# Supplementary material

# Number of measurements needed for obtaining a reliable estimate of home blood pressure and hypertension status

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**Supplementary File 1 –** Linear mixed model for home blood pressure measurements

Such that equals the true home BP for individual , and equals the deviation of the measurement from the expected BP at the measurement.

With this model the average of BP measurements, , is normally distributed: ), where is the sub-matrix consisting of the first rows and columns of the covariance matrix is a row vector with elements. Thus, equals the sum of all elements of divided by

**Supplementary Table 1 –** Parameter estimates from model for systolic BP measurements

|  |  |
| --- | --- |
|  | 140.82 |
|  | 15.89 |
|  | -0.94 |
|  | 0.94 |
|  | 5.51 |
|  | 3.33 |
|  | 2.34 |
|  | 1.59 |
|  | 1.10 |
|  | 0.96 |

**Supplementary Table 2 –** Parameter estimates from model for diastolic BP measurements

|  |  |
| --- | --- |
|  | 83.57 |
|  | 9.36 |
|  | 0.32 |
|  | -0.32 |
|  | 2.22 |
|  | 1.18 |
|  | 0.67 |
|  | 0.43 |
|  | 0.15 |
|  | 0.20 |

**Supplementary Table 3 –** Covariance matrix estimate from model for systolic BP measurements

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | 86.95 | 3.46 | 29.84 | -8.72 | 18.92 | -11.12 | 9.19 | -8.28 | 5.99 | -5.97 | 3.85 | -3.94 | 2.59 | -2.64 |
| 2 | 3.46 | 129.55 | 3.46 | 44.46 | -8.72 | 28.20 | -11.12 | 13.69 | -8.28 | 8.92 | -5.97 | 5.73 | -3.94 | 3.86 |
| 3 | 29.84 | 3.46 | 86.95 | 3.46 | 29.84 | -8.72 | 18.92 | -11.12 | 9.19 | -8.28 | 5.99 | -5.97 | 3.85 | -3.94 |
| 4 | -8.72 | 44.46 | 3.46 | 129.55 | 3.46 | 44.46 | -8.72 | 28.20 | -11.12 | 13.69 | -8.28 | 8.92 | -5.97 | 5.73 |
| 5 | 18.92 | -8.72 | 29.84 | 3.46 | 86.95 | 3.46 | 29.84 | -8.72 | 18.92 | -11.12 | 9.19 | -8.28 | 5.99 | -5.97 |
| 6 | -11.12 | 28.20 | -8.72 | 44.46 | 3.46 | 129.55 | 3.46 | 44.46 | -8.72 | 28.20 | -11.12 | 13.69 | -8.28 | 8.92 |
| 7 | 9.19 | -11.12 | 18.92 | -8.72 | 29.84 | 3.46 | 86.95 | 3.46 | 29.84 | -8.72 | 18.92 | -11.12 | 9.19 | -8.28 |
| 8 | -8.28 | 13.69 | -11.12 | 28.20 | -8.72 | 44.46 | 3.46 | 129.55 | 3.46 | 44.46 | -8.72 | 28.20 | -11.12 | 13.69 |
| 9 | 5.99 | -8.28 | 9.19 | -11.12 | 18.92 | -8.72 | 29.84 | 3.46 | 86.95 | 3.46 | 29.84 | -8.72 | 18.92 | -11.12 |
| 10 | -5.97 | 8.92 | -8.28 | 13.69 | -11.12 | 28.20 | -8.72 | 44.46 | 3.46 | 129.55 | 3.46 | 44.46 | -8.72 | 28.20 |
| 11 | 3.85 | -5.97 | 5.99 | -8.28 | 9.19 | -11.12 | 18.92 | -8.72 | 29.84 | 3.46 | 86.95 | 3.46 | 29.84 | -8.72 |
| 12 | -3.94 | 5.73 | -5.97 | 8.92 | -8.28 | 13.69 | -11.12 | 28.20 | -8.72 | 44.46 | 3.46 | 129.55 | 3.46 | 44.46 |
| 13 | 2.59 | -3.94 | 3.85 | -5.97 | 5.99 | -8.28 | 9.19 | -11.12 | 18.92 | -8.72 | 29.84 | 3.46 | 86.95 | 3.46 |
| 14 | -2.64 | 3.86 | -3.94 | 5.73 | -5.97 | 8.92 | -8.28 | 13.69 | -11.12 | 28.20 | -8.72 | 44.46 | 3.46 | 129.55 |

**Supplementary Table 4 –** Covariance matrix (Σ) estimate frommodel for diastolic BP measurements

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | 27.04 | 0.91 | 9.35 | -2.21 | 6.47 | -3.52 | 3.11 | -2.61 | 2.10 | -2.03 | 1.38 | -1.36 | 0.96 | -0.95 |
| 2 | 0.91 | 36.37 | 0.91 | 12.57 | -2.21 | 8.70 | -3.52 | 4.18 | -2.61 | 2.82 | -2.03 | 1.85 | -1.36 | 1.29 |
| 3 | 9.35 | 0.91 | 27.04 | 0.91 | 9.35 | -2.21 | 6.47 | -3.52 | 3.11 | -2.61 | 2.10 | -2.03 | 1.38 | -1.36 |
| 4 | -2.21 | 12.57 | 0.91 | 36.37 | 0.91 | 12.57 | -2.21 | 8.70 | -3.52 | 4.18 | -2.61 | 2.82 | -2.03 | 1.85 |
| 5 | 6.47 | -2.21 | 9.35 | 0.91 | 27.04 | 0.91 | 9.35 | -2.21 | 6.47 | -3.52 | 3.11 | -2.61 | 2.10 | -2.03 |
| 6 | -3.52 | 8.70 | -2.21 | 12.57 | 0.91 | 36.37 | 0.91 | 12.57 | -2.21 | 8.70 | -3.52 | 4.18 | -2.61 | 2.82 |
| 7 | 3.11 | -3.52 | 6.47 | -2.21 | 9.35 | 0.91 | 27.04 | 0.91 | 9.35 | -2.21 | 6.47 | -3.52 | 3.11 | -2.61 |
| 8 | -2.61 | 4.18 | -3.52 | 8.70 | -2.21 | 12.57 | 0.91 | 36.37 | 0.91 | 12.57 | -2.21 | 8.70 | -3.52 | 4.18 |
| 9 | 2.10 | -2.61 | 3.11 | -3.52 | 6.47 | -2.21 | 9.35 | 0.91 | 27.04 | 0.91 | 9.35 | -2.21 | 6.47 | -3.52 |
| 10 | -2.03 | 2.82 | -2.61 | 4.18 | -3.52 | 8.70 | -2.21 | 12.57 | 0.91 | 36.37 | 0.91 | 12.57 | -2.21 | 8.70 |
| 11 | 1.38 | -2.03 | 2.10 | -2.61 | 3.11 | -3.52 | 6.47 | -2.21 | 9.35 | 0.91 | 27.04 | 0.91 | 9.35 | -2.21 |
| 12 | -1.36 | 1.85 | -2.03 | 2.82 | -2.61 | 4.18 | -3.52 | 8.70 | -2.21 | 12.57 | 0.91 | 36.37 | 0.91 | 12.57 |
| 13 | 0.96 | -1.36 | 1.38 | -2.03 | 2.10 | -2.61 | 3.11 | -3.52 | 6.47 | -2.21 | 9.35 | 0.91 | 27.04 | 0.91 |
| 14 | -0.95 | 1.29 | -1.36 | 1.85 | -2.03 | 2.82 | -2.61 | 4.18 | -3.52 | 8.70 | -2.21 | 12.57 | 0.91 | 36.37 |

**Supplementary Figure 1 -** Subgroup analyses for maximal deviation from home blood pressure for 95% of individuals

**A**

****

**B**

**C**

Maximal deviation from home systolic (left column) and diastolic (right column) blood pressure stratified according to sex (A), age (≤65 and >65) (B), and healthcare domain (C).

**Supplementary Figure 2 –** Subgroup analyses for agreement of home hypertension status determined with an increasing number of successive BP readings compared to the maximum of 14 BP readings.

Agreement (expressed by the ĸ statistic) of home hypertension status determined with an increasing number of successive BP readings stratified according to sex (A), age (≤65 and >65) (B), and healthcare domain (C).