CBPM | 9.177 (8.942 to 9.38) | £2146 (£1950 to £2420) | Dominated | 0% |
| 75 years, Male |  |  |  |  | 75 years, Female |  |  |  |  |
| PROOF-BP | 7.992 (7.738 to 8.219) | £2378 (£2121 to £2734) | Dominant | 97% | PROOF-BP | 7.461 (7.196 to 7.703) | £1767 (£1530 to £2130) | Dominant | 92% |
| ABPM | 7.991 (7.737 to 8.218) | £2386 (£2112 to £2747) | Dominated | 3% | ABPM | 7.46 (7.195 to 7.702) | £1772 (£1528 to £2144) | Dominated | 8% |
| HBPM | 7.982 (7.73 to 8.211) | £2452 (£2202 to £2799) | Dominated | 0% | HBPM | 7.455 (7.189 to 7.697) | £1835 (£1603 to £2183) | Dominated | 0% |
| CBPM | 7.98 (7.729 to 8.208) | £2475 (£2225 to £2809) | Dominated | 0% | CBPM | 7.454 (7.187 to 7.697) | £1858 (£1625 to £2200) | Dominated | 0% |
| CI=Confidence Interval. CBPM= Clinic Blood Pressure Monitoring. HBPM= Home Blood Pressure monitoring. ABPM= Ambulatory Blood Pressure Monitoring. CE= cost-effective at £20,000 threshold. QALYs= quality-adjusted life years. ICER= Incremental Cost Effectiveness Ratio. |

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