

Principles of Prolonged Care

- Perform initial lifesaving care using TCCC guidelines and continue resuscitation
 - The foundation of good PFC is mastery of TCCC and a strong foundation in clinical medicine.
- Perform Palliative Care on expectant patients
 - This will require a frank conversation among teammates. If a patient is a transient or non-responder and no stored blood is available for instance. The team should be able to communicate their plan and if available, get telemedical concurrence.
- Delineate roles and responsibilities including naming a team leader
 - A leader should be appointed who will be responsible to look at the larger clinical picture while assistants focus on attention intensive tasks.
- Perform comprehensive physical exam and detailed history with problem list and care plan
 - After the initial care and stabilization of a trauma or medical patient, a detailed physical exam and history should be performed for the purpose of completing a comprehensive problem list and corresponding care plan.
- Record and trend vital signs
 - Vital signs trending should be done with the earliest set of vital signs taken and continued at regular intervals so that the baseline values can be compared to current reality on a dedicated trending chart.
- Perform a telemedical consult
 - As soon as is feasible, the medic should prepare a telemedical consultation by either filling out a preformatted script or by writing down his concerns along with the latest patient information.
- Create a nursing care plan
 - Nursing care and environmental considerations should be addressed early so as to limit any provider induced iatrogenic injury.
- Anticipate resupply and electrical issues
- Perform periodic Tactical Timeout and mini rounds assessments
 - Stepping back from the immediate care of the patient periodically and reengaging with a mini patient round and review of systems can allow the medic to recognize changes in the condition of the patient and reprioritize interventions.
 - **Security-** What is the security situation?
 - **Operational-** Has anything changed with the evac status and operational situation?
 - **Contingencies-** Make a plan for probable and possible contingency scenarios and how the team will react.
 - **Shift Change-** What are the changes in roles and responsibilities? Team lead? Medical Lead? Nursing tech, resting...
 - **Patient-** What is the status of the patients?
 - Is the patient stable or unstable?
 - Is the patient sick or not sick?
 - Is the patient getting better or getting worse?
 - What are the priorities of care?
 - What is the nursing care plan?
- Implement team wake, rest, chow plan
 - The medic and each of the other team members should make all efforts to take care of each other by insisting on short breaks for rest, food and mental decompression.
- Obtain and interpret lab studies
 - When available, labs may be used to augment these trends and physical exam findings in order to confirm or rule out probable diagnoses.
- Perform necessary surgical procedures
 - The decision to perform invasive and surgical interventions should consider both risks and benefit to the patient's overall outcome and not merely the immediate goal.
- Prepare for evacuation care
 - If the medic is caring for the patient over a long strategic evacuation off continent, they should be prepared with ample drugs, fluids, supplies and be ready for all contingencies in flight
- Prepare documentation for patient handover
 - The preparation for evacuation care should begin immediately upon assuming care for the patient and should include hasty and detailed evacuation requests up both the medical and operational channels with the goal of getting the patient to the proper role of care as soon as possible.

Prolonged Field Care - Evaluation Rubric

	Green	Yellow	Red	Remarks
<u>Proper Equipment Loadout for Treatment Venue: Ruck, Truck, House, Plane, etc. (According to 10 C.C. Sheet)</u>	Missing 0 Critical Items	Missing 1-2 Critical Items	Missing 3+ Critical Items	
<u>TCCC MARCH Point of Injury Care</u>	Adheres to all CoTCCC guidelines mitigating all risks to life, limb and eyesight	Completes basic MARCH interventions required to save lives	Fails to complete MARCH assessment or interventions leaving patient at risk of death	
<u>Resuscitation</u>	Initiates appropriate resuscitation within 35 mins of injury	Initiates resuscitation within an hour of injury.	Fails to initiate resuscitation in a timely manner that would benefit the patient outcome	
<u>Considered Hypothermia at all Times</u>	Green: Patient Always Covered	Yellow: Patient Left Uncovered	Red: Role-Player is Actually Cold	
<u>Reduction of Tourniquet</u>	Attempts proper tourniquet conversion within an hour of placement. If full conversion is not possible, reduces distally to save tissue	Attempts tourniquet conversion within 2 hours of placement,	Does not attempt to reduce tourniquet within 2 hours. No attempt to save tissue is made.	
<u>Airway Control</u>	Airway is Patent, Secured and Protected Always	Students React Well to Airway Compromise	Airway is Compromised with late or Inadequate Intervention	
<u>Ventilate and Oxygenate</u>	Optimizes ventilation parameters including: RR, Vt, FIO2, PEEP and maintains safety and comfort	Provides ventilation, but is unable to tailor parameters to patient's needs	Provides poor or no ventilation management	
<u>Initiate Telemedical Consult</u>	Clear, Concise, Early Script Prepared/ Has a plan, but needs advise	Not Clear or Concise/ Poorly Prepared Script/ No plan for care of patient and needs to be provided one	Poor Communication Which Affected the Ability of the Doc to Deliver Medical Advice	
<u>Nursing and Hygiene</u>	Nursing Check Sheet Used / Implemented appropriately. Environmental considerations accounted for.	Nursing Check Sheet Used or Well-Developed Student Plan Used / Implemented	Incomplete Plan, Check Sheet not Used / Implemented	
<u>Documentation</u>	Documents all problems, interventions and assessments required to establish trends	Documents major interventions, assessments, drugs and vital signs	Fails to document any assessments, interventions, drugs or vitals	
<u>Monitoring</u>	Appropriate Vitals Taken at Appropriate Times, Vitals Trended and Interpreted	Inconsistent Vitals Taken, at Inconsistent Times, Vitals Interpreted Late	Full Vitals NOT Taken, and Taken Inconsistently, Patient Deterioration Unrecognized	
<u>Physical Exam and Diagnostics</u>	Complete, Serial Physical Exam at Appropriate Increments	Incomplete Physical Exam: Did not inspect a non-vital, but involved Body System. Not performing serial exams.	Incomplete Physical Exam: Missed a Wound or Critical Body System. No Plan for Serial Exams	
<u>Problem List and Care Plan</u>	Includes both Critical and Secondary managements and assessments	Includes only Critical managements and assessments	Fails to record a problem list or care plan or is missing critical management needs	
<u>Maintains analgesia and/or sedation</u>	Early, Consistent assessments and managements	Treated after vitals or patients indicate pain	Late or absent pain management	
<u>Medication administration</u>	Appropriate, by-Weight, Drug Calculation / Administration/ 6 Rights	Generic, not by-Weight Drug Calculation / Administration / 6 Rights	Wrong or Inadequate Drug Calculation / Administration / 6 Rights violation	
<u>Surgical Interventions</u>	Implemented Appropriately Planned out	Implemented Late Not Planned, but Implemented	Not Planned or Implemented	
<u>Patient Reassessed After: Movement, Intervention, Time</u>	Missed <2 times	Missed 2-5 times	Missed >5 times	
<u>Package and Prepare for Flight</u>	Kept Pt. Ready for Evacuation/ Flight Time and Supply Considered	Pt. Not Always Ready for Evac. /Supply Relative to Flight Time Not Considered	Pt. Consistently Not Ready for Evac. Inadequate Supply Allotted for Evac.	
<u>Hand-Over</u>	Accurate SIT-VD or MIST including vital information	Accurate Information, unorganized	Inaccurate, or Incomplete Handover	
<u>Team Dynamics: Sleep/rest cycle, meal plan, Task Organized</u>	Well Organized. Team leader takes charge. Team Rested / Ate	Not Organized. No team leader apparent. Team Rested / Ate	Unorganized chasing the tail. Nobody Rested or Ate	
<u>Did not cause undue harm to patient</u>	Green	Yellow	Red	

Prolonged Field Care Casualty Card v25 (8July2023)

Day																										DAY		
Hour																										HOUR	Treatment / Prompts - Checklist	
Minute																										MIN	Send MIST Report	
Charting Key:	Other																									Other	Stop Massive Bleeding	
Use either the letter or symbol consistently	140																									140	Pelvic/feet Binder	
	135																									135	Convert TQ <4hrs	
	130																									130	Open Airway	
	125																									125	Needle-D / Finger-T / Thoracostomy	
BP	120																									120	Initiate Blood Transfusion	
	(s) Systolic ∨	115																									115	TXA 2g Slow Push (within 3 Hrs)
	(d) Diastolic ^	110																									110	Calcium
		105																									105	2nd IV/IO
(t) F-Temp X	100																									100	Peripheral Pulses	
	99																									99	Hypothermia Treatment / Prevention	
	98																									98	Analgesia Management	
	97																									97	Procedural Sedation	
(2) SPO2 ◊	96																									96	Antibiotics / War Wound Therapy	
	95																									95	Irrigate / Debride / Dress Wounds	
	94																									94	Tetanus Status	
	93																									93	Reduce / Pad / Splint Fracture	
(p) Pulse ●	92																									92	Position / Pad Patient	
	91																									91	DVT Prophylaxis	
	90																									90	Fasciotomy	
	85																									85	Confirm TBSA & Fluids for Burn	
(m) MAP Δ	80																									80	Escharotomy	
	75																									75	Teleconsult Prep & Call	
	70																									70	Expose Patient	
	65																									65	Reassess All Treatments	
(SI) Shock Index SI = HR / Sys	60																									60	Ultrasound EFAST, RUSH, ONDS	
	55																									55	Detailed Exam	
	50																									50	Attach Monitors	
	45																									45	GCS/Neuro/MACE	
(e) ETCO2 ■	40																									40	NG/OG Tube	
	38																									38	Upgrade / Secure Airway	
	37																									37	Awake / Post-Cric Checklist	
	36																									36	BVM or Vent w/ PEEP	
(t) C-Temp X	35																									35	Pressors for Distributive Shock?	
	30																									30	Foley / Bladder Tap	
	25																									25	UA Dipstick	
	20																									20	Labs (if available)	
(r) Resp o	15																									15	Adjust Ventilator Settings (ABG?)	
	10																									10	X-Ray / Imaging	
	5																									5	PreOp Eval	
	Null																									Null	Amputation	
Urine Output																											Shunt	
Fluid Input																											Preperitoneal Pelvic Packing	
RASS/ Pain Scale																											Clear C-Spine	
AVPU/Neuro/MACE2																												
Eye response	4																										Nursing Care Reminders	
Oral Response	5																										VITALS (as often as needed)	
Motor Response	6																										T, P, R, BP, SPO2, ETCO2	
GCS Total	15																										INS/OUTS	
Drug/Intervention:																											IV/IO/NGT/OGT/Foley/Stool	
Drug/Intervention:																											Pain/Sedation	
Drug/Intervention:																											Maintenance & Procedural Bumps	
Drug/Intervention:																											Drips (Pain or TIVA/Sedation)	
Drug/Intervention:																											HEENT	
Drug/Intervention:																											Suction/Clean/Moisten	
Drug/Intervention:																											Eye/Nose/Mouth/Ears	
Drug/Intervention:																											Respiratory	
Drug/Intervention:																											Look/Listen/Feel	
Drug/Intervention:																											BVM/Vent/Oxygen	
Drug/Intervention:																											Integumentary	
Drug/Intervention:																											Look/Touch/Smell	
Drug/Intervention:																											Position/Padding/Move/Massage	
Drug/Intervention:																											Clean/Dry/Dress/Drain/Cover	
Ventilator Mode																											Gastrointestinal	
Flow Rate	IFR/LPM																										Look/Listen/Touch/Tap	
Tidal Volume	Vt																										Nausea/PPI/Nutrition	
Vent Rate	RR																										Extra	
Percent O2	FIO2																										Battery/Power	
PEEP	PEEP																										Stock/Resupply/Buy	
Plateau Pressure	Pplat																											
Drive Pressure	ΔP=Pplat-PEEP																											
Peak Inspiratory Pressure	PIP																											
In to Out Ratio	I:E																											

Telemedical Consultation Guide
To be used with Prolonged Field Care Card

1. Before calling, E-mail image of the casualty (wounds, environment, etc.), "capabilities" (back of page), & vital signs trends to the remote consultant.
2. If call not answered: a) call next number on PACE or call back in 5 – 10 min.
3. If unable to provide information due to operational security, state so.

P:
A:
C:
E:

This is _____ I am a (job/ position) _____

My best contact info is: _____

YOUR best contact info is (Consultant's number): _____ Alternate e-mail: _____

***** PAUSE POINT to CONFIRM CONTACT INFO *****

I have a _____ year-old _____ (sex) _____ (active duty/foreign national/OGA,etc.), who has the following:

Mechanism of Injury or known diagnosis(es)

The injury/start of care occurred _____ hours ago. Anticipated evacuation time is (hours from now):

Injuries/Problems/Symptoms:

Treatments:

He/she is currently (circle) stable/ unstable, getting better/ getting worse/ getting worse rapidly

Known Medication Allergies/Past medical/Surgical history is:

I need help with (be specific if possible, i.e. "I need help reading this ECG," or "I need help stabilizing this patient," etc.)

Other Consultants have recommended:

***** PAUSE POINT for Remote Consultant to ask clarification questions *****

VITALS (current & trend as of _____): HR BP RR SpO2 EtCO2 Temp

UOP(ml/hr) over _____ (# hours) Mental Status (GCS/ AVPU)

EXAM: Neuro Ext/ MSK

Heart Pulses

Lungs Skin/ Wounds

Abd

LABS: ABG: Lactate: Other:

***** PAUSE POINT for Remote Consultant to ask clarification questions *****

Plans/Recommendations		
PRIORITY	SYSTEM/PROBLEM	RECOMMENDATION
	Neuro or problem #1	
	CV or problem #2	
	Pulm or problem #3	
	GI or problem #4	
	Renal or problem #5	
	Endocrine or problem #6	
	MSK/ Wound or problem #7	
	Tubes, lines, drains or problem #8	
	Prophylaxis/prevention or prob#9	
	Other	

TO-DO/ FOLLOW-UP/TO-STOP	NOTES
1.	
2.	
3.	
4.	
5.	
6.	

***** PAUSE POINT, for Medic/Local Caregiver to ask clarification questions/READBACK*****

Available "kit" (supplies, equipment, medications) !! IF POSSIBLE PHOTOGRAPH AND SEND VIA EMAIL BEFORE CALLING !!

Commo: Tempus i2i ID: _____ SAT#/Local Cell# _____
 Other (FaceTime, VSee, Skype, WhatsApp ,etc.): _____

IV access: IV Central line IO (location) Other: _____
Monitor: Propaq Tempus Foley Graduated urinal PulseOx only Exam Only
 Other: _____

IV Fluids: Plasma-Lyte LR Normal Saline 3% saline Other: _____
Colloids: Hetastarch Albumin Other: _____

Blood products: Whole blood PRBC Plasma FDP Platelets Other: _____

Medications: Antibiotics: name/route/dose _____
 Morphine IV/ PO Other opioid (name/ IV/ PO): _____
 Fentanyl IV/ PO (pop) Ketamine
 Midazolam Diazepam (IV/ PO)
 TXA Other(s): _____

Airway/Breathing: ETT Cric kit LMA BVM O2 Suction (type): _____ Ventilator(model): _____

Miscellaneous:

SAVE2 Vent Setup, Troubleshooting and Management

Initial Vent Setup

Hook up tubing and circuit to ventilator
 Add any adjuncts such as HME and Emma
 Calculate patient height/ideal body weight
 Calculate patient height/ideal body weight
 Count patient respiratory rate
 Turn on and adjust ventilator
 Remove patient from BVM and place on working vent

Airway Nursing Care

Record baseline settings and vitals below
 Assess patient using the MOVE mnemonic
 Optimize PEEP using (pPlat(PiP) - PEEP = <18)
 Keep PiP below 30 (Reduce volume and increase rate if needed)
 Monitor for signs of pneumothorax
 Suction airway as needed
 Oral hygiene Q8 Hours

DOPERS Troubleshooting

Displacement/Dysynchrony
 Obstruction
 Pneumothorax
 Equipment
 Rigidity(due to fentanyl)
 Stacked Breaths

Admin Data	Name/Number	Height	IBW	Weight(kg)	CC:	Stable or Unstable
	Time					
Mechanics	Posture / Positioning					
	Breath Sounds					
	Chest Rise					
	Mental Status (AVPU, GCS, RASS)					
	Meds/Doses					
Oxygenation	SpO2					
	HR					
	Skin Color					
	FiO2					
	PEEP					
Ventilation	Hemodynamic Status (BP)					
	RR (Respiratory Rate)					
	vT (Tidal Volume)					
	M.V (Minute Volume)					
	vT diff from ARDs vT					
	iTime (Inspiratory Time)					
	etime (Expiratory Time)					
	EtCO2 (End Tidal CO2)					
Eval and Equipment	PIP (Peak Inspiratory Pressure)					
	pPlat (Plateau Pressure (Not on SAVEII))					
	DP (Drive Pressure=pPlat or PIP - PEEP)					
	Tube Cuff pressure or MOV					
	Humidity					

Capnography Waveforms – Quick Reference Guide¹



Normal Capnogram Waveform	Normal Waveform Characteristics	
	<p>Phase I: Beginning of exhalation; respiratory baseline containing dead space gas</p> <p>Phase II: Rapid upstroke representing exhalation; contains mixture of dead space and alveolar gases</p> <p>α angle: Normally a 108-degree angle</p> <p>Phase III: Alveolar plateau, containing mostly CO₂-rich alveolar gas.</p> <p>β angle: End of exhalation and beginning of inhalation; normally a 90-degree angle</p> <p>EtCO₂: End of exhaled breath and point of measurement</p> <p>Phase IV: Down-stroke representing inhalation</p>	<p>Normal Range for EtCO₂:</p> <ul style="list-style-type: none"> > 35-45 mmHg > 4.0-5.7 kPa <p>EtCO₂ to PaCO₂ Gradient:</p> <ul style="list-style-type: none"> > EtCO₂ is 1-5 mmHg lower than PaCO₂ in patients with normal lung function > Wider gradient indicates greater ventilation/perfusion deficit
Increasing EtCO ₂	Waveform Characteristics	Nursing Assessment and Considerations
	<ul style="list-style-type: none"> > Increasing amplitude and width, over variable time period, depending on cause > Slowing frequency with decreasing respiratory rate is dependent on cause and patient's physiologic response 	<ul style="list-style-type: none"> > Assess patient for bradypnea/hypercapnia > Assess patient for respiratory failure or over sedation > Consider airway management if needed > Assess for fever or change in temperature from hypothermia to normothermia > Assess for hypermetabolic state > Tourniquet release, sodium bicarbonate, and CO₂ insufflation can cause brief rise in EtCO₂
Decreasing EtCO ₂	Waveform Characteristics	Nursing Assessment and Considerations
	<ul style="list-style-type: none"> > Decreased amplitude and width > Faster frequency, increased respiratory rate 	<ul style="list-style-type: none"> > Assess patient for tachypnea/hypocapnia. > If tachypneic, assess for underlying causes such as pain, anxiety, or respiratory distress > Assess patient for hypoxemia > Assess patient for decreasing metabolic rate, hypovolemia, or shock > Assess patient for temperature change > Assess patient for pulmonary embolism
Loss of Waveform	Waveform Characteristics	Nursing Assessment and Considerations
	<ul style="list-style-type: none"> > Loss of capnographic waveform > No breath detected by capnograph 	<ul style="list-style-type: none"> > Assess patient for apnea, complete airway obstruction, or cardiac arrest > If intubated check for ET tube extubation, kinks or blockage, or ventilator disconnection > Confirm cannula or mask is placed on patient correctly and connected to monitor > Ensure patient's airway is open and patent, and patient is breathing > If patient is mouth breathing use cannula with oral prong to capture breaths from mouth > Follow your institution's procedure for airway and breathing support > Check for equipment failure
Obstructive Airway	Waveform Characteristics	Nursing Assessment and Considerations
	<ul style="list-style-type: none"> > Phase II slopes upward with a blunted α angle instead of a sharp upstroke with strong α angle > Phase III (plateau) is more rounded 	<ul style="list-style-type: none"> > Assess patient for bronchospasm > If intubated, assess ET tube for partial kinking > Assess patient for foreign body in airway > Assess patient for partial airway obstruction > The greater the "shark fin" shape, the greater the severity of the obstructive or reactive airway disease

¹Brast, S., Bland, E., Jones-Hooker, C., Long, M., and Green, K. (2016). Capnography for the Radiology and Imaging Nurse: A Primer. *Journal of Radiology Nursing*, Volume 35, Issue 3, 173 - 190. For professional use. See Directions for Use for full prescribing information including indications, contraindications, warnings and precautions. Caution: Federal (USA) law restricts this device to sale by or on the order of a physician.

Capnography Waveforms – Quick Reference Guide¹



Rebreathing CO ₂		Normal Waveform Characteristics	Nursing Assessment and Considerations
<p>CO₂ (mmHg)</p> <p>Real Time</p> <p>Leak</p>	<ul style="list-style-type: none"> > Waveform shape may be normal but appears to float above baseline > Phase V (down-stroke representing inhalation) does not go back to baseline or zero 	<ul style="list-style-type: none"> > Assess patient for rebreathing of exhaled CO₂ > If patient is mechanically ventilated, assess for air trapping or breath stacking, check vent settings, circuit set up and equipment > If patient is spontaneously breathing, ensure drapes are not covering face > If using oxygen mask, ensure oxygen flow is adequate 	
Curare Clot and Secondary (Camel) Hump		Waveform Characteristics	Nursing Assessment and Considerations
<p>CO₂ (mmHg)</p> <p>Real Time</p> <p>Leak</p>	<ul style="list-style-type: none"> > First waveform is normal but second and third waveforms (phase III and phase IV) are degraded or distorted 	<ul style="list-style-type: none"> > Assess for mask leak or loss of seal in patients on CPAP, BiPAP or NIV > For intubated patients check ET tube cuff for leak 	
EtcO ₂ Trend Data During Cardiac Arrest		Waveform Characteristics	Nursing Assessment and Considerations
<p>EtcO₂</p> <p>EtcO₂ Trend Data</p> <p>20 mmHg</p> <p>40 mmHg</p> <p>CRK Stroke</p> <p>CRK Clot</p> <p>CRK Comp-wave</p> <p>TRK</p> <p>ROSC</p> <p>Rel</p> <p>Rel</p>	<ul style="list-style-type: none"> > Nothing or cleft in first two waveforms during Phase III > Small, secondary waveform during Phase I, between second and third waveform 	<ul style="list-style-type: none"> > Sometimes seen in mechanically ventilated patients due to weak, uncoordinated diaphragmatic movement or ventilator asynchrony under sedation and clearing chemical paralysis > Reassess patient's need for sedation and chemical paralysis > May also be seen with neuromuscular dysfunction 	
Five-Step Method for Capnography Interpretation			
<ol style="list-style-type: none"> 1. Is there a waveform? No: Is patient pulseless, apneic, or accidentally extubated? Is patient mouth breathing with a nasal cannula? Is the airway obstructed? Repositioning head may alleviate airway obstruction. Yes: What is the height, width, and frequency (respiratory rate)? Is there a pattern? Is patient hypoventilating or hyperventilating? Is patient in shock or hypovolemic? 2. What is the shape of the waveform? Do you see a steep rise in Phase II with a plateau? Is there sloping, nothing, or a prolonged Phase III? If the plateau is altered, the expiratory phase and alveolar gas exchange are altered. If sloping is seen, consider bronchospasm, kinked artificial airway, or foreign body. 3. Does the waveform have a steep return to baseline? Phase IV represents the inspiratory phase. If patient is rebreathing CO₂, assess for air trapping or excess dead space in ventilator circuit. 4. What is the EtcO₂ trend? Evaluating the trend provides a graphic representation of patient's ventilatory status over time. Downward trending could indicate shock or hypovolemia. Upward trending could indicate increased metabolic demand, hypoventilation, or hyperthermia. 5. Does your capnographic assessment correlate to your clinical assessment? Are there assessment disparities among EtcO₂ trend, respiratory rate, waveform, and clinical picture? As a standard of practice, multiple subjective and objective assessment criteria are required to confirm ET tube placement. 			

¹ Beaud, S., Bond, L., Jone-Hoyer, C., Jung, M., and Green, A. (2016). Capnography for the Bedside and Imaging Wave. A Primer. *Journal of Intensive Care Medicine*, Volume 33, Issue 3, 173 - 190. For professional use. See directions for use for full prescribing information including indications, contraindications, warnings and precautions. Canon: Resona (US) has enhanced the device to safe by or on the order of a physician.