

**A journey of a thousand miles: Improving
safety in air evacuations of psychiatric
patients from the Kimberley region of
Western Australia**

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旅行

THE JOURNEY OF A THOUSAND MILES
STARTS WITH A SINGLE STEP.

Journey

CONTEXT

Evacuations from the Kimberley are the most distant in all of Australia (possibly the world!)

Broome to Perth 2,000k+

Kununurra to Perth 3,000k+



Throw into the mix:

RFDS delays in evacuation: upto 7 days at times, but 2-4 days not uncommon

Frequent changes of medical and nursing staff, unfamiliar with sedation and monitoring for prolonged periods of time

Lack of after hours or in-hours support from psychiatrists given the vastness of region

System of care

Highly variable

Non standardized

Under-resourced environments in rural and remote hospitals

RECIPE FOR DISASTER

And the **Outcomes** we get...

- Aspiration pneumonia
- Cardiorespiratory depression & arrest – sentinel events
- Staff fearful and overwhelmed
- Patients traumatized, mechanically restrained
- RFDS flights turned around/diverted due to inadequate sedation
- Uncertainty about intubation
- ICU admissions in Perth – consumption of scarce resources and increasing \$\$\$ of care

Small numbers

5-10

events

Per year

VARIABLE PRACTICES PRIOR TO CURRENT PROTOCOL

- I. Multiple sedating medications being prescribed (BDZ), often short acting
- II. Nurse special not always present or specialised from a distance
- III. Patient being woken up, fed and sedated again
- IV. Erratic practices around recording of vital stats, particularly when mechanically restrained

PROBLEM

1. HIGH RISK patients
2. Variably sedated and monitored
3. Delayed evacuation
4. Lack of access to specialist advice

**Create an
environment
of change!**

THE NEW YORKER

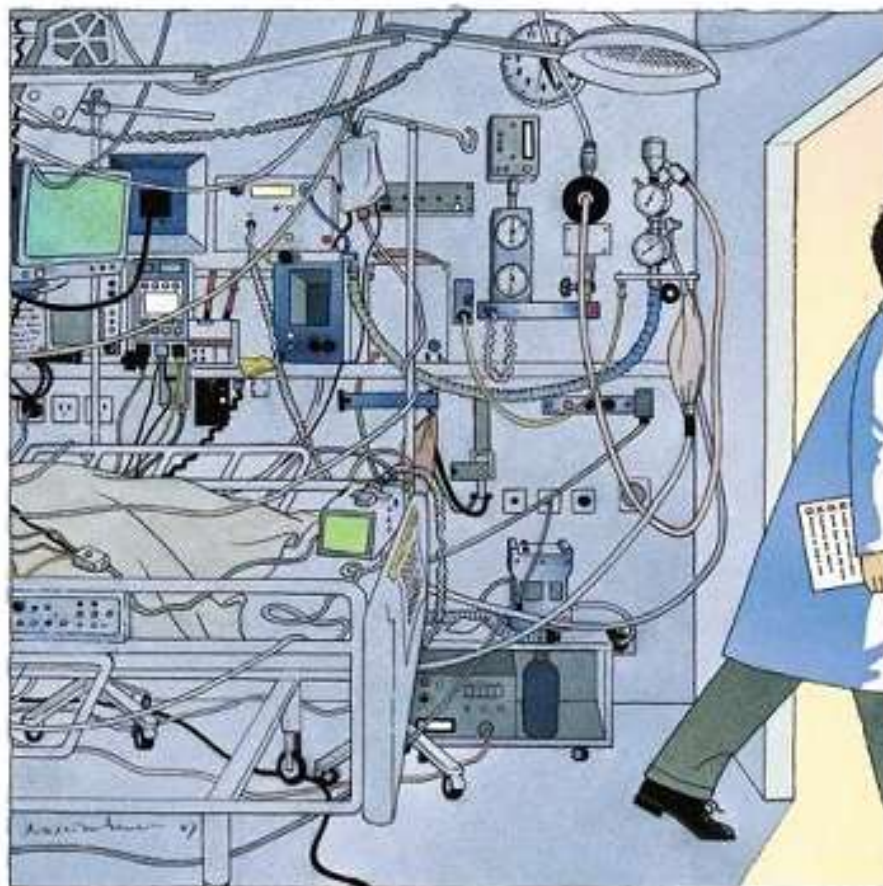
ANNALS OF MEDICINE

THE CHECKLIST

If something so simple can transform intensive care, what else can it do?

by Atul Gawande

DECEMBER 10, 2007



If a new drug were as effective at saving lives as Peter Pronovost's checklist, there would be a nationwide marketing campaign urging doctors to use it.

This is the reality of intensive care: at any point, we are as apt to harm as we are to heal. Line infections are so common that they are considered a routine complication. I.C.U.s put five million lines into patients each year, and national statistics show that, after ten days, four per cent of those lines become infected. Line infections occur in eighty thousand people a year in the United States, and are fatal between five and twenty-eight per cent of the time, depending on how sick one is at the start. Those who survive line infections spend on average a week longer in intensive care. And this is just one of many risks. After ten days with a urinary catheter, four per cent of American I.C.U. patients develop a bladder infection. After ten days on a ventilator, six per cent develop bacterial pneumonia, resulting in death forty to fifty-five per cent of the time. All in all, about half of I.C.U. patients end up experiencing a serious complication, and, once a complication occurs, the chances of survival drop sharply.

In 2001, though, a critical-care specialist at Johns Hopkins Hospital named Peter Pronovost decided to give it a try. He didn't attempt to make the checklist cover everything; he designed it to tackle just one problem, the one that nearly killed Anthony DeFilippo: line infections. On a sheet of plain paper, he plotted out the steps to take in order to avoid infections when putting a line in. Doctors are supposed to (1) wash their hands with soap, (2) clean the patient's skin with chlorhexidine antiseptic, (3) put sterile drapes over the entire patient, (4) wear a sterile mask, hat, gown, and gloves, and (5) put a sterile dressing over the catheter site once the line is in. Check, check, check, check, check. These steps are no-brainers; they have been known and taught for years. So it seemed silly to make a checklist just for them. Still, Pronovost asked the nurses in his I.C.U. to observe the doctors for a month as they put lines into patients, and record how often they completed each step. In more than a third of patients, they skipped at least one.

Pronovost and his colleagues monitored what happened for a year afterward. The results were so dramatic that they weren't sure whether to believe them: the ten-day line-infection rate went from eleven per cent to zero. So they followed patients for fifteen more months. Only two line infections occurred during the entire period. They calculated that, in this one hospital, the checklist had prevented forty-three infections and eight deaths, and saved two million dollars in costs.

Cycle of Change

1. **P**lan : DESIGN PROTOCOL

2. **D**o: IMPLEMENT PROTOCOL

3. **S**tudy: AUDIT IMPLEMENTATION

4. **A**ct: REVISE PROTOCOL

AIM of sedation protocol

- To provide guidance in the safe use of chemical sedation
- To reduce the risks of harm to the patient that could result from drug treatment

KEY PRINCIPLES

- Psychological and behavioural approaches should be used to de-escalate disturbed behaviour before the use of rapid tranquilisation.
- A full assessment, including consideration of the medical and psychiatric differential diagnoses, should occur at the earliest opportunity following admission.

PRINCIPLES

**“MAKE THE SAFE OPTION
THE DEFAULT OPTION...
do the same thing over
and over again”**

PRINCIPLES

- **Safe environment**
- **Intensive monitoring**
- **Nurse special**
- **Resuscitation ready**
- **Regular reviews and escalation if evacuation delayed**

ASSESS RISK

caution in those with pre-existing cardio-respiratory/neurological risk factors

- Upper airway abnormalities which may cause obstruction (including patients with: stridor, obstructive sleep apnoea syndrome, facial/neck abnormalities, syndromes with craniofacial abnormalities eg micrognathia, Apert's syndrome, Pierre Robin)
- Abnormalities of the respiratory centre
- Significant cardiac disease
- Patients with reduced sensitivity to CO₂ retention
- Significant renal or hepatic dysfunction
- Raised intracranial pressure
- Severe obesity
- Patients with neurological disorders placing them at high risk of aspiration of gastric contents (e.g. Severe Cerebral Palsy with pseudobulbar palsy, or history of recurrent aspiration, some neuromuscular disorders)

EQUIPMENT

- Standard hospital resuscitation trolley with all age-appropriate equipment
- Functioning suction apparatus with Yankeur sucker attached
- Oxygen and appropriate masks
- Pulse oximeter
- ECG monitor
- Blood pressure monitoring equipment
- Naloxone and Flumazenil
- Access to a Medical Emergency Response team

INITIAL MONITORING

- Every 5-10 mins as patient condition requires for first hour, then half hourly until patient is ambulatory.

- If patient is asleep or unconscious, pulse oximetry must be used continuously to monitor oxygen saturation.

NURSE SPECIAL

In addition to pulse oximetry, monitor:

- Pulse
- Respiratory rate
- Blood pressure
- Level of alertness/sedation
- Temperature every 4 hours
- Urine output via IDC or fluid balance chart

**NURSE
SPECIAL
(by the bedside
at all times
including
handover)**

Nurse special to notify medical officer if:

- Airway: Threatened airway ie gurgling, stridor or upper airway noises
- Breathing: Respiratory rate less than 5/min or >30/min
- Circulation: Blood pressure less than 90 systolic, Pulse rate >140
- Oxygen Saturation less than 90% despite oxygen via mask
- Urine output falling below 100mls over 3 hours

ORAL SEDATION OPTIONS

- Olanzapine (wafers if possible) 5-10mg repeat dose if required in 2-4 hrs. Max dose 30mg/24hrs.
- Clonazepam 1-2mg repeat dose if required in 60min. Max dose 6-8mg/24hrs.
- or
- Diazepam 5-20mg repeat dose if required in 60min. Max dose 120mg/24hrs. May take 30-40 mins for desired effect.

IM SEDATION OPTIONS

- Clonazepam 1-2mg 30 mins repeat dose if required in 30 mins. Max dose 8mg/24hr.
- *Cardio-respiratory depression/arrest potential*
- Haloperidol 5-10mg repeat dose if required in 30 min. Max dose 20mg/24hrs
- Midazolam 5-10mg repeat dose if required in 30 mins. Max dose 15mg/event.

IV SEDATION OPTIONS

- Clonazepam 1-2mg repeat dose if required in 30 min. Max 8mg/24hrs
- *Cardio-respiratory depression/ arrest potential*

- Haloperidol 5-10mg repeat dose only if benzodiazepine titration ineffective. Max 20mg/24hrs.

- Midazolam 2.5mg-5mg dose repeat if required in 10mins. Max 15mg/event.

TO REDUCE RISK OF ASPIRATION PNEUMONIA

- Nil by Mouth with IV fluids at maintenance rates must be applied when sedation is being considered or commences.
- Check K⁺ level daily if on IV fluids regularly.
- Keep NBM until RFDS evacuation where possible, unless otherwise given approval to recommence diet once alert and able to be managed on the ward.
- Give Metoclopramide 10 mg IVI and repeat dose every 6 hours
- Give Ranitidine 50 mg IVI and repeat dose every 6 hrs
- Nurse in Recovery Position with bed flat to allow oral secretions to drain

OTHER TREATMENTS

- To reduce the risk of agitation from nicotine withdrawal, consider the application of a nicotine patch 14 milligrams topically every 24 hrs.
- To reduce the risk of alcohol withdrawal, consider adding Thiamine 300mg IV/oral.
- To reduce the risk of agitation from an IDC, consider leaving this out until definitive transfer.
- To reduce the risk of DVT/PE from prolonged immobilisation, consider the use of TEDS and s/c Heparin.

WA COUNTRY HEALTH SERVICE – KIMBERLEY
Service

RAPID SEDATION MANAGEMENT CHECKLIST

WARD: BED No:

DOCTOR:

SURNAME

URN

GIVEN NAMES

D.O.B.

SEX

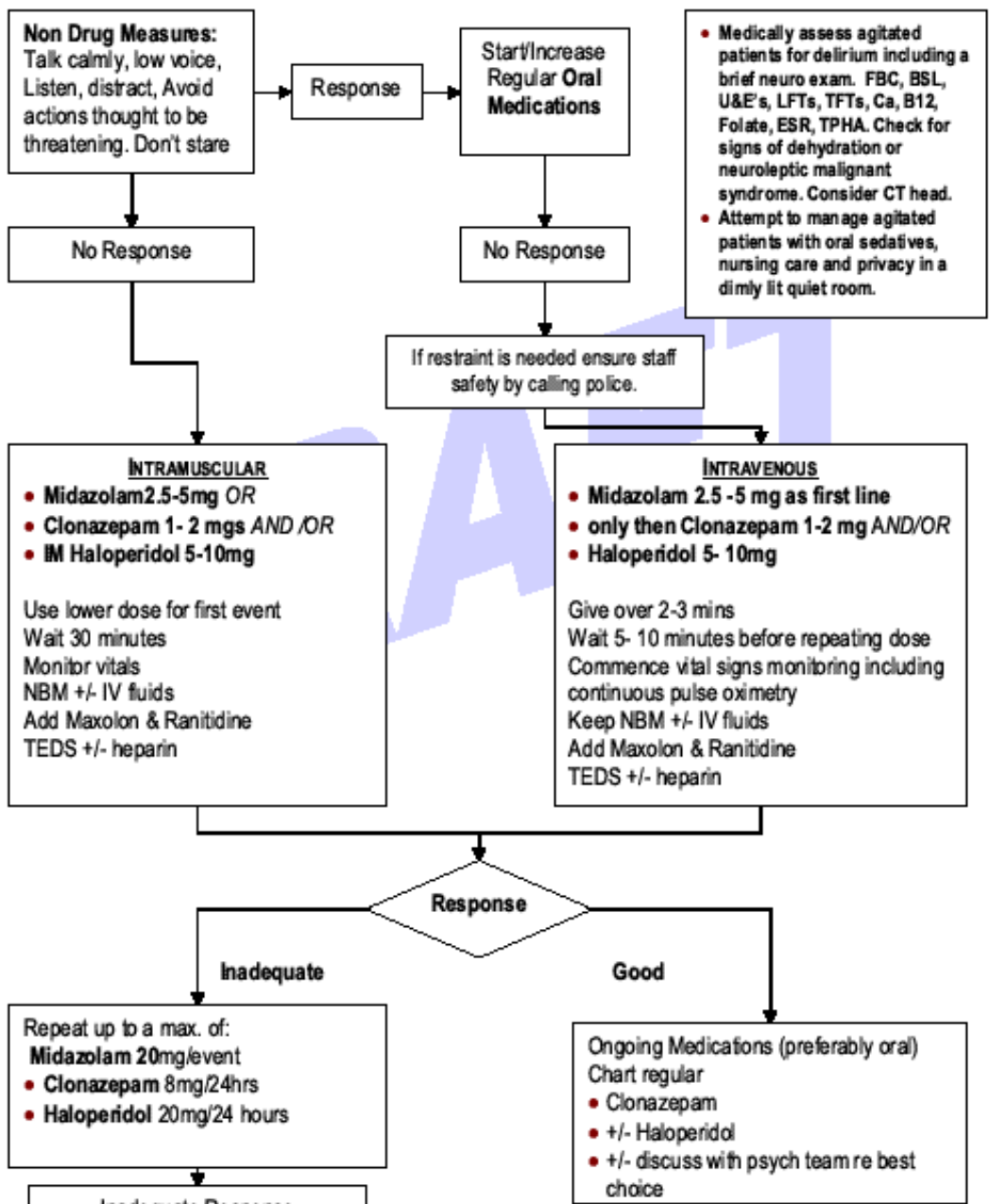
ED admitting RN to complete upon admission and Nurse Special to complete on ward within 24 hours of admission

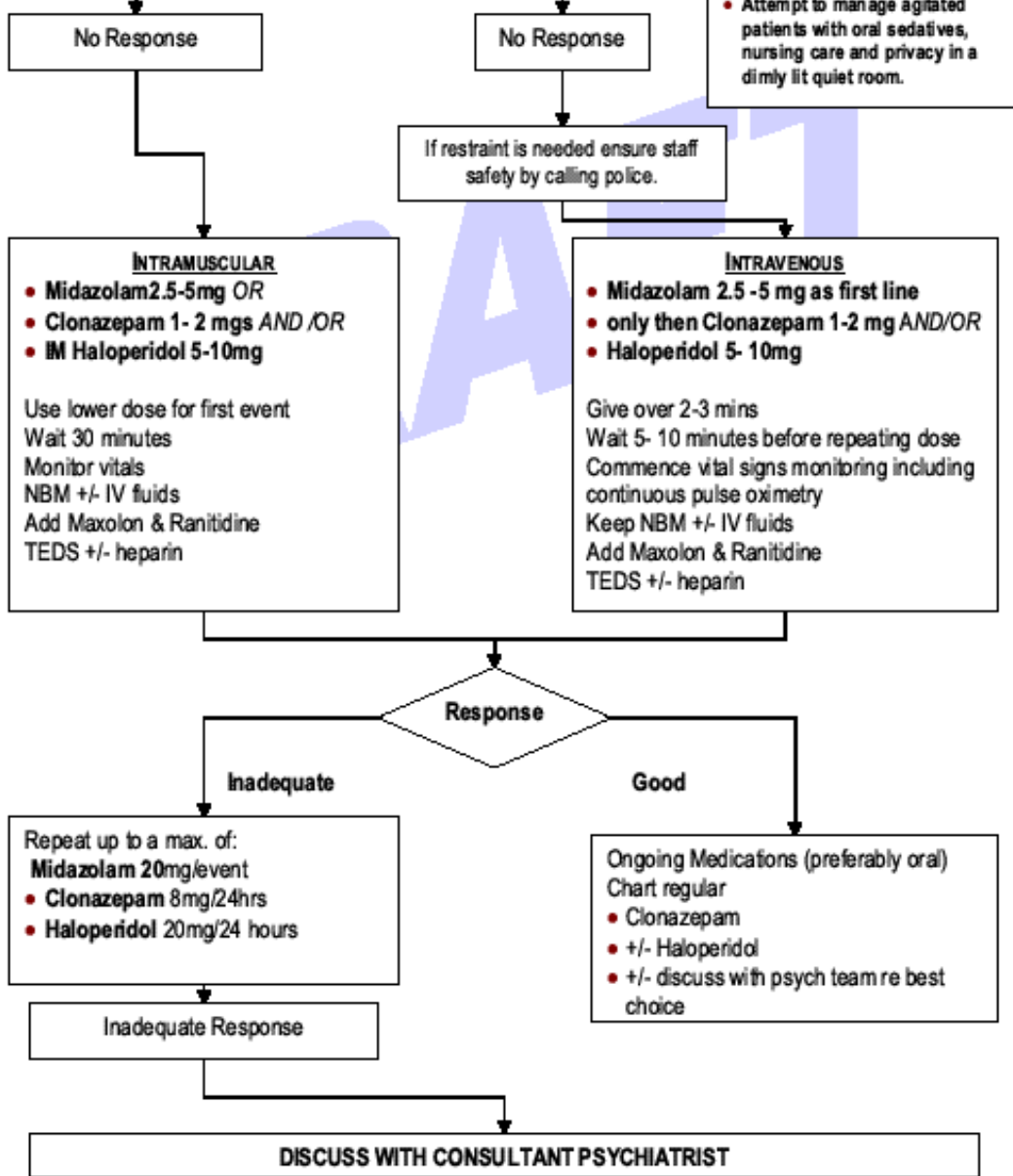
HAVE THE ESSENTIAL CRITERIA OF THE RAPID SEDATION PROTOCOL BEEN FOLLOWED?:

CRITERION	YES	NO
1. Medical Officer has undertaken baseline medical assessment and blood tests?	ED	
2. Rapid Sedation Protocol has been printed for patient record, and medications have been charted in accordance with protocol?	ED Ward	
3. Vital signs monitoring and documentation have been commenced as per protocol?	ED Ward	
4. To reduce risk of aspiration pneumonia, the following have been put in place: <ul style="list-style-type: none"> Kept NBM while heavily sedated or at risk of needing heavy sedation? Maxolon and Ranitidine have been given as per protocol? Patient nursed in the Recovery Position with bed flat? 	ED Ward	
5. Oxygen has been provided via mask and airway check has been done if MET criteria have been reached for airway and breathing as per protocol?	ED Ward	
6. Escalation to the SMO and DMS have occurred if RFDS unable to transport within 24 hours?	Ward	

Comments Required if NO ticked

been charted in accordance with protocol?	Ward	
3. Vital signs monitoring and documentation have been commenced as per protocol?	ED Ward	
4. To reduce risk of aspiration pneumonia, the following have been put in place: <ul style="list-style-type: none"> Kept NBM while heavily sedated or at risk of needing heavy sedation? Maxolon and Ranitidine have been given as per protocol? Patient nursed in the Recovery Position with bed flat? 	ED Ward	
5. Oxygen has been provided via mask and airway check has been done if MET criteria have been reached for airway and breathing as per protocol?	ED Ward	
6. Escalation to the SMO and DMS have occurred if RFDS unable to transport within 24 hours?	Ward	
Comments Required if NO ticked.		
Checklist Completed by ED RN (Name and designation) Signature Checklist Completed by Ward RN (Name and designation) Signature		





This information is available in alternative formats upon request

Printed copies are not considered valid.

**EMERGENCY PSYCHIATRIC
TREATMENT**

WARD: BED No:

DOCTOR:

Please use ID label or block print

SURNAME	URN
GIVEN NAMES	
D.O.B.	SEX

(Mental Health Act 1996 – ss 113-115)

This record of treatment needs to be completed if a voluntary patient or referred person refuses or is unable to consent to psychiatric treatment and treatment is necessary to save the person's life or to prevent the person from behaving in a way that can be expected to result in serious physical harm to the person or any other person.

Time Treatment Given:	Place of treatment:
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Legal status:	Select Option
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Particulars of treatment:

Reason for Treatment:

Effects of Treatment (including any adverse reactions):

Name of Person giving the treatment:
Designation:

Signature	Date
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Other staff involved in giving the treatment:

Name	Designation	Name	Designation

<p>A copy of this report must be forwarded to:</p> <ul style="list-style-type: none"> • Mental Health Review Board, GPO Box Y3063, East St George's Terrace, PERTH 6832 or faxed to 9219 3163 • WACHS Kimberley Medical Director (email) • WACHS Kimberley Clinical Director, Kimberley Mental Health and Drug Service (email) <p>Should a critical incident arise out of the giving of Emergency Psychiatric Treatment (EPT) the Chief Psychiatrist must be informed. In those circumstances contact Mrs Janet Peacock, Manager, Office of the Chief Psychiatrist on 9222 4079 or e-mail janet.peacock@health.wa.gov.au.</p> <p>Critical Incident Select Option</p>	<p>Date Sent</p> <p>/ /</p> <p>/ /</p> <p>/ /</p> <p>/ /</p>
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Author: CR Coordinator. Authorised by: Medical Director – WACHS Kimberley. Version No: 1 (February 2009). Review Date: February 2010. Reference: Mental Health Act 1996, ss 113-115

MRK 11 EMERGENCY PSYCHIATRIC TREATMENT

MECHANICAL RESTRAINT REPORT**RECORD OF RESTRAINT****UNDER SECTION 123 OF THE MENTAL HEALTH ACT**

Mechanical bodily restraint means restraint preventing the free movement of the person's body or limb by mechanical means, other than by medical or surgical appliance for the proper treatment of physical disease of injury.

ORIGINAL TO MEDICAL RECORD
COPY TO :DUTY NURSE MANAGER

COPY TO: MURRAY CHAPMAN – Clinical Director KMHDS

SURNAME	URN
GIVEN NAMES	
D.O.B.	SEX

WARD: Period of restraint authorised:	DATE: RESTRAINT INITIATED BY:	MHA STATUS: SMHP / MEDICAL OFFICER (Indicate Designation)
FROM:hrs	(PRINT NAME)	(Signature)
TO:hrs		

REASON FOR RESTRAINT: Protection of Patient Protection of Others
 To Enable Treatment Protection of Property

TYPE OF RESTRAINT: Capsule Strait Jacket Other

INTERVENTIONS PRIOR TO RESTRAINT: TIME:

..... TIME:

PRN MEDICATION: TIME:

SMHP – Details of Emergency:

Special comments regarding patient's condition at time of restraint (including injuries).....

Physical Restraint used: **NO** **YES**

CLOTHING:	<input type="checkbox"/> Fully Dressed	<input type="checkbox"/> Night Clothes	<input type="checkbox"/> Underwear
HYDRATION:	<input type="checkbox"/> Offered	<input type="checkbox"/> Refused by patient
NUTRITION:	<input type="checkbox"/> Offered	<input type="checkbox"/> Refused by patient
ABLUTION:	<input type="checkbox"/> Offered	<input type="checkbox"/> Refused by patient

INFORMING NURSE: (PRINT NAME) (SIGNATURE)	TIME M.O. and CNS/NSE MANAGER INFORMED:hrs
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CLINICAL NURSE SPECIALIST / NURSE MANAGER ATTENDED	Dr. (PRINT NAME) (QUALIFICATIONS)
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AUTHORISATION OF RESTRAINT: TO BE COMPLETED BY MEDICAL OFFICER M.O. MUST attend for the initial 15 minutes.	Dr. (PRINT NAME) (QUALIFICATIONS)
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DIRECTIONS: (Variation or revocation of order, special comments regarding care of patient while in restraint)

Time Attended:hrs (SIGNATURE)
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TREATING PSYCHIATRIST INFORMED: (Date) (Time)

Time Restraint Terminated:hrs	OUTCOME OF RESTRAINT (Mental State, Counselling conducted, Response to debriefing, etc)
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Total Time in Restraint:hrs	COMPLICATIONS OF RESTRAINT: NO <input type="checkbox"/> YES <input type="checkbox"/> Details:
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MECHANICAL RESTRAINT REPORT
WACHS KIMBERLEY MRK 124

WACHS - KIMBERLEY		SURNAME	URN
..... Hospital		GIVEN NAMES	
RESTRAINT OBSERVATION RECORD			
WARD:	BED No:.....	D.O.B.	SEX
DOCTOR:			
DATE:	TIME COMMENCED:	TIME CEASED:	
INITIATED BY:		CEASED BY:	

Key: (For Status)

RESPS MUST BE RECORDED EVERY 15 MINUTES

A - Awake
S - Sleeping

C - Calling
R - Resting

AG - Aggressive/Struggling

TIME	STATUS	RESPS	NURSE	TIME	STATUS	RESPS	NURSE	TIME	STATUS	RESPS	NURSE	TIME	STATUS	RESPS	NURSE
0000				0600				1200				1800			
0015				0615				1215				1815			
0030				0630				1230				1830			
0045				0645				1245				1845			
0100				0700				1300				1900			
0115				0715				1315				1915			
0130				0730				1330				1930			
0145				0745				1345				1945			
0200				0800				1400				2000			
0215				0815				1415				2015			
0230				0830				1430				2030			
0245				0845				1445				2045			
0300				0900				1500				2100			
0315				0915				1515				2115			
0330				0930				1530				2130			
0345				0945				1545				2145			
0400				1000				1600				2200			
0415				1015				1615				2215			
0430				1030				1630				2230			
0445				1045				1645				2245			
0500				1100				1700				2300			
0515				1115				1715				2315			
0530				1130				1730				2330			
0545				1145				1745				2345			

MECHANICAL RESTRAINT REVIEWED BY M.O. A MINIMUM OF EIGHT HOURLY IF CONTINUOUS RESTRAINT

FURTHER PERIOD OF RESTRAINT AUTHORISED

FROM:	TO:	Signed:	Comment:
FROM:	TO:	Signed:	Comment:

Reference: South Metro Health Service (Gravelands Hospital); Authorised by Medical Director: WACHS Kimberley, Version No 1 (January 2009; Review Date January 2010)

WACHS KIMBERLEY MRK 125 RESTRAINT OBSERVATION RECORD

FINAL

words

Cycle of Change

1. **P**lan : DESIGN PROTOCOL

2. **D**o: IMPLEMENT PROTOCOL

3. **S**tudy: AUDIT IMPLEMENTATION

4. **A**ct: REVISE PROTOCOL

Something like this is going on in medicine. We have the means to make some of the most complex and dangerous work we do—in surgery, emergency care, and I.C.U. medicine—more effective than we ever thought possible. But the prospect pushes against the traditional culture of medicine, with its central belief that in situations of high risk and complexity what you want is a kind of expert audacity—the right stuff, again. Checklists and standard operating procedures feel like exactly the opposite, and that’s what rankles many people.

Acknowledgements

- CPI Program, Flinders University Adelaide
- Reference group: OCP, DMSs, Clin Director KMHDS, Managers MHS, Anesthetists/Intensivists

