Changes to NSW Ambulance Protocol:

Management of patients with Acute Severe Behavioural Disturbance

Prepared by Jasmin Ellis
Whole of Health Program Ambulance Project Lead
NSW Ministry of Health

October 2015

What was the problem we wanted to address?

Improve pharmacological options available for paramedics to safely manage patients with acute severe behavioral disturbance (ASBD) requiring sedation.

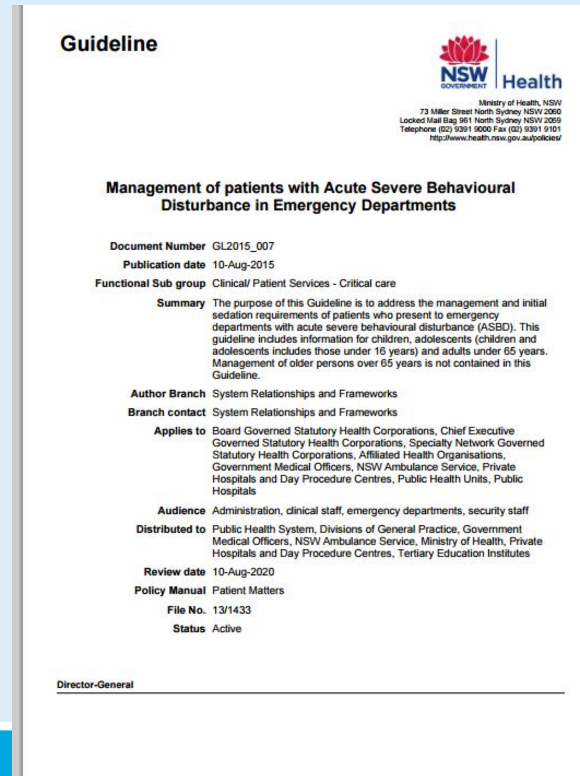
Improve clinical scope of paramedics to increase the availability of an authorised clinician to manage a patient with ASBD requiring sedation within NSW Ambulance.

What was the Goal?

- Aim of sedation in the behaviorally disturbed patients is to reduce the risk of harm and to facilitate assessment, treatment and transport to hospital.
- Develop an evidence based protocol consistent with the NSW Health Guideline which addresses the management of patients with ASBD allowing for;
  - safer pharmacological options and
  - increasing availability of an authorised clinician within NSW Ambulance.

What we did

- aligned terminology and pharmacological interventions with NSW Health Policy



Guideline

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Management of patients with Acute Severe Behavioural Disturbance in Emergency Departments

Document Number	GL2015_007
Publication date	10-Aug-2015
Functional Sub group	Clinical/ Patient Services - Critical care
Summary	The purpose of this Guideline is to address the management and initial sedation requirements of patients who present to emergency departments with acute severe behavioural disturbance (ASBD). This guideline includes information for children, adolescents (children and adolescents includes those under 16 years) and adults under 65 years. Management of older persons over 65 years is not contained in this Guideline.
Author Branch	System Relationships and Frameworks
Branch contact	System Relationships and Frameworks
Applies to	Board Governed Statutory Health Corporations, Chief Executive Governed Statutory Health Corporations, Specialty Network Governed Statutory Health Corporations, Affiliated Health Organisations, Government Medical Officers, NSW Ambulance Service, Private Hospitals and Day Procedure Centres, Public Health Units, Public Hospitals
Audience	Administration, clinical staff, emergency departments, security staff
Distributed to	Public Health System, Divisions of General Practice, Government Medical Officers, NSW Ambulance Service, Ministry of Health, Private Hospitals and Day Procedure Centres, Tertiary Education Institutes
Review date	10-Aug-2020
Policy Manual	Patient Matters
File No.	13/1433
Status	Active

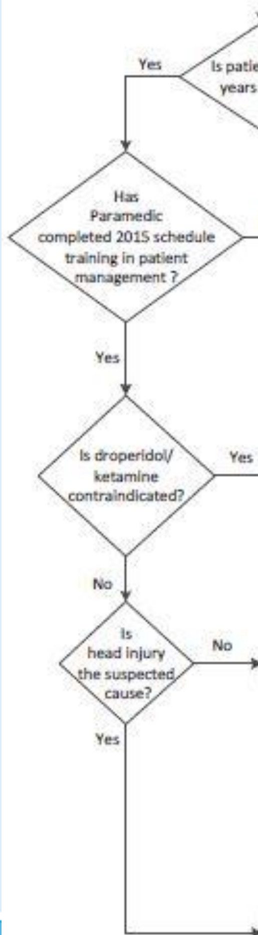
Director-General

What we did

- Renewed our Protocol;

- Increased scope of practice of P1 paramedics including Midazolam for ASBD patient management
- Introduce the utilisation of Droperidol
- Introduce the utilisation of Ketamine in management of a head injured patient presenting with ASBD

MANAGEMENT OF ACUTE SEVERE BEHAVIOURAL DISTURBANCE PROTOCOL: A7



DROPERIDOL

Type: Neuroleptic.

Action:

- Droperidol produces marked tra and provides a state of mental c state of reflex alertness
- Droperidol potentiates other CN analgesics such as fentanyl

Route	Onset
IM	3-10 mi

Use:

- A7A - Management of acute sev injured

Adverse Effects:

- Extrapyramidal reactions
- Neuroleptic malignant syndrom hyperthermia, altered consciou

Contraindications:

- Patients with known or suspe
- Patients with known or suspe
- Patients < 14 years of age
- Patients with Parkinson's dise

Preparation:

- 10mg (2mL) ampoule (DORM™)

Dose:

Patient Manageme

Patients ≥ 14 - <65 years of age

10mg (2mL) IM bolus,
Repeat once after 15 min if indicate
Maximum dose: 2 doses

Patients ≥ 65 years of age and/or witl

5mg (1mL) IM bolus,
Repeat once after 15 min if indicate
Maximum dose: 2 doses

KETAMINE

PHARMACOLOGY: 239

TYPE: Dissociative anaesthetic agent with analgesic effects

ACTION:

- Dissociates the central nervous system from painful stimuli. At low doses ketamine causes a trance like state characterised by analgesia and amnesia with retention of protective airway reflexes, spontaneous respirations and cardiovascular activity

Route	Onset	Peak	Duration
IV	30 sec - 2 min	30 - 40 min	1 - 2 hrs

USE:

- A6 - Pain management
- A7 - Management of acute severe behavioural disturbance

ADVERSE EFFECTS:

- Distressing psychological reactions (e.g. agitation, hallucinations and/or dysphoria)
- Nausea and vomiting
- Muscle effects including increased tone, random purposeless movements

CONTRAINDICATIONS:

- Suspected or known allergy to ketamine
- Patients with known or suspected history of psychosis
- Patients < 14 years of age

PREPARATION:

- **200mg** in 2mL vial
  200mg (2mL) diluted to 20mL (**10mg**:1mL) with 18mL sodium chloride 0.9%.

DOSE:

All Indications

Patients ≥ 14 - <65 years of age

0.25mg/kg (0.025mL/kg) IV diluted bolus
Repeat every 3 - 5 minutes whilst indicated
Maximum total dose: **200mg** (20mL)
2mg/kg (0.2mL/kg) (Maximum bolus 200mg (2mL)) IM undiluted bolus
Repeat once after 10 minutes whilst indicated
Maximum dose: 2 doses

Patients ≥ 65 years of age or with limited physiological reserves

0.125mg/kg (0.0125mL/kg) IV diluted bolus
Repeat every 3 - 5 minutes whilst indicated
Maximum total dose: **100mg** (10mL)
1mg/kg (0.1mL/kg) (Maximum bolus 100mg (1mL)) IM undiluted bolus
Repeat once after 10 minutes whilst indicated
Maximum dose: 2 doses

Ketamine regime may be repeated 60 min after last administration if indicated

Health

How did we do it?

- Participated in collaboration with a large variety of stakeholders
- Undertook an Evidence Based Medicine approach

Ann Emerg Med. 2010 Oct;56(4):392-401.e1. doi: 10.1016/j.annemergmed.2010.05.037.

Randomized controlled trial of intramuscular droperidol versus midazolam for violence and acute behavioral disturbance: the DORM study.

Isbister GK[1], Calver LA, Page CB, Stokes B, Bryant JL, Downes MA.

- Included a training component in the all paramedic's scheduled clinical training

What are the outcomes?

- Robust protocol integrated into the wider acute healthcare setting to ensure consistency of patient management.
- Improved options for sedation of an ASBD patient within the community- improving patient, paramedic, police and emergency department staff safety.

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What were the challenges?

- Sourcing Droperidol in an appropriate concentration for NSW Ambulance (10mg/2ml)
- Protocol commences October 2015

New NSW Health Guideline:

Management of patients with Acute Severe Behavioural Disturbance in ED

Prepared by Sarah Hoy
Principal Policy Advisor, Emergency Access
NSW Ministry of Health]

October 2015

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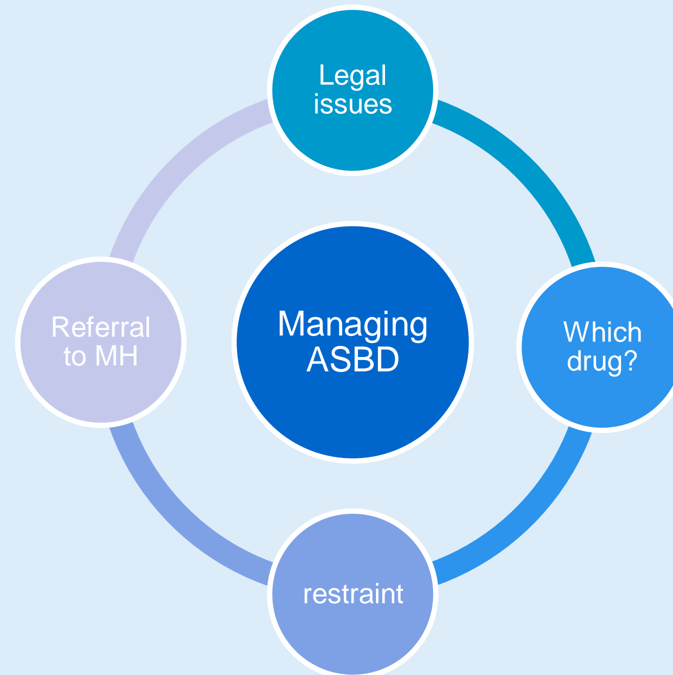
What was the problem we wanted to address?

- Several issues relating to consistency in caring for patients that present to Emergency Departments with Acute Severe Behavioural Disturbance (ASBD) were identified at the 5th Master Class in October 2014.



What was the Goal?

- Develop an evidence based NSW Health Guideline which addresses the management of patients with ASBD in emergency – not just a 'sedation guideline'

What we did

Developed a Guideline!

Guideline

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Management of Patients with Acute Severe Behavioural Disturbance in Emergency Departments

GUIDELINE

Adult algorithm

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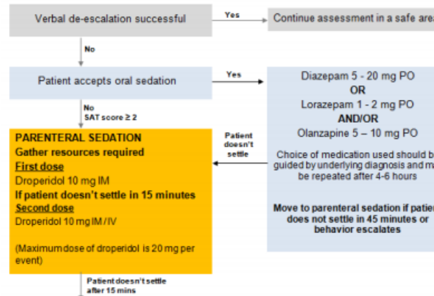

Patient doesn't settle after 15 mins

Third line agent Adults <65 years

Senior Medical consultation is required prior to use of any 3rd line agents

Midazolam 5 – 10 mg IM / IV (max dose 20 mg) OR
Diazepam 5 – 10 mg IV (max 60 mg per event) OR
Ketamine 4 – 5mg / kg IM or 1 mg / kg IV

- If intravenous access is already insitu, IV route of administration may be more appropriate
- Use five point physical restraint for sedation purposes: one on each limb & head with team leader close to patient's head monitoring airway and patient's physical condition
- Avoid restraining patient in a prone position as it places the patient at high risk for respiratory restriction
- Aim for Sedation Assessment Tool (SAT - see section 6.2 in Guideline) score 0 or -1 or -2
- Continuous pulse oximetry & close observation is recommended in all patients until they are able to respond to verbal stimuli. Monitor vital signs and SAT score post EACH parenteral sedation dose 5 minutely for 20 min, then every 30 min for 2 hours
- Urgent clinical review by senior medical officer if parenteral benzodiazepines are used & respiratory depression noted (e.g. SpO2 < 95%, RR < 12 or patient appears poorly perfused)
- Benztropine 1 -2 mg IM / IV may be given for acute dystonic reaction

Management of Patients with Acute Severe Behavioural Disturbance in Emergency Departments

Paeds algorithm

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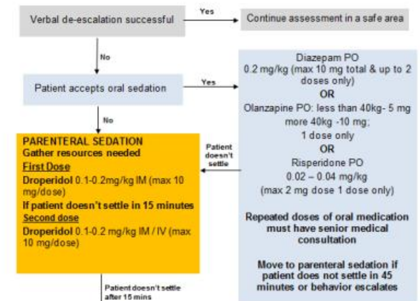

Patient doesn't settle after 15 mins

Third line agents

Senior Medical consultation is required prior to use of any 3rd line agents

Midazolam 0.1-0.2 mg/kg IM / IV (max dose 20 mg / 24 hr)
Ketamine 4mg/ kg IM or 1 mg / kg IV

- If intravenous access is already insitu, IV route of administration may be more appropriate
- Use lean body mass to calculate drug doses
- Use five point physical restraint for sedation purposes: one on each limb & head; with team leader close to patient's head monitoring airway and patient's physical condition
- Avoid restraining patient in a prone position as it places the patient at high risk for respiratory restriction
- Monitor vital signs and respiratory rate/effort post EACH parenteral sedation dose 5-minutely for 20 min, then every 30 min for 2 hours on the appropriate age-related Standard Paediatric Observation Chart (SPOC) or Paediatric Emergency Department Observation Chart (PEDOC)
- Watch for respiratory depression if parenteral benzodiazepines are used; treat respiratory depression from benzodiazepines with flumazenil 5-10mcg/kg (titrated to respiratory rate and effort; do NOT titrate to level of consciousness or pupil size)
- Treat acute dystonia from anti-psychotic drugs with benztropine 0.02 mg/kg IM/IV

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How did we do it?

- Sent out an 'expressions of interest' to participate in the working group – we received 65 volunteers!
- The working group consisted of 28 Clinicians and Managers from 18 NSW hospitals; across 13 Local Health Districts, NSW Ambulance, ACI and NSW Kids & Families.
- A series of teleconference meetings to examine the evidence (many very rigorous discussions!!), develop the draft Guideline and then review the **362 individual comments** received following statewide feedback. This then proceeded to the development of the final document.

What are the outcomes?

- Publication of the document and notification to ED, Mental Health and Ambulance staff of it's availability.
- Development of an implementation strategy for this Guideline and others (possibly a series of road shows aimed at looking at the management of patients with ASBD at the local level).
- No formal evaluation has been commenced yet.

What were the challenges?

- Bringing together the ideas and preferences of 2 clinical groups and balancing this with evidence
- Removing one whole patient group (patients over 65 years) out of the Guideline as a result of statewide feedback and gaps with pharmacology evidence

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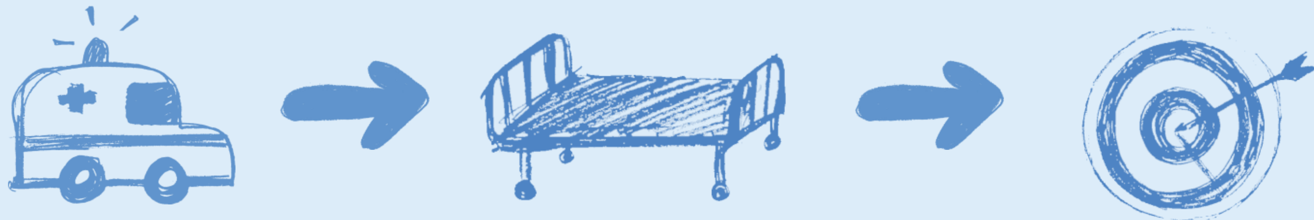
How do the Ambulance and Hospital Guidelines work together to provide seamless patient care?

- Consistency of terminology & medication use; reducing poly-pharmacy
- Clarification of roles in the transport of ASBD patients
- Collaborative professional engagement to achieve better patient care



Physical Assessment of patients in ED with suspected MH issue or behavioural disturbance

- A second Guideline is currently being developed based on feedback from the 5th Master Class in October 2014.
- The aim of the Guideline is: *To provide a standardised, evidence based approach to the physical assessment of people presenting to the Emergency Department with a suspected mental health issue or behavioural disturbance .where consultation or referral to MH services is indicated.*
- The document is in the final stages of review by the working group

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