

Online supplemental material

Supplementary Table 1: Lot-numbers used in group 2

	LNCS	PPG	RD
group2 - infant 1	22CXP	20KGJ	22E53
group2 - infant 2	22CMY	A20EG73	21GWF
group2 - infant 3	19MSK	22FSO	21CTK
group2 - infant 4	22FAK	22DMQ	22FUA
group2 - infant 5	22EUC	A21CJ31	21M7Z
group2 - infant 6	22CCV	22H6J	21JZC

Supplementary Table 2: Randomization-Clusters

Phase	I (2 hours)			II (2 hours)			III (2 hours)		
	1	2	3	1	2	3	1	2	3
Sensor position									
Variant 1	LNCS	RD	PPG	PPG	LNCS	RD	RD	PPG	LNCS
Variant 2	PPG	LNCS	RD	RD	PPG	LNCS	LNCS	RD	PPG
Variant 3	RD	PPG	LNCS	LNCS	RD	PPG	PPG	LNCS	RD
Variant 4	LNCS	PPG	RD	RD	LNCS	PPG	PPG	RD	LNCS
Variant 5	RD	LNCS	PPG	PPG	RD	LNCS	LNCS	PPG	RD
Variant 6	PPG	RD	LNCS	LNCS	PPG	RD	RD	LNCS	PPG

Supplementary Table 3: Demographic data

Pat-ID	Gender	Weight in g	PMA in weeks	Age in days	Weight in g	PMA in weeks	Mean FiO2	FiO2- Controlling in infants with FiO2 > 0.21
		on the day of birth		on the day of examination				
1	female	945	29 1/7	6	1090	30	0.21	-
2	female	1085	28 3/7	10	1190	29 6/7	0.21	-
3	female	600	26	40	1370	31 5/7	0.34 - 0.71	FiO2-C
4	male	760	27 1/7	13	920	29	0.21 - 0.27	-
5	male	730	27 6/7	12	990	29 4/7	0.21 - 0.25	-
6	male	540	28	10	630	29 3/7	0.21	-
7	female	1270	28 5/7	10	1370	30 1/7	0.21 - 0.24	-
8	male	1150	28 5/7	9	1260	30	0.21	-
9	female	820	27 6/7	9	890	29 1/7	0.21	-
10	female	1500	31 5/7	2	1450	32	0.21	-
11	female	1170	31 5/7	2	1210	32	0.21	-
12	male	670	24 5/7	6	640	25 4/7	0.22 - 0.28	RMC
13	female	1425	31	8	1478	32 1/7	0.21	-
14	female	1440	31	8	1494	32 1/7	0.21	-
15	male	860	26 6/7	13	1060	28 5/7	0.22 - 0.30	FiO2-C
16	female	440	23	54	880	30 5/7	0.21 - 0.25	-
17	male	960	27 6/7	24	1234	31 2/7	0.24 - 0.26	RMC
18	male	290	24 1/7	85	1270	36 2/7	0.21 - 0.24	-
<u>Group 1:</u>	10x female	925	28 0/7	18	1135	30 4/7	9x FiO2 = 0.21	2x RMC 2x FiO2-C
	8x male	±345	±2 3/7	±21	±259	±2 1/7	5x FiO2 ≥ 0.21 4x FiO2 > 0.21	
" +1 "	female	990	30	14	1290	32	0.21	-
" +2 "	male	550	24 2/7	51	1120	31 4/7	0.24 - 0.28	RMC
" +3 "	female	755	25 1/7	12	830	26 6/7	0.24 - 0.28	FiO2-C
" +4 "	male	550	24 1/7	51	990	31 3/7	0.30 - 0.40	FiO2-C
" +5 "	male	1050	27 5/7	7	1000	28 5/7	0.21 - 0.23	-
" +6 "	male	390	27 6/7	19	860	30 4/7	0.30 - 0.35	FiO2-C
<u>Group 2:</u>	2x female	714	26 4/7	26	1015	30 1/7	1x FiO2 = 0.21	1x RMC 3x FiO2-C
	4x male	±241	±2 1/7	±18	±156	±1 6/7	1x FiO2 ≥ 0.21 4x FiO2 > 0.21	
<u>Total (mean ±SD)</u>	12x female	873	27 4/7	20	1105	30 3/7	10x FiO2 = 0.21	3x RMC 5x FiO2-C
	12x male	±335	±2 3/7	±20	±243	±2 0/7	6x FiO2 ≥ 0.21 8x FiO2 > 0.21	

Supplementary Table 4: Comparison of pulse rates

	<u>LNCS</u>		<u>RD</u>			<u>PPG</u>		
<u>Pulse-Rate (bpm)</u>			<i>vs. LNCS</i>			<i>vs. LNCS</i>		
Mean (\pmSD)								
- all infants:	162.2	(\pm12.0)	162.2	(\pm11.9)	-	162.3	(\pm11.9)	-
-- group 1:	160.9	(\pm 11.4)	160.9	(\pm 11.3)	-	160.9	(\pm 11.3)	-
-- group 2:	166.1	(\pm 12.9)	166.1	(\pm 12.9)	-	166.1	(\pm 12.9)	-
Mean difference to LNCS (95%-CI of mean)								
- all infants:	-	-	-0.003	(-0.017 to 0.011)	-	-0.007	(-0.006 to 0.021)	-

Supplementary Figure 1: Bland-Altman-Plots of pulse rate-readings and SpO₂-values (dots representing individual simultaneous SpO₂-readings; horizontal lines indicate mean deviation \pm SD; X-axes indicating mean of two corresponding measurements; Y-axes indicating the difference between the two measurements), showing no systematic deviation in the comparisons of pulse rate between sensor types (Panels 1-4), and systematically lower SpO₂-values for RD vs LNCS (Panel 5+6) and slightly higher values for PPG vs. LNCS (Panel 7+8)

