

# The REST Trial: A-Lung Device Setup

**Aim** To provide guidance on the circuit choice and process for the use of the A-Lung system in the Intensive Care Unit

**Scope** All adult patients on the Intensive Care Unit who require A-Lung respiratory support as part of the REST Trial.

## Section A: Patient with Respiratory Failure Randomised to Intervention

### Indications

- 1) Acute and potentially reversible hypoxic ARF
- 2) IMV (CMV/SV) - PEEP  $\geq$  5cmH<sub>2</sub>O, TV  $\leq$  6ml/kg IBW
- 3) 2x PF Ratio  $\leq$  20kPa, 6 hours apart

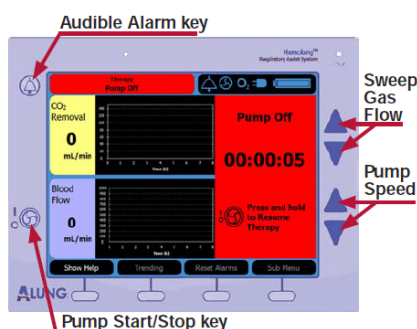
### Contraindications

Bleeding Diathesis  
See Protocol 8.2.2

### Select cannula based on vascular approach

**\*\*NB max flow rates, increasing Speed (RPM) to achieve greater flows will likely result in haemolysis\*\***

Cannulae Configurations (Right recommended for technical ease)	Sizes	Cannulae blood flow tolerability	Membrane ventilator (blood flow tolerability)	Treatment Goals
Right (Left) Jugular	15.5F/17cm Jugular	450-550l/min	A Lung Cartridge (350~550ml/min) (1100-1400 RPM)	CO <sub>2</sub> removal (To achieve TV < 3ml/kg IBW)
Right (Left) Femoral	15.5F/26cm Femoral	350-450l/min	A Lung Cartridge (350~550ml/min) (1100-1400 RPM)	CO <sub>2</sub> removal (To achieve TV < 3ml/kg IBW)



**High Priority** - In some cases the pump stops to prevent harm to the patient.  
**Medium Priority** - Pump continues to run but a prompt response is required to prevent diminished performance.  
**Low Priority** - Pump continues to run but system is operating in an unexpected state.  
**Critical Errors** - Condition that renders equipment unusable. After correcting error, power cycle system to clear.

**Take ICE iLA Active BASELINE ward profile bloods & Inform Haematology that patient starting ECCO2R therapy as soon as patient confirmed to be in intervention group.**

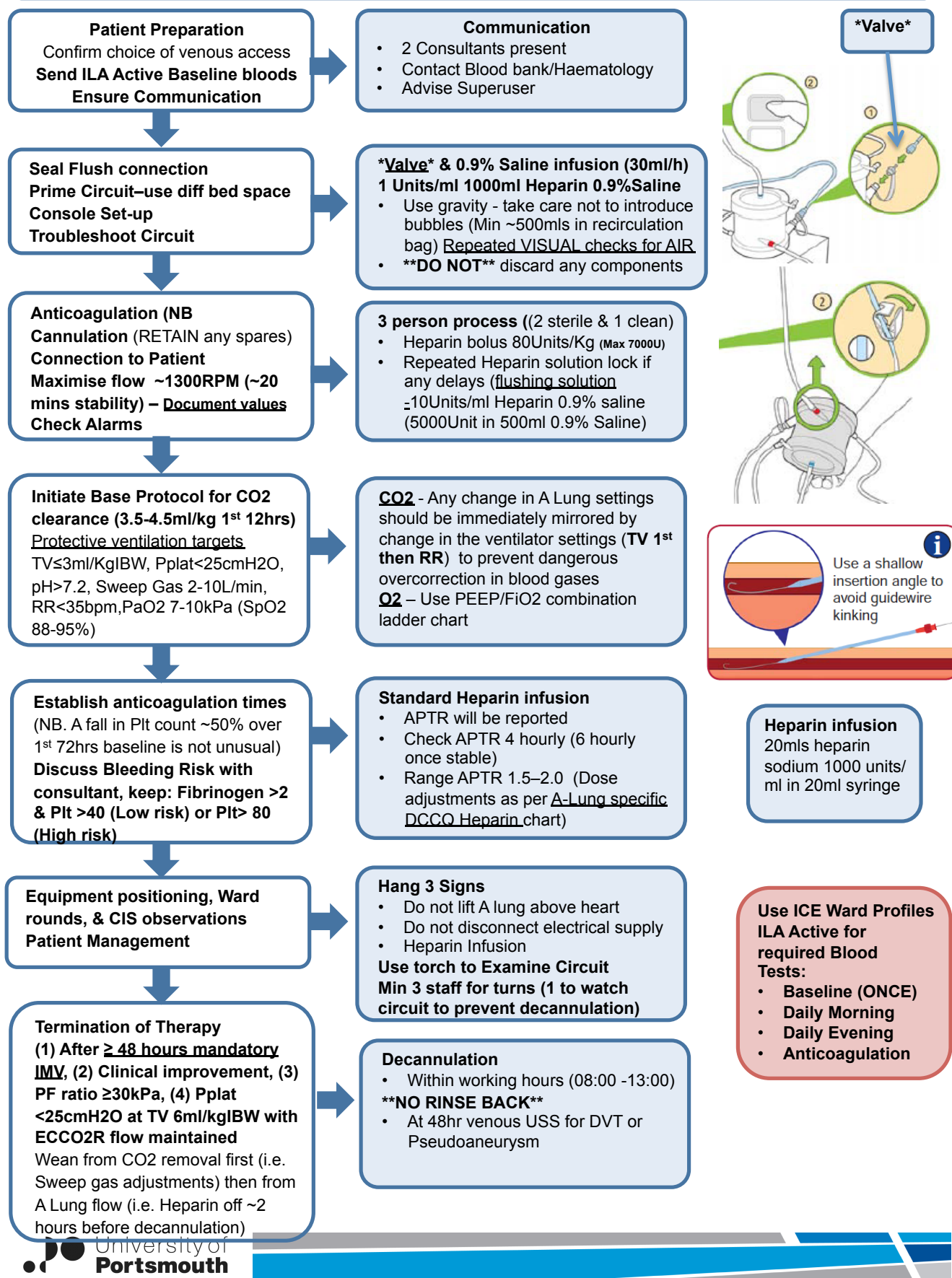
**\*\* NB. iLA Active Daily morning, iLA Active Daily Evening, iLA Active Anticoagulation for all subsequent blood work\*\***

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## Set-Up Process

**\*\*Reference REST Study Manual as required\*\***



### Guide to Titration of Ventilator Tidal Volume and Sweep Gas Flow

Time (min)	Sweep Gas Flow (L/min)	Tidal Volume (ml/Kg)	ABG
0	1	6	YES
	Confirm maintenance of Mean Airway Pressure		
20	3	5.5	YES
	Confirm maintenance of Mean Airway Pressure		
40	5	5	YES
	Confirm maintenance of Mean Airway Pressure		
60	7	4.5	YES
	Confirm maintenance of Mean Airway Pressure		
80	9	4	YES
	Confirm maintenance of Mean Airway Pressure		
100	10	3.5	YES
	Confirm maintenance of Mean Airway Pressure		
120	10	3	YES
	Confirm maintenance of Mean Airway Pressure		
140	10	3	YES
160	10	3	YES
180	10	3	YES

**Aim to achieve a TV 3.5-4.4ml/kg initially, but continue to progress the sweep gas to 10 L [make adjustments to RR as necessary]. After period of stability ~12 hours progress to 3ml/kg if physiology allows (NB possibility for deadspace ventilation) [make adjustments to RR as necessary] (NB. Max RR 35 breaths/min)**

### PEEP/FiO2 Combinations Ladder Recommendations

FiO2	PEEP (cmH2O)
0.3	5
0.4	5-8
0.5	8-10
0.6	10
0.7	10-14
0.8	14
0.9	14-16
1	18-24

**Ideal Body Weight Guide : MALES**

**HEIGHT  
FROM  
ULNAR  
LENGTH  
CHART**

HEIGHT cm	IBW Male	3 ml/kg	3.5 ml/kg	4 ml/kg	4.5 ml/kg	5 ml/kg	5.5 ml/kg	6 ml/kg
154	51	154	181	206	232	257	284	309
156	53	160	187	213	240	266	294	320
158	55	165	193	220	248	275	304	331
160	57	171	200	228	257	285	314	341
162	59	176	206	235	265	294	324	352
164	61	182	212	242	273	303	334	363
166	62	187	219	250	281	312	344	374
168	64	193	225	257	289	321	354	385
170	66	198	232	264	298	330	364	396
172	68	204	238	271	306	339	374	407
174	70	209	244	279	314	348	384	418
176	71	214	251	286	322	357	394	429
178	73	220	257	293	330	366	404	440
180	75	225	263	300	339	376	414	451
182	77	231	270	308	347	385	424	462
184	79	236	276	315	355	394	434	473
186	81	242	283	322	363	403	444	483
188	82	247	289	330	371	412	454	494
190	84	253	295	337	379	421	464	505
192	86	258	302	344	388	430	474	516
194	88	264	308	351	396	439	484	527
196	90	269	314	359	404	448	494	538
198	91	274	321	366	412	457	504	549
200	93	280	327	373	420	467	514	560
202	95	285	333	381	429	476	524	571
204	97	291	340	388	437	485	534	582
206	99	296	346	395	445	494	544	593
208	101	302	353	402	453	503	554	604
210	102	307	359	410	461	512	564	614
212	104	313	365	417	470	521	574	625
214	106	318	372	424	478	530	584	636
216	108	324	378	432	486	539	594	647
218	110	329	384	439	494	548	604	658
220	112	335	391	446	502	558	614	669

## Ideal Body Weight Guide : FEMALES

HEIGHT  
FROM  
ULNAR  
LENGTH  
CHART



HEIGHT cm	IBW Female	3 ml/kg	3.5 ml/kg	4 ml/kg	4.5 ml/kg	5 ml/kg	5.5 ml/kg	6 ml/kg
154	47	141	165	188	212	235	259	282
156	49	146	171	195	220	244	269	293
158	51	152	178	202	228	253	279	304
160	52	157	184	210	236	262	289	314
162	54	163	190	217	245	271	299	325
164	56	168	197	224	253	280	309	336
166	58	174	203	232	261	289	319	347
168	60	179	209	239	269	298	329	358
170	62	185	216	246	277	308	339	369
172	63	190	222	253	286	317	349	380
174	65	195	229	261	294	326	359	391
176	67	201	235	268	302	335	369	402
178	69	206	241	275	310	344	379	413
180	71	212	248	282	318	353	389	424
182	72	217	254	290	326	362	399	435
184	74	223	260	297	335	371	409	446
186	76	228	267	304	343	380	419	456
188	78	234	273	312	351	389	429	467
190	80	239	280	319	359	399	439	478
192	82	245	286	326	367	408	449	489
194	83	250	292	333	376	417	459	500
196	85	256	299	341	384	426	469	511
198	87	261	305	348	392	435	479	522
200	89	266	311	355	400	444	489	533
202	91	272	318	363	408	453	499	544
204	92	277	324	370	417	462	509	555
206	94	283	330	377	425	471	519	566
208	96	288	337	384	433	480	529	577
210	98	294	343	392	441	490	539	587
212	100	299	350	399	449	499	549	598
214	102	305	356	406	458	508	559	609
216	103	310	362	414	466	517	569	620
218	105	316	369	421	474	526	579	631
220	107	321	375	428	482	535	589	642