

MODIFIED ACLS - CRITICAL CARE

Ensure high quality CPR with minimal interruptions
 Adrenaline 1mg every 3-5mins
 Amiodarone 300mg after 3rd shock
 Consider adrenaline infusion

Hypoxia	Thrombosis
Hypovolaemia	Tension PTX
Hypo/ Hyperkalaemia	Tamponade
Hypothermia	Toxins

Inside the room

- 1.Senior anaesthetist
- 2.Physician for iv access and airway assistance (may be anaesthetics or other)
- 3.ICU Nurse to administer medications and energy
- 4.Staff nurse to do CPR (1)
- 5.Staff nurse to do CPR (2) – First responder(s)

In anteroom

1. Staff nurse in PPE
- They should:
- provide support if someone has to leave the room
 - be ready to get whatever the team inside needs
 - facilitate communication
 - observe for breaches in protection
 - relieve personnel inside the room to minimise risk of safety breaches when fatigued

Outside the room

1. RUNNER (staff nurse) to assist with supply/ equipment

Donning should be carried out quickly but meticulously

If multiple individuals arrive at the same time, **priority for donning and entering the room should be given to senior anaesthetist and ICU nurse**

Members of the team initially staying outside the room (e.g., back-up staff nurse and runner), should **help with donning (e.g. tie gowns) and assessing for breaches**

1. Put personal items (stethoscope, jewellery, clipboard, watch, pagers) in specific bag available in COVID-19 tool bag
2. Don PPE as per guidelines for aerosolized procedures
3. Have member of the code blue team special to assess for breaches prior to entering room

INSIDE THE ROOM / DURING THE CODE

- First responder continues to provide CPR
- First two to enter the room: senior anaesthetist and the ICU nurse with arrest cart (unless already inside the room), unless others already present and properly protected
- ICU nurse immediately connects patient to defibrillator for rhythm analysis if not done already
- Defibrillate if indicated
- No equipment can leave the room until the end of the arrest and without appropriate handling

BEFORE LEAVING THE ROOM.

- **Plan transport** if needed. Team members who will be in contact with the patient during transport must then put on new, clean PPEs prior to transport.
- All **non-disposable equipment must be wiped, placed into a clear biohazard bag** in the room and tied
- **Disposable equipment must be discarded**
- **Put arrest record** into sleeve sheet and wipe it

•DOFFING

-**DO NOT RUSH.**

-**Anyone who is** unwell, has had equipment failure, or likely self-contaminated is the first to doff and exit

-**Use doffing guidelines**

ICU VENTILATOR

Turn off ventilator
Disconnect DISTAL to HME
Attach C-circuit and waveform capnography

THEATRE VENTILATOR

Switch to MAN SPON

Manual ventilation at 10-12/min

Assess Rhythm
Max 10 seconds

VF/pVT

DC Shock

Resume CPR x 2mins
Minimise interruptions

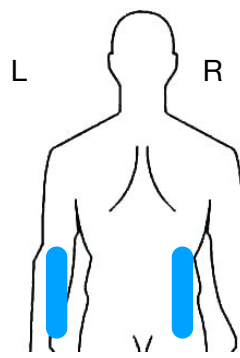
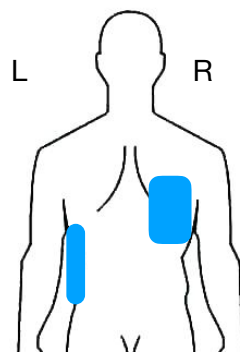
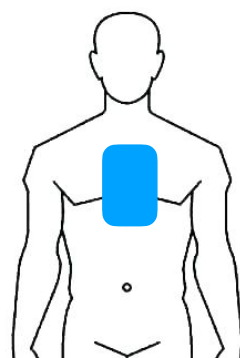
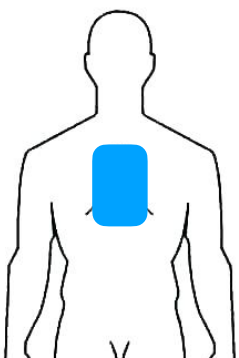
Asystole/PEA

Resume CPR x 2mins
Minimise interruptions



HAND POSITION

DEFIB PADS



- Inside the room**
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 3. ICU Nurse to administer medications and energy
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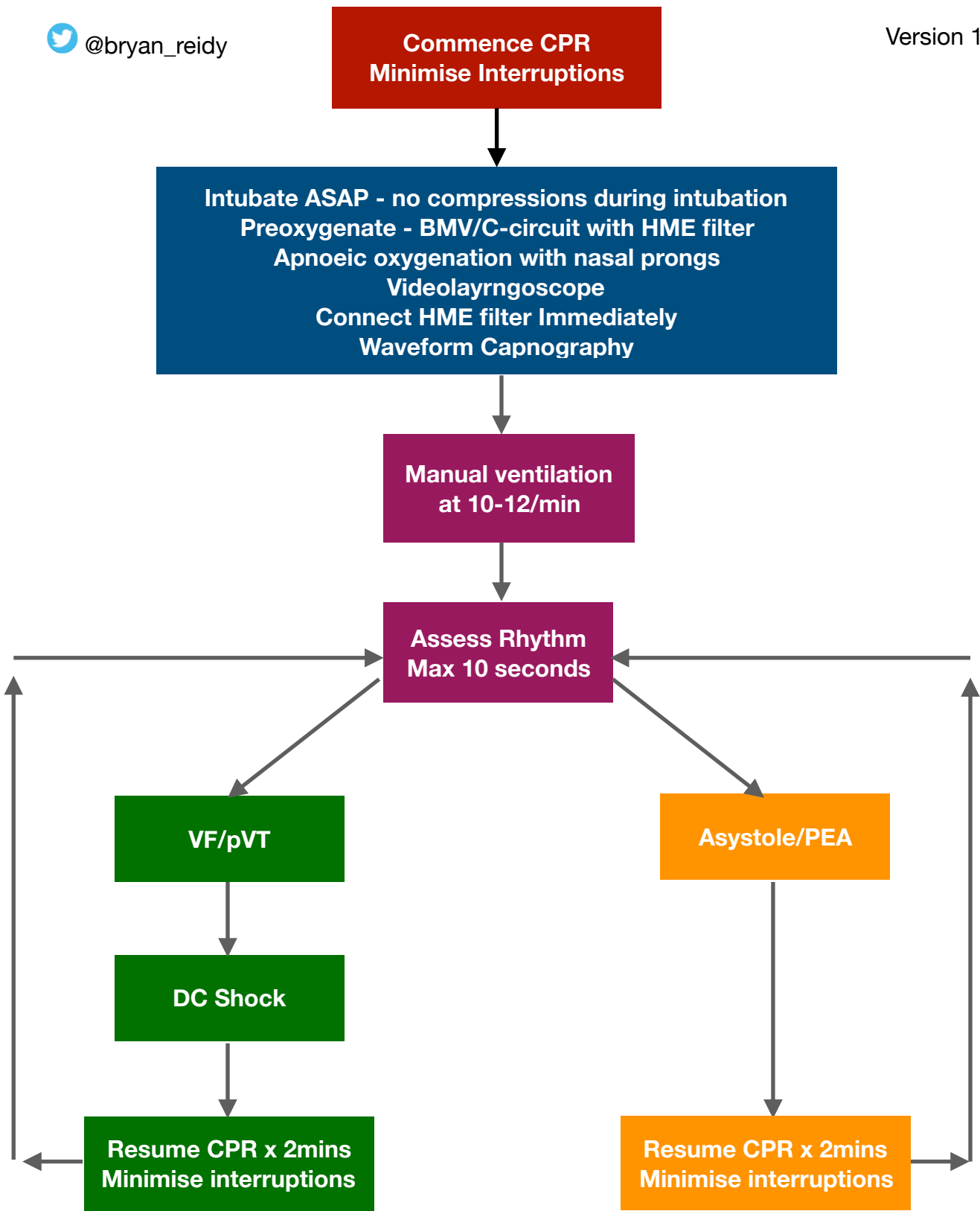
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Hypotermia	Toxins

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COVID-19 ACLS CHECKLIST

REVIEW of PPEs

- Review appropriate PPEs available

DONNING

- Review donning steps (consider reviewing video and posters available)
- Providers directly participating in intubation must wear 1) goggles AND full face shield; 2) double gloves
- Personal items (e.g., stethoscope, jewellery, watch, pagers) should be left outside room
- Priority for donning and entering the room: senior anaesthetist and ICU Nurse
- Discuss “donning buddy” strategy
- Do not enter patient’s room without another member of the team having assessed for PPE breaches

DOFFING

- DO NOT RUSH
- Review doffing steps (consider reviewing video and posters available)
- Discuss “doffing buddy” strategy

EQUIPMENT

- Check COVID-19 ACLS tool bag (C-circuit with HME filter, selection of Guedel airways, laminated copy of guidelines, disposable stethoscope, arrest record, pen, stop watch, clear bag for personal belongings to be left outside room)
- Travelling arrest cart not to be brought inside patient’s room (will stay outside available if other equipment needed – e.g., IO supplies)
- Discuss need for videolaryngoscope and who will be responsible of bringing it to the room
- Review ETT/inline suction/filter/ETCO2/BMV correct set-up
- Review importance of using appropriate mechanical HEPA filters

ACLS MODIFICATIONS

- Review code blue special ACLS modifications (see back of this document and ACLS COVID-19 Card)

INTUBATION/MECHANICAL VENTILATION

- If you need to disconnect ETT (e.g., air trapping):
 - 1) clear, loud announcement
 - 2) leave filter connected to ETT
- If possible, don’t perform manual bag-mask ventilation (BMV) before intubation.
- Consider videolaryngoscopy as first intubation technique

TRANSPORT

- You need to doff and re-don before transport of patient
- Review checklist for transportation of airborne droplet contact patient

Make sure that every patient gets **Fast Hugs in Bed Please** at least once per day

Fluid therapy and feeding

Analgesia, antiemetics

Sedation and Spontaneous breathing trial

Thromboprophylaxis - Enoxaparin 40mg OD SD (20mg if renal failure, BD if >100kg)

Head up position (30-45 degrees) if intubated

Ulcer prophylaxis (if not enterally fed)

Glucose control (5-10mmol/L)

Skin/eye care and suctioning

Indwelling catheters - are they needed?

Nasogastric tube

Bowel cares

Environment (e.g. temperature control, appropriate surroundings in delirium)

De-escalation (e.g. end of life issues, treatments no longer needed)

Psychosocial support (for patient, family and staff)

Ref Dr Chris Nickson <https://litfl.com/fast-hugs-in-bed-please/>

Target MAP >65mmHg

Noradrenaline

If noradrenaline >25mcg/min then consider adding a second agent to achieve MAP

- Adrenaline
- Vasopressin

A higher target may be needed if underlying hypertension or raised ICP

Fluids

Do not routinely prescribe maintenance fluids if tolerating NG feeds.

Aim for neutral or negative fluid balance every 24 hours.
Diuretics as required

Haemodynamic Assessment

Formal TTE on day 3-4

Clinical signs - tachycardia, hypotension

Cardiac output monitor (if available)

Stroke volume variation >10%

Pulse pressure variation >10%

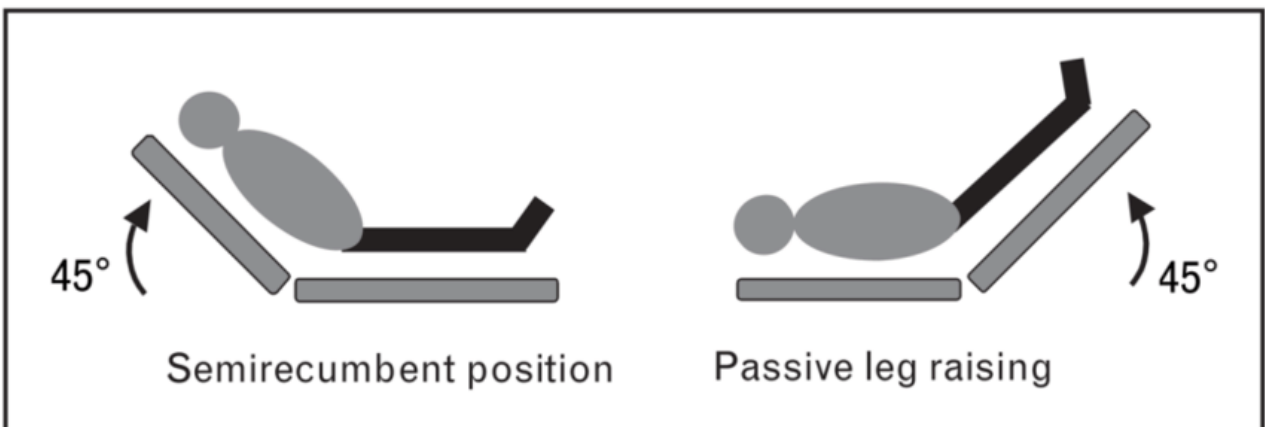
Passive leg raise

Sit patient at 30-45°

Tilt whole bed head down until legs at 30° to body

Monitor for increase in CO, decrease in SPV/SV

If signs of fluid responsiveness then consider bolus of 250mls crystalloid (CSL or NaCl) and observe for clinical effect



PREPARE	<p style="text-align: center;">Ensure PPE correctly applied</p> <p>Airway and Lines staff to wear visors</p>		<p style="text-align: center;">Team (6)</p> <p>Airway - Anaesthetist/Intensivist Lines - Anaesthetic/ICU nurse Turning - 4 staff members</p>	
	<p>PREPARE PATIENT</p> <p>Preoxygenate Paralyse Increase vasopressors Lubricate and tape eyes Remove ECG Aspirate NG Disconnect and cap arterial line</p>	<p>PLACE PILLOWS</p> <p>1 X SHIN 1-2 x THIGH (ensure genitals and catheter free) 1-2 x CHEST</p> <p>PLACE SHEET OVER PATIENT</p> <p>Ensure 4 corners match Roll edges close to patient</p>		<p>CHECK CONNECTIONS</p> <p>Ensure tube secured opposite side to ventilator - sleek and IOBAN</p> <p>Ensure all ventilator connections secure Ensure lines free</p>
	<p>REVIEW AND CONFIRM PLAN</p>			
	PROCEDURE	<p>COMMAND READY - BRACE - MOVE</p> <p>Move to edge of bed Move 1/2 body width off bed Move up so head clear of top of bed</p> <p>Remove pillow/head-ring Ensure lines and tubing free</p> <p>COMMAND READY - BRACE - MOVE</p> <p>Turn patient 90 degrees Turn patient prone</p> <p>Turn head into position (face ventilator on first turn)</p> <p>COMMAND READY - BRACE - MOVE</p> <p>Move down bed Head-ring/pillow into place Move arm up to side of tube</p> <p>Check head position, eyes, lines and tubes</p>		<p>Reattach monitors</p> <p>ABG 30 mins post proning and 4 hourly thereafter</p> <p>Commence feed once stable</p> <p>Check eyes hourly</p> <p>Rotate head and arms every 5 hours</p> <ul style="list-style-type: none"> - Contact prone team 30mins ahead of time - Ensure all equipment available <p>Turn supine after 16 hours</p> <ul style="list-style-type: none"> - Stop feed 1 hour ahead of time - Contact prone team 30mins ahead of time
<p>ONCE PATIENT STABLE DOFFING PROTOCOL AS REQUIRED EXIT ROOM</p>				

PREPARE	<p>Ensure PPE correctly applied</p> <p>Airway and Lines staff to wear visors</p>	<p>Team (6)</p> <p>(1) Airway - Anaesthetist/Intensivist</p> <p>(2) Lines - Anaesthetic/ICU nurse</p> <p>(3-6) Turning - 4 staff members</p>
	<p>PREPARE PATIENT</p> <p>Preoxygenate</p> <p>Paralyse</p> <p>Increase vasopressors</p>	<p>CHECK CONNECTIONS</p> <p>Ensure all ventilator connections secure</p> <p>Ensure lines free</p>

REVIEW AND CONFIRM PLAN

PROCEDURE	<p>COMMAND READY - BRACE - MOVE</p> <p>Move up so head clear of top of bed</p> <p>Remove pillow/headring</p> <p>Ensure lines and tubing free</p>	<p>ABG 4 hourly</p> <p>Check eyes hourly</p> <p>Rotate head and arms every 5 hours</p> <ul style="list-style-type: none"> - Contact prone team 30mins ahead of time - Ensure all equipment available <p>Turn supine after 16 hours</p> <ul style="list-style-type: none"> - Stop feed 1 hour ahead of time - Contact prone team 30mins ahead of time - Ensure all equipment available
	<p>COMMAND READY - BRACE - TURN</p> <p>Turn head into position (1)</p> <p>Ensure lines free</p> <p>COMMAND READY - BRACE - MOVE</p> <p>Move down bed</p> <p>Head-ring/pillow into place</p> <p>Move arm up to side of tube</p> <p>Check head position, eyes, lines and tubes</p>	

**ONCE PATIENT STABLE
DOFFING PROTOCOL AS REQUIRED
EXIT ROOM**

PREPARE

Ensure PPE correctly applied
Airway and Lines staff to wear visors

Team (6)
Airway - Anaesthetist/Intensivist
Lines - Anaesthetic/ICU nurse
Turning - 4 staff members

PREPARE PATIENT

Preoxygenate
Paralyse
Increase vasopressors

Remove ECG

Aspirate NG

Disconnect and cap arterial line

PLACE SHEET OVER PATIENT

Ensure 4 corners match
Roll edges close to patient

CHECK CONNECTIONS

Ensure all ventilator connections secure
Ensure lines free

REVIEW AND CONFIRM PLAN

PROCEDURE

COMMAND READY - BRACE - MOVE

Move to edge of bed
Move 1/2 body width off bed
Move up so head clear of top of bed

Remove pillow/headring
Ensure lines and tubing free

COMMAND READY - BRACE - TURN

Turn patient 90 degrees
Turn patient supine

COMMAND READY - BRACE - MOVE

Move down bed
Head-ring/pillow into place

Un-tape eyes

Check lines and tubes

Reattach monitors

ABG 30 mins post supination and 4 hourly thereafter

Commence feed once stable

Prepare to prone after 8 hours

- Stop feed 1 hour ahead of time
- Contact prone team 30mins ahead of time
- Ensure all equipment available

**ONCE PATIENT STABLE
DOFFING PROTOCOL AS REQUIRED
EXIT ROOM**

Initial phase - deep sedation - Target RASS < -4

Propofol 100mg/hr
Morphine 5ml/hr

**Stable
Improving Oxygenation**

RASS -2 - -3

Unstable

add/substitute
Midazolam 5ml/hr

Review sedation daily

Anticipate Delirium

Quetiapine
Dexmedetomidine

Richmond Agitation and Sedation Scale (RASS)		
+4	Combative	violent, immediate danger to staff
+3	Very Agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent non-purposeful movement, fights ventilator
+1	Restless	Anxious, apprehensive but movements not aggressive or vigorous
0	Alert & calm	
-1	Drowsy	Not fully alert, but has sustained awakening to voice (eye opening & contact ≥ 10 sec)
-2	Light sedation	Briefly awakens to voice (eye opening & contact < 10 sec)
-3	Moderate sedation	Movement or eye-opening to voice (but no eye contact)
-4	Deep sedation	No response to voice, but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

Standard Admission Orders (all patients)		
Drug	Concentration/Dilution	Dose
Noradrenaline	6mcg in 100mls 5% Dextrose	
Midazolam	60mg in 60mls 0.9% NaCl	
Morphine	60mg in 60mls 0.9% NaCl	
Propofol	500mg in 50ml	
Dexmedetomidine	1000mcg in 250mls 0.9% NaCl	
Ranitidine		50mg TDS (until enteral feed)
Enoxaparin		40mg OD (20mg if renal failure, BD if >100kg)
Senna		10mls OD
Lactulose		20mls BD
Potassium Chloride	Max rate 20mmol/hr	Target K >4mmol/L
Potassium Phosphate		
Magnesium Sulphate		Target Mg >1 mmol/L
Chlorhexidine Mouthwash		1 application QDS

Additional Orders		
Drug	Concentration/Dilution	Dose
Adrenaline	6mcg in 100mls 5% Dextrose	
Vasopressin	20 Units in 50mls 5% Dextrose	
Milrinone	10mg in 50mls 0.9% NaCl	
Atracurium	500mg in 50mls (neat)	
Heparin	25000 Units in 50mls 0.9% NaCl	As per protocol
Metoclopramide		10mg TDS
Pabrinex	Ampoules 1 + 2 in 100mls 0.9% NaCl	2 ampoules TDS

Hypoxaemic Respiratory Failure P/F <26.6 (200)

TARGETS
Vt 6mls/kg IBW
Plat Pressure <30cmH₂O
pH >7.2
pO₂ >8kPa, SpO₂ >88%

PF RATIO = P_aO₂/FiO₂

Volume Control Ventilation
Male 430mls Female 350mls
PEEP 10cmH₂O
Resp rate <35
I:E 1:2
RASS -4

POST INTUBATION RECRUITMENT MANOEUVRE
PEEP 40cmH₂O x 40 secs
Repeat 4-6 hourly

ABG at 30 mins
4 hourly thereafter

PF ratio < 20 (150)

PF ratio <26.6 (200)

PF ratio >26.6 (200)

RASS -4
NMBA infusion*
Prone

RASS -4
NMBA infusion*
x 48hours

RASS -2
Continue ventilation settings

Reassess 4 hourly

*cis-atracurium or atracurium

PF ratio > 26.6 (200) x24 hours

Weaning

TIDAL VOLUME - 6mls/kg IDEAL BODY WEIGHT

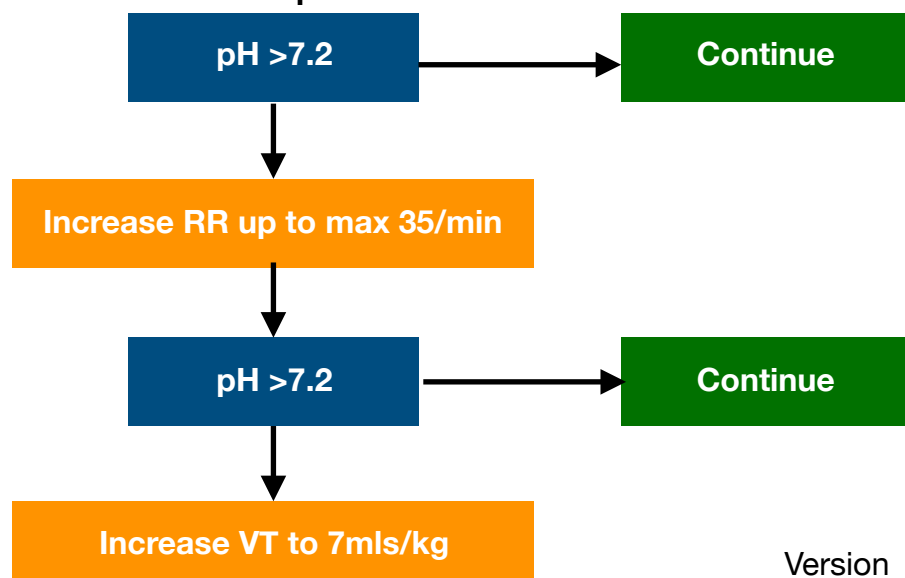
Women		
Height cm	Height	Tidal Volume (mls)
	Feet inches	
153	5'0"	280
155	5'1"	290
158	5'2"	310
161	5'3"	320
163	5'4"	330
166	5'5"	350
168	5'6"	360
171	5'7"	370
173	5'8"	390
176	5'9"	400
178	5'10"	420
181	5'11"	430
183	6'0"	440

Men		
Height cm	Height	Tidal Volume (mls)
	Feet inches	
166	5'5"	370
168	5'6"	390
171	5'7"	400
173	5'8"	420
176	5'9"	430
178	5'10"	440
181	5'11"	460
183	6'0"	470
186	6'1"	480
188	6'2"	500
191	6'3"	510
194	6'4"	530
196	6'5"	540

PEEP

FiO₂	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.9	0.9	0.8	1
PEEP	5	5	8	8	10	10	10	12	14	14	16	18	20-24

ADJUST RR & MINUTE VENTILATION TO pH



Worsening Hypoxia/Hypoxaemia
 SpO2 <88% PaO2 < 8kPa

Intensivist Review
(when possible)

Closed Suction

Recruitment Manoeuvre
 PEEP @ 40cmH₂O x 40 secs

Increase FiO₂ and PEEP

FiO₂	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.9	0.9	0.8	1
PEEP	5	5	8	8	10	10	10	12	14	14	16	18	20-24

Increase Inspiratory Time
 I:E 1:<2

Sedation
 RASS -4

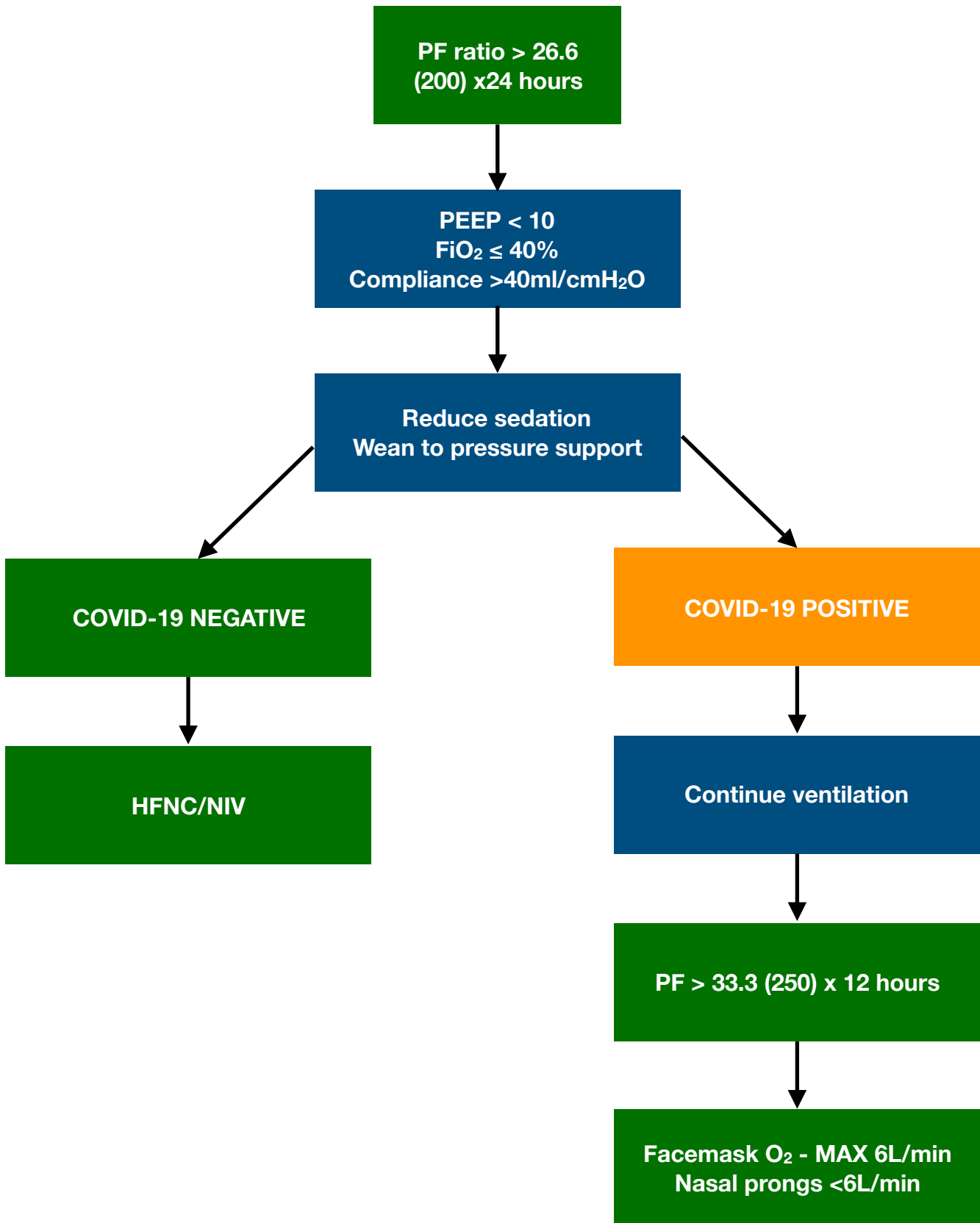
PF ratio <26.6 (200)

PF ratio < 20 (150)

RASS -4
 NMBA infusion* x 48hours

Consider prone position

ALL IMAGING REQUESTS MUST BE APPROVED BY CONSULTANT INTENSIVIST



Disconnection

In room

Rapid reconnection by nurse/intensivist

All non essential staff to stand as far from patient (if safe to do so)

On transfer

All non essential staff to stand as far from patient (if safe to do so)

Intensivist to reconnect as soon as possible

In CT

Intensivist to enter room

Reconnect as soon as possible

All staff to don full PPE - including FFP3 before re-entering room

Room to be deep cleaned

High Airway Pressures

1. Check ventilator to patient for kinks/obstructions/filter saturation
2. Closed suction of ETT
3. Check tube position on CXR
4. Check for bronchospasm and treat as needed
5. Check for pneumothorax

Dyssynchrony

1. Intensivist review when feasible
2. Leak or water in circuit?
3. Closed suction of ETT
4. Adequate sedation?
5. Consider neuromuscular blockade

Caring for critically ill patients can be a stressful experience for staff, particularly in new or unfamiliar environments. We have compiled some practical tips and resources to help you, and your colleagues, look after your mental and physical wellbeing during the weeks ahead.

Keep a routine - make sure you eat healthily and stay hydrated. Take your breaks. Try to exercise and get sufficient rest in between shifts.

Stay in touch with friends and family.

Check out www.gov.ie for factual updates, avoid continuously checking news sites or social media as the flow of information may be overwhelming.

Employee Assistance Counselling Service

The Employee Assistance Counselling Service is provided by the HSE to support employees at a time of difficulty in their personal or professional lives.

The service can be accessed confidentially without having to go through HR or occupational health. Between 4 and 6 sessions are provided free of charge.

The service uses trained counsellors based in numerous locations nationwide to ensure it is convenient for staff members.

Contact details and more information available on hse.ie or via QR code



YourMentalHealth.ie

Developed by the HSE yourmentalhealth.ie contains a wealth of information on all things mental health.

Resources include information on mental health conditions and how to support a friend or family member who is struggling with their mental health.

Practitioner Health Matters

The practitioner health matters programme provides support to doctors, pharmacists and dentists who are struggling with stress, anxiety, burnout or other mental health issues such as substance misuse and addiction.

The service is designed specifically to deal with healthcare providers and so is familiar with the common issues they face, and how to support them through these issues.

The service is fully confidential and free at the point of access for staff.

(01) 297-0356 confidential@practitionerhealth.ie <https://practitionerhealth.ie/>