

## Sedation Guidelines for Air Ambulance Transfer of Psychiatric Patients

**1 Determine transfer risks** as per BC Ambulance Risk Stratification Tool

**2 Determine required sedation level** accordingly:

RASS	Level of Risk
0 to -1	Low Risk
-1 to -2	Medium Risk
-2 to -3	High Risk
-4 to -5	Ultra High Risk

**0 to -1 Low Risk**

- Some low risk patients **may require no sedation**. Review between the transport advisor and sending physician ahead of time.
- Use **sedating antihistamine or benzodiazepine/other sedatives** as per **Air Ambulance Psychiatric Medication Strategy (Adult or Child/Adolescent)**
- For **geriatric patients avoid use of antihistamines unless clear history of motion sickness**, and **modify dose** as recommended

**-1 to -2 Medium Risk**

- Use **combination medication strategies** as per **Air Ambulance Psychiatric Medication Strategy (Adult or Child/Adolescent)**
- Given risk of antipsychotics and antihistamines and polypharmacy in the elderly, for **geriatric patients, consider sedating with only benzodiazepines/other sedatives** if desired level of sedation can be attained. Modify dose as recommended

**-2 to -3 High Risk**

- Use **combination medication strategies** as per **Air Ambulance Psychiatric Medication Strategy (Adult or Child/Adolescent)**
- Given risk of antipsychotics and antihistamines and polypharmacy in the elderly, for **geriatric patients, consider sedating with benzodiazepines/other sedatives** if desired level of sedation can be attained. Modify dose as recommended
- Sending facility and transport advisors work to try to arrange scheduling that allows **two hours for medication titration**

**-4 to -5 Ultra High Risk**

- Requires critical care paramedics for transport** using deep procedural sedation, general anesthesia with endotracheal intubation, at the discretion of the CCP team
- Medications used could include **IV midazolam** or **propofol**
- Critical Care Paramedics attend sending facility** to work with staff to sedate and begin IV
- Recovery requires ICU if intubated** otherwise to recover in **emergency room** or **monitored recovery room**
- Psychiatric staff from receiving facility to attend on arrival** and work with transport and recovery staff to determine optimum time to move to psychiatric unit

**3 Consent**

- The Health Care Consent and Facility Admissions Act of BC does allow for emergency treatment of illness without immediate consent. The Mental Health Act also allows for mandatory treatment of psychiatric illnesses for incapable patients. However, if a patient is voluntary, the transfer is not required on an emergency basis, or the patient is capable for

- consent, then the reason for sedation and related risks should be reviewed with them.
- If they are not capable then this discussion should be conducted with their Temporary Substitute Decision Maker.
  - Even if consent is not required an effort should be made to review the process with the patient (if possible) or next of kin.

## BC Air Ambulance Psychiatric Medication Strategy

### GENERAL PRINCIPLES

<b>1</b>	Medication administration for sedation should begin <b>at least 60 minutes prior</b> to the arrival of the transport team.
<b>2</b>	<b>The level of sedation required will impact the dose</b> of medications and the use of a combination of medications from different categories.
<b>3</b>	When possible for medium and high risk patients, <b>consider titration</b> with an additional dose given 30-45 minutes after the initial dose. Higher risk clients would benefit from additional time for titration (up to 2 hours) allowing up to three doses, with time to assess response in between administrations.
<b>4</b>	Medication doses need to be <b>adjusted for age, weight, and renal function</b> . In particular, attention needs to be paid to adjusting dosing for those over age 65 , recognizing the incidence and morbidity of side effects as individuals age, particularly for those who are frail
<b>5</b>	Medium and high risk <b>adult and child/adolescent</b> patients requiring transportation will <b>require a combination of medication categories</b> from those listed in the <b>Air Ambulance Psychiatric Medication Strategy</b> , recognizing that they may already be on one or more categories of these medications. <b>Geriatric patients may be able to be suitably sedated only with benzodiazepine/other sedatives</b> which should be considered given the risk of antipsychotics and antihistamines.
<b>6</b>	<b>Patients at risk for respiratory depression</b> due to medical co-morbidities or use of other medications that suppress respiration <b>may need a higher level of in-flight monitoring with capacity for intubation</b> .
<b>7</b>	In order to determine dose and choice of medications, <b>details about the current medications</b> , dose, duration of dose, any recent changes, and history of adverse reactions are required.
<b>8</b>	<b>Smokers should have nicotine replacement</b> , ideally via a nicotine patch.
<b>9</b>	If patients have a <b>history of motion sickness</b> of any degree, a sedating anti-histamine <b>should be considered</b> for its anti-nauseant effect in addition to its sedative effect. Although dimenhydrinate is commonly used, it is in fact diphenhydramine with the addition of a xanthine ring to <u>decrease sedation</u> , so in most cases <u>diphenhydramine would be preferable</u> .
<b>10</b>	Categories of medication used for sedation are: <ul style="list-style-type: none"> <li>• <b>ANTIPSYCHOTICS</b></li> <li>• <b>BENZODIAZEPINES AND OTHER SEDATIVES</b></li> <li>• <b>ANTIHISTAMINES</b></li> </ul>

11

Children and Adolescents require a different strategy than adults; **please consult the appropriate section.** Recommendations for **geriatric patients** are in the adult tables but note the dose changes, the risks of antipsychotics especially in patients who have never taken them, and the risk of delirium due to antihistamines in elderly patients

## BC Air Ambulance Psychiatric Medication Strategy (Adult)

### ANTIPSYCHOTICS

1

The use of antipsychotics should be reserved for those with **symptoms of psychosis, mania, , aggression or delirium.** **Be cautious in using these medications in people who have never taken them.**

2

If there are no current antipsychotics, medium and high-risk transfers should be prescribed Class A Antipsychotics (as per below). These are available intramuscularly in case patients are unable or refuse oral medications, except in the case of chlorpromazine which may still be useful given its reliable sedation. **Note that intramuscular doses may increase bioavailability but may not speed up onset of action**

3

**Dosage will be affected by previous utilization of antipsychotics** (even if not currently prescribed). In general, a person with schizophrenia, bipolar disorder or schizoaffective disorder will require higher doses than someone with a diagnosis of dementia.

4

If the patient is prescribed **one regular antipsychotic:**

- If there are no **acute** symptoms of psychosis (delusions, hallucinations, disorganization), or if they are chronic and do not generally affect behaviour, **do not add another antipsychotic.**
- If there are **acute** symptoms of psychosis or chronic symptoms that are affecting behaviour, **increase the antipsychotic dose** to the maximum dose. If at maximum dose, add a second Class A Antipsychotic dose.
- In general, **avoid polypharmacy in geriatric patients**, unless all attempts at sedation with single agents have been effective.

5

If the patient is prescribed **two or more regular antipsychotics:**

- if there are **acute** symptoms of psychosis, chronic symptoms that are affecting behaviour, or other symptoms of mental illness responsive to antipsychotics, **increase the dose of one antipsychotic** (Class A first, then Class B) until the maximum dose is reached.
- **Do NOT add a third antipsychotic.**

***Refer to Class A and B Antipsychotics on the following page.***

## CLASS A ANTIPSYCHOTICS

These are antipsychotics that have a **relatively rapid onset, and are available in short acting intramuscular forms**. Dosage recommendations are relevant to the acute psychiatric emergency setting. Note that IM forms **may not** have a faster onset of action. **Seniors are at higher risk for EPS**, prolonged sedation and orthostatic hypotension that may cause substantial fall risk post transfer.

MEDICATION	DOSE	Therapeutic Dose (per 24h)	Time to Peak Concentration	Geriatric Considerations	Comments
Haloperidol	5-10 mg PO or IM	10-20 mg per day	IM: 10-20 min PO: 1-3 hours	0.5-2 mg PO or IM	<b>SIGNIFICANT Risk of EPS</b> and akathisia which can worsen agitation and <b>may require benztropine (1-2mg PO or IM)</b> . Can induce reduction of movement rather than sedation. Bioavailability of IM form twice that of PO.
Loxapine	25-50 mg PO or IM	50-100 mg per day	IM: Rapid PO: 2-4 hours	5-10mg PO or IM	May require benztropine for EPS.
Chlorpromazine	50-100 mg PO	300-600 mg per day	PO: 1-2 hours	25-50 mg PO. May cause orthostatic hypotension	IM form no longer available
Methotrimeprazine	50-100 mg PO or IM	300-600 mg per day	IM: 30-90 min PO: 1-3 hours	25-50 mg PO or IM. May cause orthostatic hypotension	Longer time to peak concentration may require more than 45 minutes for full effect. Bioavailability of IM form twice that of PO.
Olanzapine	5-10mg PO or IM (PO available as "Zydis" dissolvable tablet)	20 mg per day	IM: 45-75 min PO: 5-8 hours	2.5-5 mg PO or IM	<b>IM cannot be given within 1 hr of IM benzodiazepines</b> . Use with caution if oral benzodiazepines already used. The dissolvable oral form does not have a shorter time to peak concentration than the oral form

## CLASS B ANTIPSYCHOTICS

For the purpose of this protocol, **Class B antipsychotics include those that are not available as short acting IM medications** and thus have longer onset.

They include all non-injectable antipsychotics for the purpose of this strategy **except clozapine**.

## BC Air Ambulance Psychiatric Medication Strategy (Adult)

### BENZODIAZEPINES AND OTHER SEDATIVES

<b>1</b>	<b>Tolerance will substantially affect the utility of these medications</b> , and may render them largely ineffective in a person who has chronically taken high doses.
<b>2</b>	<b>Intramuscular or IV benzodiazepines cannot be used with IM olanzapine</b> , due to risk of sudden death. Caution is advised for PO benzodiazepines.
<b>3</b>	<b>The medications below are preferred, due to IM preparations being readily available</b> , rapid onset as an oral medication, or metabolized by glucuronidation and less likely to be affected by changes in liver function or age.
<b>4</b>	<b>Short acting sedatives (zopiclone, triazolam, lorazepam, diazepam if diazepam-naïve)</b> may require concurrent administration of longer acting benzodiazepine (temazepam) for transfers that are long in duration.

### BENZODIAZEPINES AND OTHER SEDATIVES

MEDICATION	DOSE	Time to Onset	Time to Peak Concentration	Geriatric Considerations	Comments
Lorazepam	2 mg PO, SL, IM	15-30 min	PO – 2-4 hrs SL – 60 min IM – 45 min	0.5-1 mg	Bioavailability of IM twice that of PO. Metabolized by glucuronidation hence not affected by changes in liver function.
Diazepam	5-10 mg PO or IM	15 min	0.5-2 hrs	Not recommended in elderly	IM absorption erratic. Rapid loss of effect if not taking diazepam due to redistribution.
Zopiclone	7.5-15 mg PO	30 min	<2 hrs	5-7.5 mg	May require co-administration of long acting Benzodiazepine
Zolpidem	10 mg PO	15 min	30 min to 2 hrs	5 mg	May require co-administration of long acting benzodiazepine
Triazolam	0.25 mg PO	15-30 min	1-2 hrs	Not recommended in elderly	May require co-administration of long acting Benzodiazepine
Temazepam	15-30 mg PO	30-60 min	2-3 hrs	15 mg po	Metabolized by glucuronidation hence not affected by changes in liver function. Slower onset of action than others in this table

# BC Air Ambulance Psychiatric Medication Strategy (Adult)

## ANTIHISTAMINES

<b>1</b>	<b>High anticholinergic activity may worsen delirium and cognition</b> , especially in the elderly which could worsen agitation.
<b>2</b>	May be useful in people <b>highly tolerant to benzodiazepines</b> .
<b>3</b>	Chronic use leads to tolerance of sedative effect.
<b>4</b>	Use with caution in people with history of anticholinergic delirium.

## ANTIHISTAMINES

MEDICATION	DOSE	Time to Onset	Time to Peak Concentration	Geriatric Considerations	Comments
Diphenhydramine	50 mg po or IM	15-30 min	1-3 hours	25 mg po or IM	Dose may be repeated if additional sedation required May increase delirium and hence worsen agitation Useful for treating nausea due to motion sickness.
Dimenhydrinate	50 mg PO or IM	15-30 min	1-2 Hours	25 mg PO or IM	May increase delirium and hence worsen agitation. Useful for treating nausea due to motion sickness May not be as sedating as others due to addition of 8-chlorotheophylline, a chemical similar to caffeine
Promethazine	50 mg PO	20 min	1-2 Hours	25 mg PO	May increase delirium and hence worsen agitation. May be sedating in people who with high tolerance to benzodiazepines or antipsychotics.



## BC Air Ambulance Psychiatric Medication Strategy (Children & Adolescents)

### SPECIAL INSTRUCTIONS FOR CHILDREN AND ADOLESCENTS

1	Children are not “little adults,” and medication selection should be based upon efficacy in children, rather than simply a modification of adult doses.
2	<b>Psychosis is rare in young children therefore selection of medications should be based upon efficacy of sedation rather than anti-psychotic properties.</b>
3	Sedating medications <b>may be repeated once in 45 minutes</b> if insufficient sedation. For high risk patients, <b>may require 3rd dose 45-60 minutes after the second dose.</b>
4	Each medication to be <b>drawn up in a separate syringe</b> and <b>given as separate injections</b> , as there is no compatibility data available.
5	Risk of <b>paradoxical agitation</b> in children and adolescents with benzodiazepine is <b>up to 30%</b> . If there is a known history of paradoxical agitation, use antipsychotic +/- sedating antihistamine for sedation.
6	<b>Use of loxapine may require one-time use of benztropine (1 mg po/IM)</b> to prevent or treat dystonia.
7	<b>Intramuscular olanzapine at a dose of 2.5-5 mg IM may be considered for adolescents</b> but precludes the use of augmenting benzodiazepines (per warnings by olanzapine manufacturer), so it limits options for sedation and is not effective by itself.

Age	Initial Treatment	Alternatives for Severe Agitation
<8 years	chlorpromazine 12.5-25 mg po PLUS diphenhydramine 25 mg po/IM	Consider 5 mg loxapine IM if IM medication required or as alternative to chlorpromazine Consider 1 mg lorazepam IM in place of diphenhydramine
8-12 years	chlorpromazine 25-50 mg po PLUS diphenhydramine 50 mg po/IM	Consider 5-10 mg loxapine IM if IM medication required or as alternative to chlorpromazine Consider 1 mg lorazepam IM in place of diphenhydramine
13-18 years	chlorpromazine 50-100 mg po PLUS lorazepam 2 mg po/IM	Consider 10-20 mg loxapine IM if IM medication required or as alternative to chlorpromazine

## Recovery Guidelines for Air Ambulance Transfers of Psychiatric Patients

<b>Ultra High Risk Patients</b>											
<b>INTUBATED?</b>											
<b>Yes</b>	To Intensive Care Unit or Emergency Department as per local protocols										
<b>No</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;"><b>1</b></td> <td>To Emergency Department Staff or BCAS Critical Care Transport</td> </tr> <tr> <td colspan="2"><i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration &amp; circulation</i></td> </tr> <tr> <td style="text-align: center;"><b>2</b></td> <td>Transfer to Psychiatric Unit (if necessary, follow “MODERATE SEDATION” recovery)</td> </tr> </table>	<b>1</b>	To Emergency Department Staff or BCAS Critical Care Transport	<i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration &amp; circulation</i>		<b>2</b>	Transfer to Psychiatric Unit (if necessary, follow “MODERATE SEDATION” recovery)				
<b>1</b>	To Emergency Department Staff or BCAS Critical Care Transport										
<i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration &amp; circulation</i>											
<b>2</b>	Transfer to Psychiatric Unit (if necessary, follow “MODERATE SEDATION” recovery)										
<b>All Other Patients</b>											
<b>SEDATION</b>											
<b>DEEP</b>	To Emergency Department (Also for unstable patients)										
<b>MODERATE</b>	To Psychiatry if nursing staff and resuscitation equipment is available										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;"><b>1</b></td> <td>Monitor vitals and sedation every 5 to 15 minutes, depending on clinical need</td> </tr> <tr> <td colspan="2"><i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration and circulation</i></td> </tr> <tr> <td style="text-align: center;"><b>2</b></td> <td>Monitor vitals and sedation every 30 minutes.</td> </tr> <tr> <td colspan="2"><i>When Phase 2 recovery is met</i></td> </tr> <tr> <td style="text-align: center;"><b>3</b></td> <td>Psychiatric care as usual</td> </tr> </table>	<b>1</b>	Monitor vitals and sedation every 5 to 15 minutes, depending on clinical need	<i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration and circulation</i>		<b>2</b>	Monitor vitals and sedation every 30 minutes.	<i>When Phase 2 recovery is met</i>		<b>3</b>	Psychiatric care as usual
<b>1</b>	Monitor vitals and sedation every 5 to 15 minutes, depending on clinical need										
<i>When Phase 1 recovery score is 9 or 10, with a score of 2 in respiration and circulation</i>											
<b>2</b>	Monitor vitals and sedation every 30 minutes.										
<i>When Phase 2 recovery is met</i>											
<b>3</b>	Psychiatric care as usual										

<b>Definitions</b>		
<b>Unstable</b>	Oxygen Saturation	< 90% with supplemental oxygen
	Heart Rate	<50 or >110 beats per minute
	Respiration Rate	<4 or >24 respirations per minute
	Systolic Blood Pressure	<90 or >180 mmHg
<b>Deep sedation</b>	Cannot be easily aroused Responds appropriately following repeated or painful stimulation	
<b>Moderate sedation</b>	Delayed or sluggish response to verbal commands May require light tactile stimulation	



<b>PHASE 1 RECOVERY CRITERIA</b>			
<b>Category</b>	<b>Score</b>	<b>Criteria</b>	
<b>Activity</b>	2	Able to move 2 extremities and sustain head	
	1	Able to move 2 extremities and cannot sustain head	
	0	Unable to move extremities or sustain head	
<b>Respiration</b>	2	Age appropriate respiratory rate/coughs and clears airway	<b>Score of 2 is REQUIRED to pass</b>
	1	Dyspnea or limited breathing/airway requires maintenance	
	0	Apneic/intubated/mechanically ventilated	
<b>Circulation</b>	2	BP/HR within normal limits (BP and HR within 20% of baseline)	<b>Score of 2 is REQUIRED to pass</b>
	1	BP/HR outside of normal limits requiring close observation	
	0	BP/HR requires intervention	
<b>Consciousness</b>	2	Fully awake	
	1	Arousable	
	0	Not responding	
<b>Oxygen Saturation</b>	2	Room air saturation of >94% or at baseline	
	1	Requires supplemental oxygen to maintain saturation >90%	
	0	Oxygen saturation <90% with supplemental oxygen	
<b>Total</b>		A total Score 9-10 is REQUIRED to pass into Phase 2	

<b>PHASE 2 RECOVERY CRITERIA</b>			
<b>YES</b>	<b>NO</b>	<b>CRITERIA</b>	
		Consciousness	Alert and oriented, or at baseline
		Movement	Ambulatory or baseline
		Respiration	No respiratory distress (Oxygen saturation on room air >94%) or baseline
		Vital Signs	Stable (BP and HR within 20% of baseline)
		PO Intake	Able to take fluids by mouth or at baseline
		Voiding	Yes or baseline
		Nausea/Vomiting	Minimal or baseline
		Dizziness	Minimal or baseline
		Communication	Able to verbalize understanding of instructions or baseline communication

## Richmond Agitation Sedation Scale (RASS) \*

Score	Term	Description	
+4	Combative	Overtly 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 but movements not aggressive vigorous	
0	Alert and calm		
-1	Drowsy	Not fully alert, but has sustained awakening (eye-opening/eye contact) to <i>voice</i> (>10 seconds)	Verbal Stimulation
-2	Light sedation	Briefly awakens with eye contact to <i>voice</i> (<10 seconds)	
-3	Moderate sedation	Movement or eye opening to <i>voice</i> (but no eye contact)	
-4	Deep sedation	No response to voice, but movement or eye opening to <i>physical</i> stimulation	Physical Stimulation
-5	Unarousable	No response to <i>voice</i> or <i>physical</i> stimulation	

### Procedure for RASS Assessment

<b>1. Observe patient</b> a. Patient is alert, restless, or agitated.	(score 0 to +4)
<b>2. If not alert</b> , state patient's name and <i>say</i> to open eyes and look at speaker. b. Patient awakens with sustained eye opening and eye contact. (score -1) c. Patient awakens with eye opening and eye contact, but not sustained. (score -2) d. Patient has any movement in response to voice but no eye contact. (score -3)	
<b>3. When no response to verbal stimulation</b> , physically stimulate patient by shaking shoulder and/or rubbing sternum. e. Patient has any movement to physical stimulation. (score -4) f. Patient has no response to any stimulation (score -5)	

\* Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation-Sedation Scale: validity and reliability in adult intensive care patients. *Am J Respir Crit Care Med* 2002; 166:1338-1344.

\* Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S et al. Monitoring sedation status over time in ICU patients: the reliability and validity of the Richmond Agitation Sedation Scale (RASS). *JAMA* 2003; 289:2983-2991.