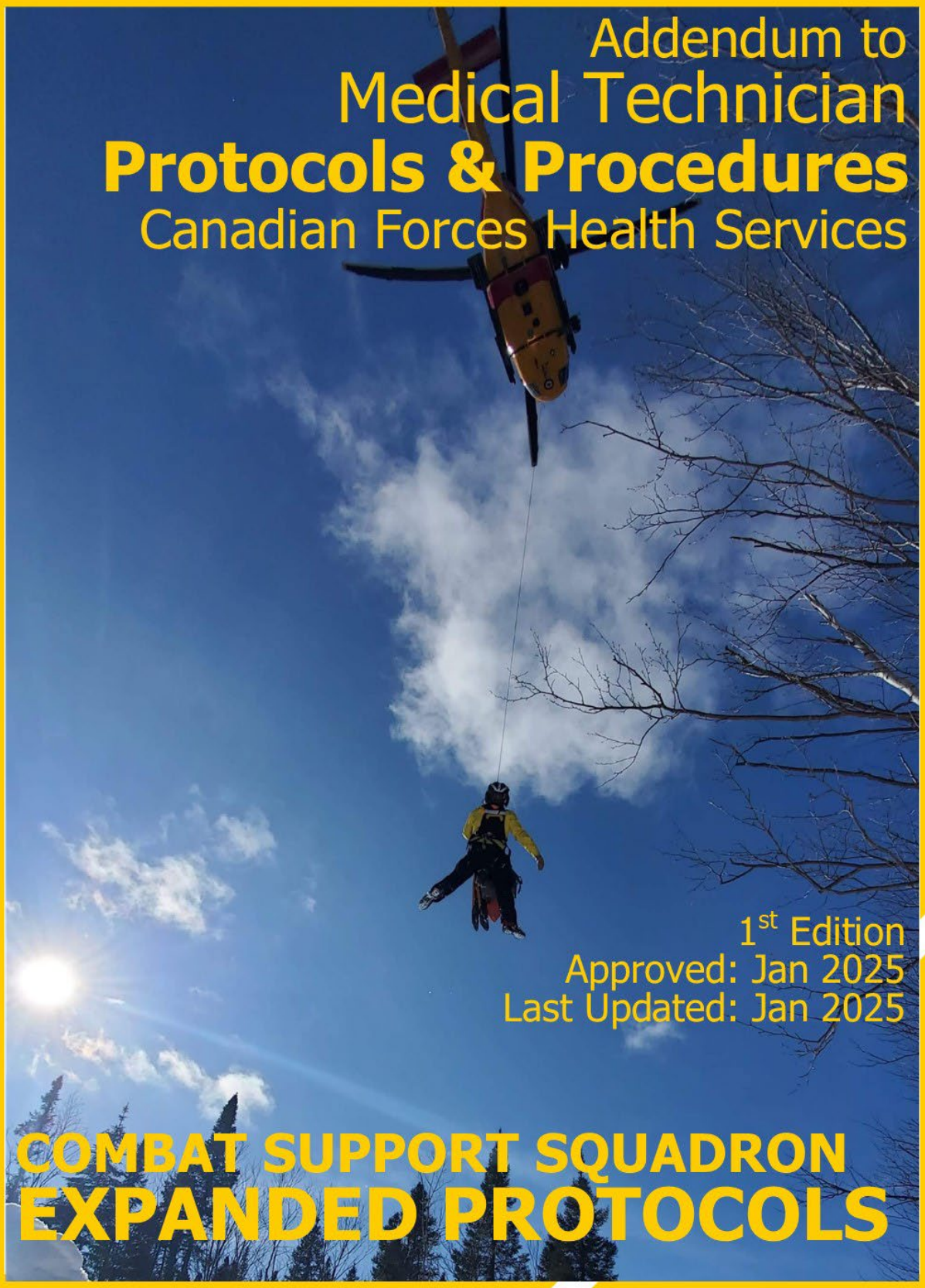

Addendum to Medical Technician **Protocols & Procedures** Canadian Forces Health Services

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COMBAT SUPPORT SQUADRON
EXPANDED PROTOCOLS

SECTION 9 : COMBAT SUPPORT SQUADRON

B-MD-005-000/FP-V01

FOREWORD

This section covers the expanded protocols for Combat Support Squadron Medical Technician (CSSMT) authorized by 1 Cdn Air Division Surgeon and is to be reviewed yearly at the CSSMT Standards conference or any published change to the Medical Technician Protocols and Procedures Manual. Section 9 expanded protocols do not supersede, change, or limit the published Medical Technician Protocols and Procedures and are to be used in conjunction with this publication.

All CSSMT must be FOC qualified, have a signed copy of the Authorization for Scope of Practice Utilization CSSMT and be in good standing based of the requirements identified in the Flight Operations Manual (FOM) – 3.12.9 Combat Support Squadron Medical Technician Qualification and Currency Requirements prior to utilization of the protocols and drugs identified within this document. Section 9 expanded protocols are only authorized for use during CSS operations.

CONTRIBUTORS

Clinical Review:
LCol A. Minkley, CD, MD, DAvMed, FCFP
Maj R. Grainger, MD
Maj M. Gear, MD
Maj A.McLaren, CD, MD, FRCPC, CCM

Combat Support Squadron Medical Technicians
PO2 A. Cleveland
Sgt S. Lavoie, CD

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9.3	Pediatric Pain Management	2025/01/13	BN – 2020	SSO SG
9.4	Adult Pain Management	2025/01/13	BN - 2024	SSO SG

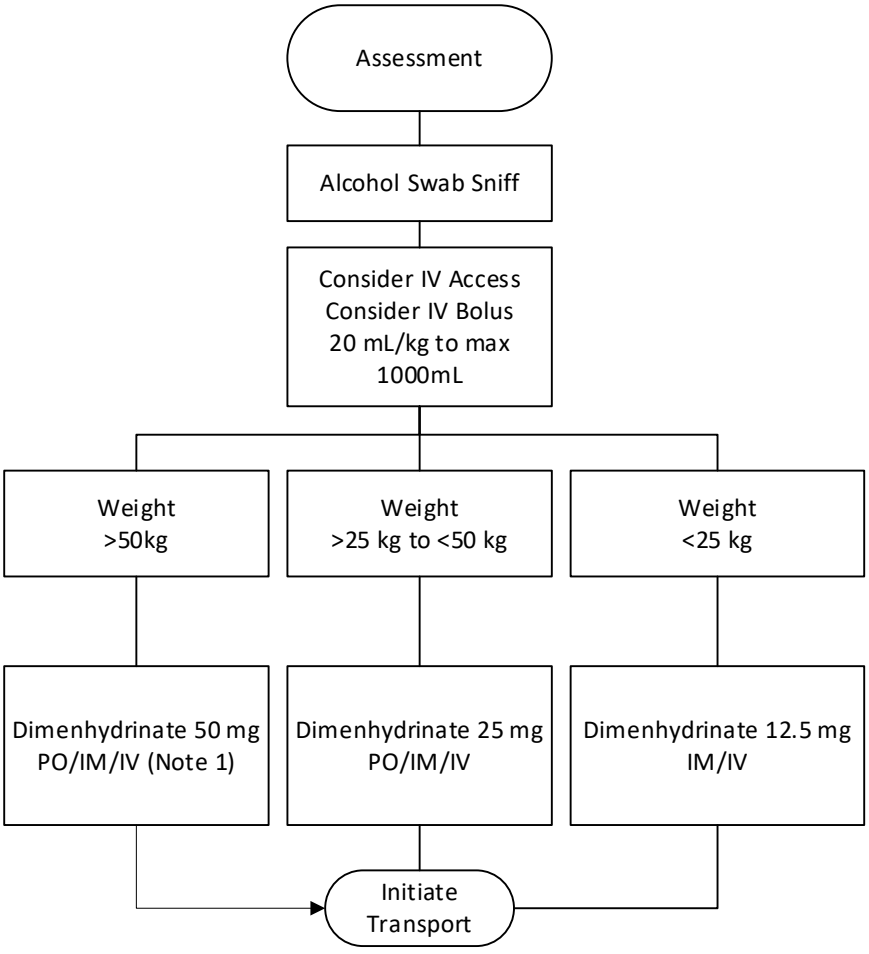
Number	Drugs	Last Changed (Y/M/D)	Scope of change (Reference)	Change Authority
10.1	Lorazepam	2025/01/13	BN - 2020	SSO SG
10.2	Penthrox	2025/01/13	BN - 2024	SSO SG

Number	References	Last Changed (Y/M/D)	Scope of change (Reference)	Change Authority
11.1	O2 Flow Rate Chart	2025/01/13		Div Surg
11.2	Stressors of flight	2025/01/13		Div Surg

9.1 NAUSEA & VOMITING / MOTION SICKNESS

INDICATIONS:

- Nausea & Vomiting
- Prevention of motion sickness



NOTES

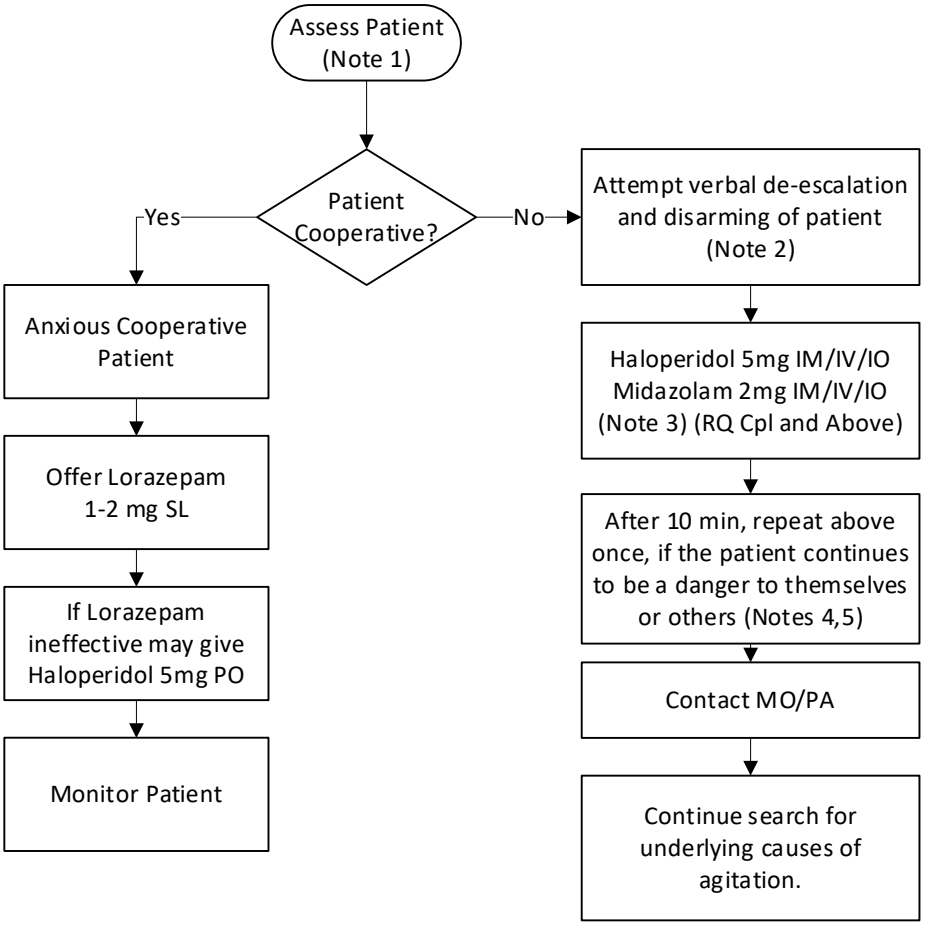
1. Prior to IV administration, dilute dimenhydrinate (50mg/1ml) with NS or sterile water of a ratio of 1:9 and administered slowly over a period of 2 minutes.
2. Alcohol swab sniff may be trialled prior to dimenhydrinate.
3. Dose can be repeated after 4-6 hrs if necessary.
4. For patients >60 years consider using half dose (25mg) initially.
5. Pediatric dose 12.5mg if 15kg or under (average 2 y.o. is ~15kg)
6. For pediatric patients under 2 y.o. contact physician.

9.2 AGITATED PATIENT

This protocol supersedes 4.4 Hostile / Violent Patient – Class B and should be reviewed upon any changes to protocol 4.4 to fall in line with the Medical Technician core protocols.

INDICATIONS:

- Anxious or agitated patient, threatening to harm themselves, others **or** otherwise jeopardizing safety.



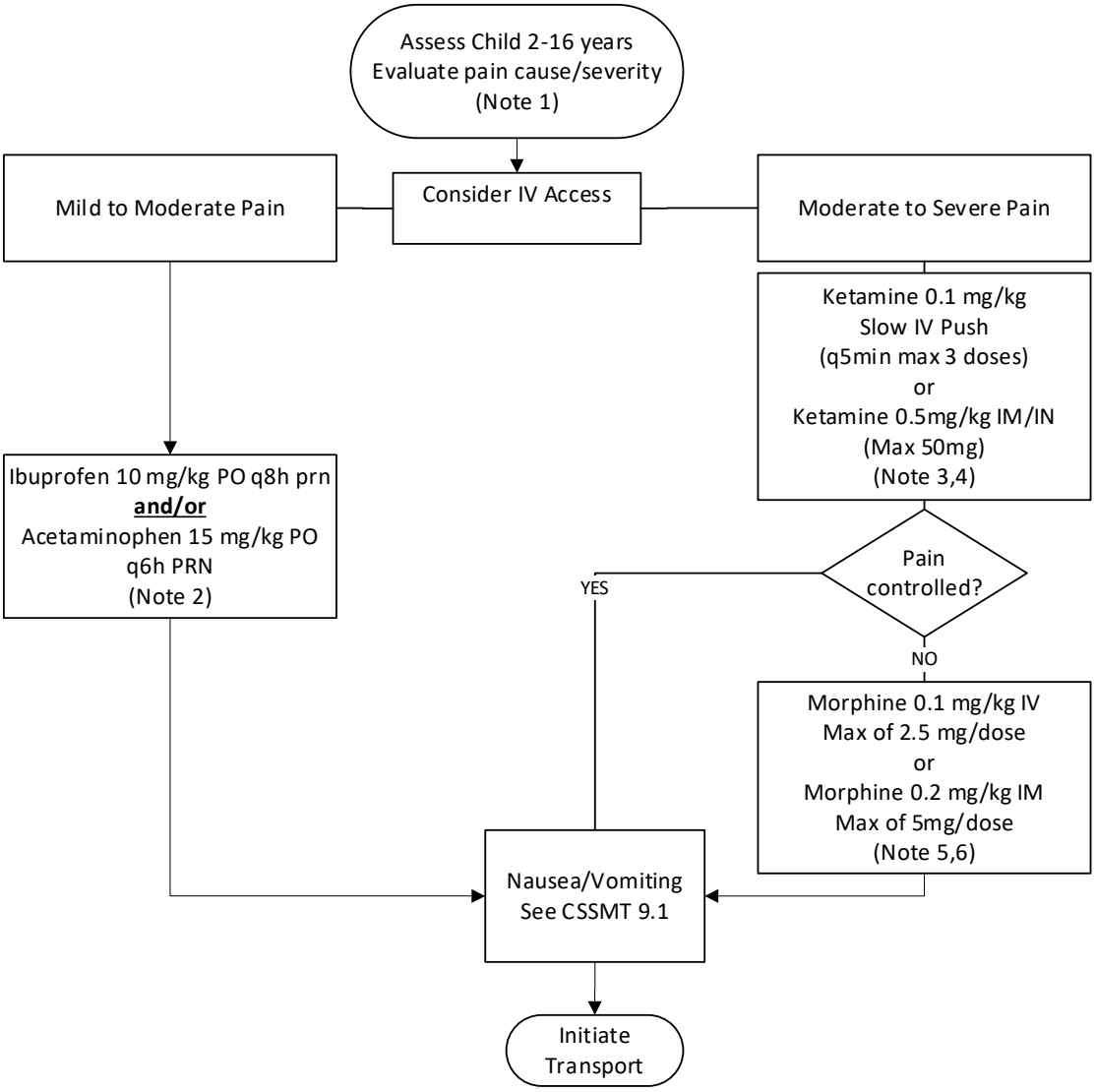
NOTES

1. Assess for medical causes of agitation including: Hypoglycemia; Hypoxia; Drug overdose/poisoning; Infection; Intracranial lesion;
2. Agitation or uncooperativeness alone is not grounds for medical intervention. The need to intervene should be evaluated given appropriate consideration of the situation, the patient's need for care and the degree of risk/threat presented. The provider's safety is a priority. Any attempt at de-escalation and disarming should utilize appropriate/available resources (e.g. Military Police)
3. Chemical restraint should only be considered when all other means of de-escalation have failed. Ideally in highly uncooperative patients, there should be 5 people to hold patient in place for IM injection; one for the head and one for each extremity. Haloperidol and Midazolam are compatible when combined in the same syringe.
4. Max dose -Haloperidol 10 mg IM/IV/IO, Midazolam 4 mg IM/IV/IO. Monitor for adverse reactions to medications: Haloperidoldystonic reactions (muscle spasms) may require treatment with Diphenhydramine 50 mgIV/IM q6h; Midazolam and Haloperidol may cause respiratory depression requiring ventilatory support.
5. If chemical restraint is unsuccessful, patients may also be physically restrained with non-constrictive padded items around each extremity and pelvis. Ensure patient is restrained face up on their back and continuously monitored. Physical restraint should be performed only as a last resort and by qualified personnel.

9.3 PEDIATRIC PAIN MANAGEMENT

INDICATIONS:

- Child 2-16 years old experiencing pain.



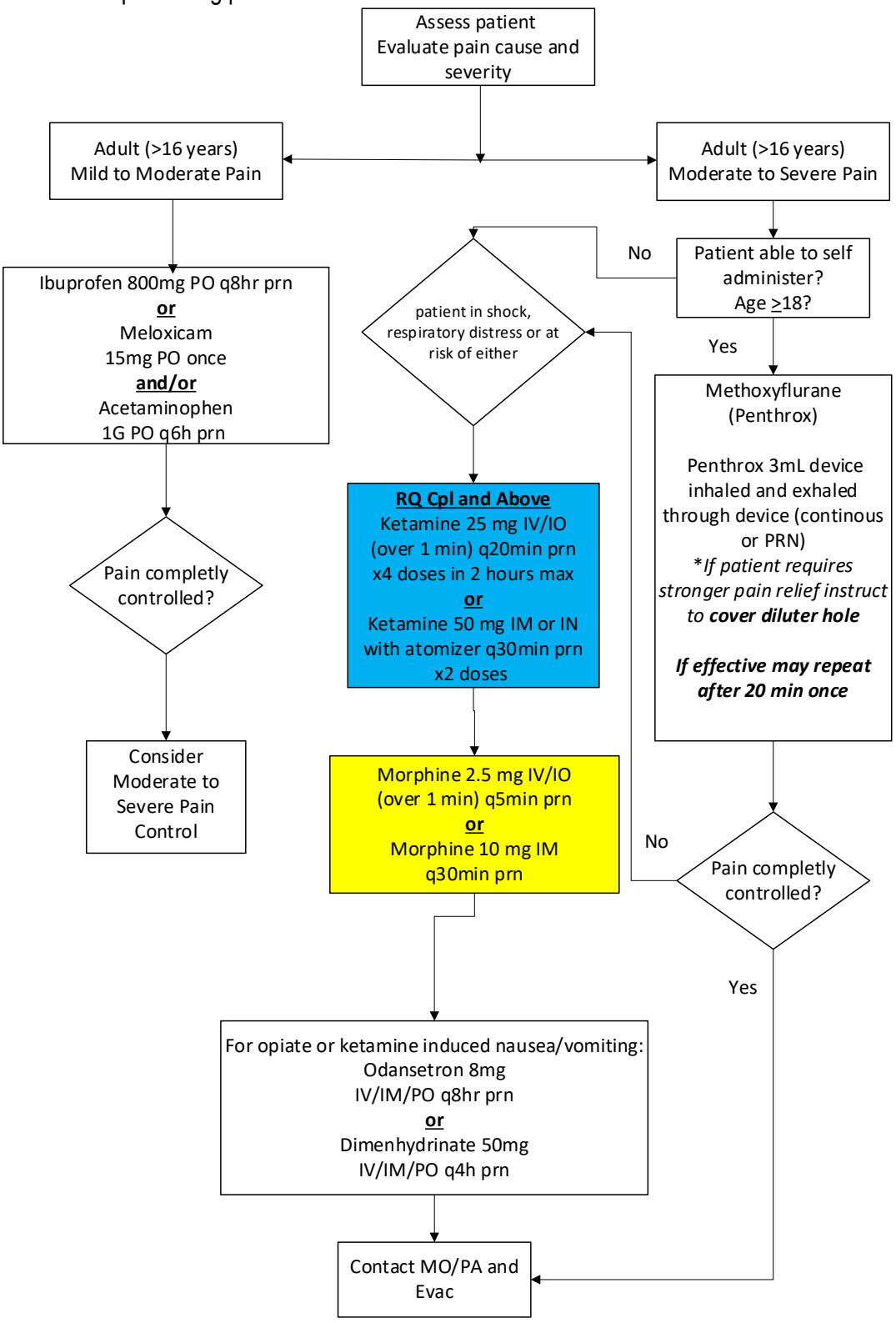
NOTES

1. If < 2 years of age, contact AMP FS
2. For incomplete pain control of moderate/severe pain or where more potent meds are not indicated / available, Ibuprofen or Acetaminophen can be used as an adjunct. Ibuprofen and other nonsteroidal anti-inflammatory drugs (NSAIDs) should be avoided in hemorrhage.
3. For Ketamine preparation, dilution, and administration (including IN), refer to Reference 8.15 Pain Management
4. Total IV dose of 0.3mg/kg per hour prn. If patient >50 kg use adult dosing. Endpoint: Pain control or nystagmus. Monitor for increased secretions or transient laryngospasm and be prepared to reposition airway, suction or use BVM.
5. Have Naloxone available and be prepared to assist respirations following administration. Refer to Protocol 4.1 -Narcotic Overdose.
6. Morphine administration max 3 doses in 30 mins, repeat every 2-4 hours.

9.4 ADULT PAIN MANAGEMNT

INDICATIONS:

- Adult >16 experiencing pain related to trauma



NOTES

1. For incomplete pain control of moderate/severe pain or where more potent meds are not indicated / available, Ibuprofen, Meloxicam or Acetaminophen can be used as an adjunct. Ibuprofen and other nonsteroidal anti-inflammatory drugs (NSAIDs) other than Meloxicam should be avoided in hemorrhage.
2. Have Naloxone available and be prepared to assist respirations following administration. Refer to Protocol 4.1- Narcotic Overdose.
3. IV/IO Morphine should be titrated to effect but is not to exceed 15 mg in 30 mins. Otherwise there is no absolute max dose.
4. Endpoint: Pain control or nystagmus. Ketamine may be added to patients who have received opiates with incomplete pain control. Monitor for increased secretions or transient laryngospasm and be prepared to reposition airway, suction or use BVM.
5. Treat emergency / recovery reactions with Midazolam 2 mgIV/IO/IM qlOmin prn x 4 doses max (refer to 8.15 Pain Management).

10.1 Lorazepam
(Ativan)

Indications: 9.2 Agitated Patient

Contraindications: Hypersensitivity to Lorazepam or its components. Use of benzodiazepines solely for sedation is contraindicated during pregnancy. Not for use in children under 12 YOA.

Precautions: May cause severe respiratory depression. Use caution with the elderly and patients taking CNS depressants (e.g. Morphine or other narcotics – hypotension risk). Should not use in shock, coma, or acute alcohol intoxication.

Adverse effects: Decreased respiratory rate and tidal volume, hypotension, drowsiness, over-sedation.

Pharmacology: onset of action (SL) 20-60 min (PO) 1-3 hrs; peak effect 1-6 hrs; half-life 12-15 hrs; duration of action 10-16 hrs.

Dosage and administration: Adults

- 1-2 mg SL (preferred) or PO q2 hr (Max 6 mg/day). Note that 1 mg is the standard initial dose and 2 mg should be used for larger patients (> 70 kg) and for repeat doses where a higher dose has been shown to be needed.

10.2-Methoxyflurane (Penthrox)

(Inhaled fluorinated hydrocarbon volatile anesthetic)

Indication:
Adult Pain Protocol 9.4

Contraindications:
Age <18
Hypersensitivity to methoxyflurane, any fluorinated anesthetic.
history of severe adverse reactions with inhaled anesthetics.
Patients who are known to be or genetically susceptible to malignant hyperthermia.
Kidney Disease.
Altered level of consciousness.
Respiratory Depression.
Pregnancy.

Precaution:
Caution in the elderly

Adverse Effects:
Euphoria, sedation, change in your ability to concentrate and to be coordinated, temporary memory problems. Hypotension. Respiratory depression.

Pharmacology:
Onset of pain relief is rapid and occurs after 6-10 inhalations or 5 min with peak at 15min.
Continuous inhalation of a bottle containing 3 ml provides analgesic relief for up to 25-30 minutes; longer if intermittent use.

Dosage and Administration:
Methoxyflurane 3mL inhaled and exhaled through device (continuous or intermittent)
If patient requires stronger pain relief instruct to cover diluter hole.
Device provides ~20min of pain relief with continuous inhalation
If pain ongoing > 20min and Methoxyflurane effective administer 2nd inhaler
Max 2 inhale

SECTION 11 : REFERENCES

11.1 Oxygen Flow Rates

Jumbo D Format O2 (Full Tank = 640 L)						
Pressure	**Litres Per Minute (LPM)**					
(PSI)	**2**	**4**	**6**	**8**	**10**	**15**
2220	321	161	107	80	64	43
2000	292	146	97	73	58	39
1800	262	131	87	66	52	35
1600	232	116	77	58	46	31
1400	203	101	68	51	41	27
1200	173	87	58	43	35	23
1000	144	72	48	36	29	19
900	129	65	43	32	26	17
800	115	57	38	29	23	15
700	100	40	33	25	20	13
600	86	43	29	21	17	11
500	72	36	24	18	14	10
400	57	29	19	14	11	8
300	43	22	14	11	9	5
200	29	15	10	7	6	1
100	16	8	5	4	**PREPARE TO REPLACE O2 TANK**	

EE Lite Format O2 (Full Tank = 1360 L)						
Pressure	**Litres Per Minute (LPM)**					
(PSI)	**2**	**4**	**6**	**8**	**10**	**15**
2220	680	340	226	170	136	91
2000	617	308	207	154	123	82
1800	554	277	185	139	111	74
1600	492	246	164	123	98	66
1400	429	214	143	107	86	57
1200	366	183	122	92	73	49
1000	304	152	101	76	61	41
900	273	137	91	68	55	36
800	242	121	81	61	48	32
700	212	106	71	53	42	28
600	182	91	61	45	36	24
500	152	76	50	38	30	20
400	122	61	41	30	24	16
300	92	46	31	23	18	12
200	62	31	21	16	12	8
100	33	17	11	8	**PREPARE TO REPLACE O2 TANK**	

11.2 Stressors of Flight

Flight Stressor	Patient Most Impacted	Countermeasures	Flight consideration
PPO2 (Decreased)	Cardiopulmonary disease, anemia, trauma, burn patients, the elderly, and neonates	Supplemental oxygen and altitude restriction.	Amount of O2 may be limited; Increased fuel required, routing changes
Barometric pressure (Decreased)	Postoperative, trauma, orthopedic, any trapped gasses and ENT patients.	Decompression tubes, Heimlich valves, bi-valve casts, monitor balloons/cuffs or fill with saline.	Increased fuel requirement, routing changes
Variation in cabin temperature	Newborn/ pediatrics, burns, postoperative, trauma, elderly, and cardiopulmonary.	Dress warmly, blankets, medication, dosage, and placement on airframe.	Consideration of environmental controls may affect aircrew
Humidity (Decreased)	Postoperative, pregnant, pediatric, burns, elderly, pulmonary disease, and comatose patients.	Humidify high flow, ETT and tracheostomy oxygen and eye/mouth care.	Consideration oral care if possible/ intravenous fluids
Noise (Increased)	Psychiatric patient, newborn and patients that need heart/breath/bowel sounds monitored.	Hearing protection, medications, and special briefings.	Hearing protection is required by all occupants; dual protection may be required
Poor lighting	Eye problems, patients with canes/crutches, trauma patients and patients that need close monitoring.	Use flight approved flashlights.	Palpate/touch/smell senses may have to be utilized
Anxiety (Increased)	Psychiatric, trauma, and cardiac patients and any patients with fear of flying.	Good communication and briefings, medications and restraints if needed.	Ensure aircrew and cabin safety, may restrain a patient in the air that may not be restrained on ground.
G-Forces	Pregnancy, cardiac, postoperative, trauma, and brain injury (sensitive to forward acceleration).	Supplemental oxygen, reduced cabin altitude pressure, small frequent meals, placement on airframe.	Discuss mission profile with front end (TO and turn radius/landing)
Vibration (Increased)	Psychiatric, orthopedic, postoperative and trauma patients.	Medications, extra padding, and patient position in aircraft.	May increase pain/multi system O2 demands
Fatigue	All patients and crew	Hydrate, supplemental oxygen, small frequent nutritious meals, rest.	Inherent/combination stress of aerial flight

“NO ONE LEFT BEHIND”