# SUPPLEMENTAL MATERIAL

## Population $s_pO_2$ distribution

Any attempt to generalise the results shown in Table 4 should account for variation in population characteristics, particularly $s_pO_2$ distribution. The $s_pO_2$ distribution of the study population is therefore presented in Figure 2.

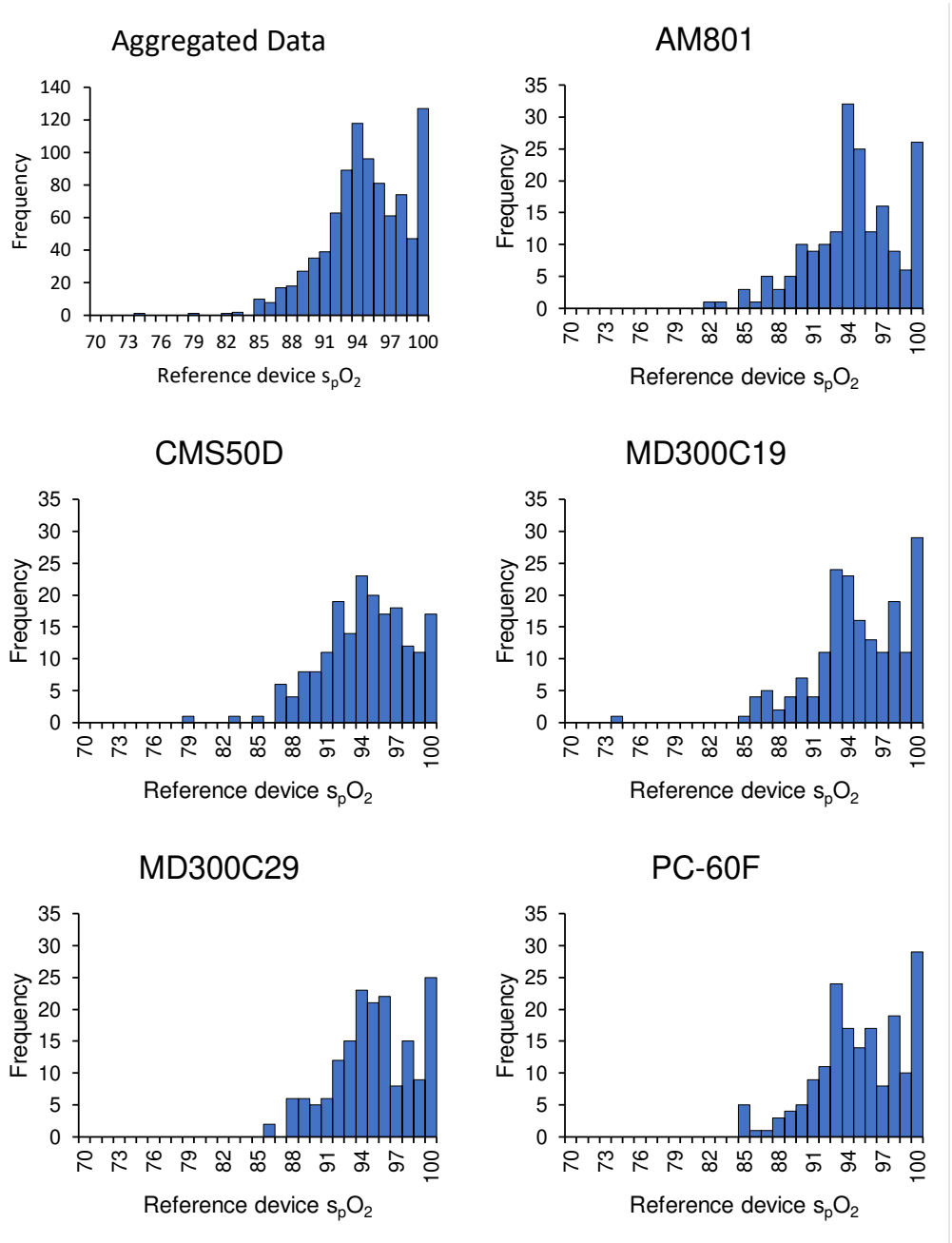


*Figure 2 - The population distribution of $s_pO_2$ for the aggregated data set (top left) and for each PPO considered in isolation. These plots show the distribution of $s_pO_2$ as measured using the reference pulse oximeter.*

## Bland-Altman Plots

Bland-Altman plots are a standard visualisation of the agreement between two diagnostic measurements. These plots, for each of the five investigated PPOs, are shown in Figure 3.

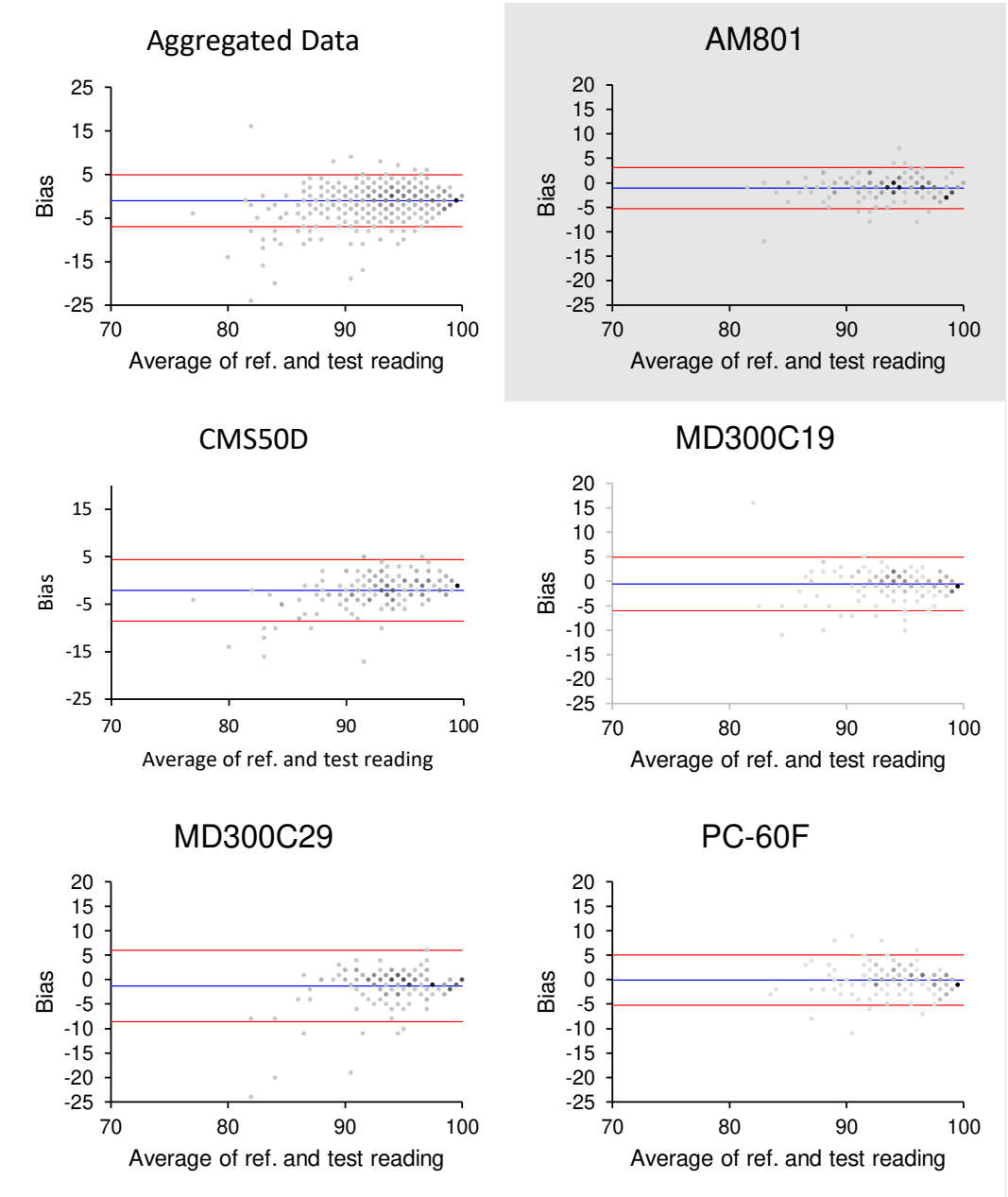


*Figure 3 – Bland-Altman plots showing the agreement between the PPO devices and the reference device. The vertical axis shows PPO bias (the difference between the PPO reading and the reference device reading. The blue line shows the mean bias, the red lines show the ±1.96 standard deviation points, such that 95% of the points fall between these lines. Pulse oximeters give measurements to a precision of 0 decimal places, this means that many points are overlain in plots like these ones. Greyscale is used to represent the number of overlain points, with darker markers where many points are overlain, and lighter markers where fewer points are overlain.*

## Results for Individual PPOs

The multiple regression analysis results for the individual PPOs are give in the tables below.

AM801

| | Bias | | False Positive | | False Negative | |
|---|---|---|---|---|---|---|
| | Sig. | Coefficient | Sig. | Odds Ratio | Sig. | Odds Ratio |
| Gender | 0.551 | -0.211 (-0.909 to 0.487) | 0.566 | 1.501 (0.375 to 6.007) | | |
| Age | 0.158 | -0.015 (-0.035 to 0.006) | 0.080 | 1.051 (0.994 to 1.111) | 0.416 | 1.063 (0.918 to 1.230) |
| Smoking status | 0.513 | 0.330 (-0.665 to 1.325) | 0.838 | 1.218 (0.183 to 8.101) | 0.469 | 0.023 (0.000 to 601.4) |
| PAD status | 0.127 | -0.705 (-1.612 to 0.202) | 0.631 | 1.443 (0.323 to 6.446) | 0.361 | 141.7 (0.003 to 5.90m) |
| FSP | 0.052 | -0.294 (-0.591 to 0.002) | 0.102 | 1.926 (0.879 to 4.220) | 0.112 | 0.126 (0.010 to 1.622) |
| Ref. $s_pO_2$ | **0.014** | -0.111 (-0.198 to -0.023) | **<0.001** | 0.369 (0.210 to 0.650) | 0.**045** | 22.05 (1.068 to 455.1) |

CMS50D

| | Bias | | False Positive | | False Negative | |
|---|---|---|---|---|---|---|
| | Sig. | Coefficient | Sig. | Odds Ratio | Sig. | Odds Ratio |
| Gender | 0.545 | -0.0334 (-1.420 to 0.752) | 0.585 | 1.325 (0.482 to 3.647) | 0.141 | 53.67 (0.268 to 10.7k) |
| Age | 0.093 | -0.027 (-0.060 to 0.005) | 0.830 | 0.996 (0.964 to 1.030) | 0.305 | 1.041 (0.964 to 1.124) |
| Smoking status | 0.699 | 0.283 (-1.158 to 1.724) | 0.517 | 1.588 (0.391 to 6.443) | 0.270 | 0.049 (0.000 to 10.46) |
| PAD status | 0.098 | 1.174 (-0.220 to 2.568) | 0.290 | 0.456 (0.106 to 1.952) | 1.000 | 597m undefined |
| FSP | 0.109 | -0.343 (-0.763 to 0.077) | 0.332 | 0.768 (0.451 to 1.308) | 0.100 | 0.134 (0.012 to 1.466) |
| Ref. $s_pO_2$ | 0.319 | 0.068 (-0.066 to 0.202) | **<0.001** | 0.616 (0.485 to 0.783) | 0.123 | 10.46 (0.531 to 205.9) |

MD300C19

| | Bias | | False Positive | | False Negative | |
|---|---|---|---|---|---|---|
| | Sig. | Coefficient | Sig. | Odds Ratio | Sig. | Odds Ratio |
| Gender | 0.129 | -0.652 (-1.497 to 0.192) | 0.249 | 0.449 (0.115 to 1.750) | 0.999 | 230m undefined |
| Age | 0.316 | -0.013 (-0.037 to 0.012) | 0.870 | 0.996 (0.948 to 1.046) | 1.000 | 0.765 undefined |
| Smoking status | **0.018** | 1.451 (0.255 to 2.646) | 0.669 | 0.621 (0.070 to 5.529) | 1.000 | 6.902 undefined |
| PAD status | 0.268 | -0.607 (-1.686 to 0.472) | 0.152 | 3.293 (0.646 to 16.79) | 1.000 | 3.94m undefined |
| FSP | **0.020** | -0.428 (-0.788 to -0.068) | 0.333 | 1.351 (0.734 to 2.487) | 0.998 | 0.000 undefined |
| Ref. $sp_{O_2}$ | **<0.001** | -0.255 (-0.355 to -0.156) | 0.039 | 0.715 (0.519 to 0.983) | 0.996 | 207m undefined |

MD300C29

| | Bias | | False Positive | | False Negative | |
|---|---|---|---|---|---|---|
| | Sig. | Coefficient | Sig. | Odds Ratio | Sig. | Odds Ratio |
| Gender | 0.403 | 0.518 (0..704 to 1.741) | 0.538 | 0.689 (0.211 to 2.253) | 0.267 | 0.000 (0.000 to 463.8) |
| Age | 0.976 | 0.001 (-0.035 to 0.036) | 0.633 | 0.990 (0.952 to 1.031) | | |
| Smoking status | 0.083 | 1.502 (-0.201 to 3.206) | 0.998 | 0.998 (0.166 to 5.986) | 0.999 | 0.000 undefined |
| PAD status | **0.011** | -2.010 (-3.456 to -0.474) | 0.375 | 1.895 (0.462 to 7.771) | 1.000 | 33.6m undefined |
| FSP | **0.001** | -0.886 (-1.412 to -0.360) | 0.215 | 1.385 (0.828 to 2.315) | 0.442 | 5.168 (0.078 to 341.0) |
| Ref. $sp_{O_2}$ | 0.054 | -0.167 (-0.337 to 0.003) | 0.405 | 0.901 (0.705 to 1.151) | 0.299 | 987.0 (0.002 to 447m) |

PC-60F

| | Bias | | False Positive | | False Negative | |
|---|---|---|---|---|---|---|
| | Sig. | Coefficient | Sig. | Odds Ratio | Sig. | Odds Ratio |
| Gender | 0.332 | 0.394 (-0.406 to 1.193) | 0.949 | 1.060 (0.180 to 6.221) | 0.510 | 2.942 (0.119 to 73.03) |
| Age | 0.196 | -0.016 (-0.041 to 0.008) | 0.052 | 1.082 (0.999 to 1.172) | 0.262 | 1.067 (0.953 to 1.196) |
| Smoking status | 0.176 | -0.770 (-1.889 to 0.348) | 0.728 | 1.499 (0.154 to 14.63) | 0.999 | 0.000 undefined |
| PAD status | **0.028** | 1.143 (0.126 to 2.160) | 0.152 | 0.227 (0.030 to 1.725) | 1.000 | 0.240 undefined |
| FSP | 0.254 | -0.210 (-0.571 to 0.152) | 0.151 | 1.957 (0.783 to 4.892) | 0.359 | 0.302 (0.023 to 3.894) |
| Ref. $s_pO_2$ | **<0.001** | -0.318 (-0.418 to -0.217) | **0.043** | 0.666 (0.449 to 0.987) | 0.084 | 1.588 (0.940 to 2.681) |