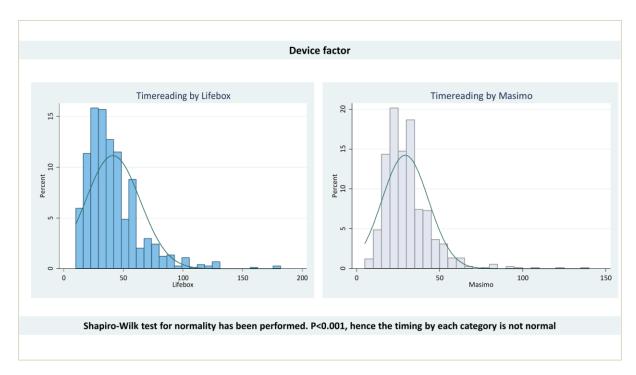
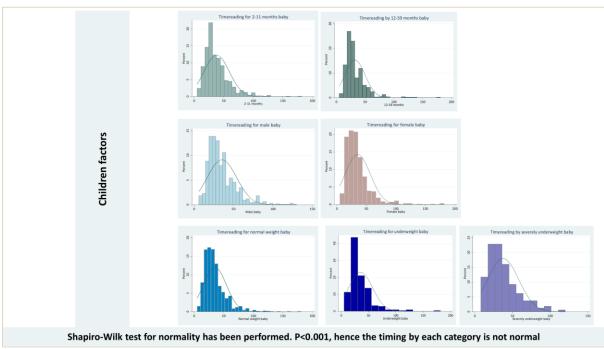
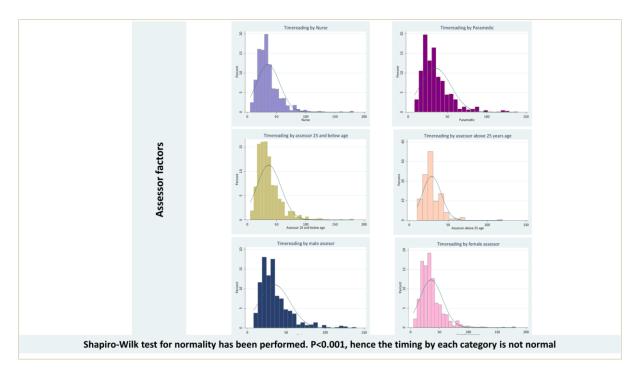
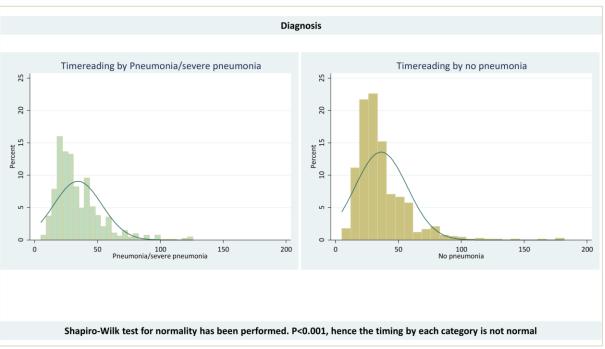
Supplementary Figures:

Figure S1: Histograms of time-reading for obtaining a stable SpO₂ reading by groups to assess normality.









Supplementary Tables:

Table S1: Lifebox vs Masimo model, technical specification and price comparison.

Requirements	Lifebox A-care AH-M1	Masimo Rad-5v®			
Price	LITEBOX A CUTE ATT WIT	IVIASIITIO IKAA SV			
Price (USD)	200	500			
General requirements	200	300			
For adults, children and neonates	Yes	Yes			
For all skin pigmentations	No data found	No data found			
Weight range for each patient	No data found	No data found			
category	No data loulid	No data loulid			
SpO2 detection to include the range:	Yes, 0-100%	Yes, 1-100%			
70–100%	103, 0 100/0	10070			
SpO2 resolution: 1% or less.	1%	1%			
SpO2 accuracy within ±3% for all	70%-100%: ± 2%; 0%-69%:	2% with no motion low			
patients and perfusion/movement	not defined	perfusion adults/paediatrics.			
conditions.	ca	3% with motion and low			
		perfusion neonates			
Pulse rate range: 30–240 bpm.	25-250 bpm	25-240 bpm			
Pulse rate resolution: 1 bpm or less	1 bpm	1 bpm			
Pulse rate accuracy within ±3 bpm.	±2 bpm	3 bpm with no motion and			
	~p	in low perfusion, 5 bpm with			
		motion			
Audio					
Audible and visual alarms for	Yes	Yes			
low/high saturation and pulse rate,					
threshold set by user					
Audible and visual alarms for sensor	Yes	Yes			
error or disconnected, system errors,					
low battery					
Probes					
Capable of working with, and	Yes	Yes			
supplied with, adult, paediatric and					
neonatal reusable probes					
Electrical characteristics					
Operated by replaceable battery	Li-ion rechargeable	4XAA Alkaline batteries			
power supply, either rechargeable or	battery or, 3 AA batteries				
single use					
Display					
%SpO ₂	Yes	Yes			
Pulse rate	Yes	Yes			
Plethysmographic waveform	Yes	Yes			
Alarm messages	Yes	Yes			
Battery state indication	Yes	Yes			
Others	No	Perfusion Index, Signal IQ (SIQ) bar			
Optional					

Requirements	Lifebox A-care AH-M1	Masimo Rad-5v®			
Internal data storage for patient trends and event log	Yes; 1-99 ID and 300 records for each ID	The Rad-5 can store 72 hours of SpO2 and Pulse Rate and Perfusion Index trend data, captured at 2 second intervals. This trend			
		data can then be transferred to a PC for evaluation. Trend data is stored in non-volatile memory, so it is not erased when the device is shut off or when the batteries are replaced			
FDA/CE Approval		_			
FDA/CE Approved	Yes	Yes,			

Table S2: Medians of timing required to obtain a stable reading of SpO_2 by categories.

	Mi n	Q1	Medi an	Q3	Max	Difference in median (in seconds)	Test of Choice for equality of distribution	P-value with more decimals for Wilcoxon test			
All	5	22	30	42	182	,					
Age of child											
2-11 months	5	24	32	47	182	3	Wilcoxon ranksum test	0.000000004263325435000000000000000000000			
12-59 months	5	20	29	40	181			000000000000			
Sex											
Male	5	22	30	42	182	0	Wilcoxon ranksum test	0.50844932064946900000000000000000000000000000000			
Female	6	23	30	42	130			000000000000			
Weight for age of child											
Not Under- Weight (-2 SD and above)	5	22	30	42	181	Not Under-Weight and Under-Weight 0	Kruskal-Wallis	0.37635838777267500000000000000000000000 00000000000			
Under-Weight (below -2SD)	5	22	30	42	182	Under-Weight and Severe Under-Weight 1					
Severely Under Weight (below - 3SD)	8	24	31	47	120	Not Under-Weight and Severe Under-Weight 1					
Type of assessor											
Nurse	5	23	30	42	182	0	Wilcoxon ranksum test	0.29652587726540300000000000000000000000000000000000			
Paramedic	8	22	30	43	140	1		000000000000			
Age of assessors											
25 and below	5	23	30	45	182	3	Wilcoxon ranksum test	0.0000001643088407600000000000000000000			
Above 25 years	10	20	27	35	120			00000000000			
Sex of assessor											
Male	8	20. 5	30	42. 5	140	0	Wilcoxon ranksum test	0.1542752946499600000000000000000000000000000000			
Female	5	23	30	42	182						
Type of PO											
Lifebox	10	25	36	50	182	9	Wilcoxon signrank test	0.000000000000000000000000000000000000			
Masimo	5	20	27	35	140	1		00000001010			
Diagnosis											
Pneumonia or severe pneumonia	5	21	30	42	126	0	Wilcoxon ranksum test	0.0441399034771994000000000000000000000000000000000			
Fever and other	5	23	30	44	182	1					

Table S3: Number of assessments by assessor type.

Type of assessor	Number of assessments
Nurse 1	64
Nurse 2	76
Nurse 3	78
Nurse 4	82
Nurse 5	74
Nurse 6	76
Nurse 7	86
Nurse 8	96
Nurse 9	80
Nurse 10	96
Nurse 11	94
Paramedic 1	104
Paramedic 2	92
Paramedic 3	76
Paramedic 4	38
Paramedic 5	94
Paramedic 6	88
Paramedic 7	84

Table S4: Generalised estimating equation (GEE) regression to assess the association between time taken to obtain successful measurement of SpO2 within 60 seconds and different characteristics of participants presented in adjusted odds ratio and 95% Confidence Interval (N=1474).

	%	Crude Odds ratio	95% CI Lower limit	95% CI Upper limit	P value	Adjusted Odds ratio	95% CI Lower limit	95% CI Upper limit	P value
Diagnosis									
Fever and other	92								
Pneumonia or severe pneumonia	93	1.13	0.76	1.67	0.55	1.33	0.87	2.04	0.19
Age of child									
2-11 months	89								
12- 59 months	96	2.07	1.32	3.24	0.00	2.64	1.64	4.24	0.00
Sex of child									
Male	92								
Female	92	0.92	0.63	1.36	0.69	0.87	0.58	1.32	0.52
Weight for age of child									
Not Under-Weight (-2 SD and above)	93								
Under-Weight (below -2SD)	92	1.06	0.60	1.86	0.84	1.09	0.60	1.98	0.78
Severely Under Weight (below -3SD)	89	0.87	0.49	1.57	0.65	0.87	0.48	1.57	0.64
Type of pulse oximetry									
Lifebox	87								
Masimo	98	6.97	3.41	14.25	0.00	7.29	3.74	14.20	0.00
Type of assessors									
Nurse	92								
Paramedic	92	0.98	0.31	3.07	0.98	1.19	0.41	3.44	0.75
Age of assessors (in years)									
25 years and below	91								
Above 25	98	5.86	0.63	54.46	0.12	4.75	1.21	18.58	0.03
Sex of assessor									
Male	92								
Female	92	1.06	0.34	3.32	0.91	0.85	0.30	2.45	0.76