

## **Comparison of forehead and finger oximetry sensors during the six minute walk test**

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### **Background**

Measurement of oxygen saturation (SpO<sub>2</sub>) during the 6 minute walk test (6MWT) could be impacted by the measurement site.

### **Aims**

To compare SpO<sub>2</sub> and heart rate (HR) between forehead and finger sensors during the 6MWT. Sensor readings were also to be compared for signal quality and with capillary blood gas (CBG) pre and post 6MWT.

### **Method**

80 subjects with pulmonary vascular disease (PVD) and/or interstitial lung disease (ILD) performed the 6MWT. Pulse oximetry was recorded at 30 s intervals. CBG was taken pre and post 6MWT to determine capillary oxygen saturation (SCO<sub>2</sub>).

### **Results**

The forehead sensor recorded higher values for SpO<sub>2</sub> ( $p < 0.001$ ) and HR ( $p < 0.01$ ) compared with the finger sensor during the 6MWT. For both sensors, the demonstrated bias compared to CBG post 6MWT was higher and more variable in subjects who desaturated. During the 6MWT there was a higher occurrence ( $p < 0.001$ ) of poor signal quality in the finger sensor compared with the forehead sensor.

### **Conclusion**

This study suggests that the sensor site can impact pulse oximetry readings. The variance in bias suggests pulse oximetry may not accurately reflect SCO<sub>2</sub> measurements particularly in subjects who desaturate during 6MWT.