The Usefulness of Noninvasive CoHb Monitoring at HBOT Department (Pulse CO-Oximetry Rad-57).

**Introduction**
To diagnose carbon monoxide poisoning (CMP), carboxyhemoglobin (COHb) is routinely measured by blood analysis. However, taking a blood sample may be harmful for the patients. Masimo Pulse CO-Oximetry Rad-57 is able to measure COHb noninvasively (SpCO) and continuously. We compared accuracy of SpCO and COHb levels in CMP patients before and after Hyperbaric Oxygen Therapy (HBOT).

**Methods**
9 patients with CMP undergoing HBOT participated. COHb levels before and after HBOT were analyzed by CO-Oximetry (Radiometer ABL735) and recorded, simultaneously Rad-57 continuously measured SpCO. A clip sensor was placed on middle or ring finger, and in 6 subjects the sensors were shielded with black plastic bags. Data were analyzed using Pearson’s correlation coefficient ‘r’ and bias, and precision were calculated.

**Results**
70 blood samples were collected. The average age of the subjects was 33.1 ± 11.8. Causes of CMP included 4 cases of briquettes coal, 3 fires, and 2 auto exhausts. COHb and SpCO ranged 0.2% - 34.5% and 1% - 32% respectively. Comparing the data between COHb group and SpCO group in all subjects, r = 0.89 (N=70). Comparing the data between COHb and SpCO with and without shielding is presented in Table 1.

**Conclusions**
We have found a strong correlation between SpCO with Rad- 57 and COHb levels in venous blood. Subjects with the shielded sensor showed high accuracy. Our data suggests that shielding a sensor may increase the accuracy of SpCO values. In conclusion, this study demonstrates the accuracy of the Masimo RAD-57 for measuring carboxyhemoglobin. This new monitor should provide for rapid and easy diagnosis of CMP as well as a reliable monitor during treatment of CMP.