

# **Intranasal Fentanyl for procedural pain**



### **Comfort Kids Program 2016**



### The Royal Children's Hospital Melbourne

# **IN fentanyl**

- What
- Why
- How
- Resources









### What

- Analgesic opioid
- Rapid onset of effect 2-5 minutes
- Duration of effect 30-60 minutes
- If opioid or sedation agent administered within 2 hours, assess UMSS & undertake consultation





# Why

- Intranasal more effective than oral route
  - Enhanced absorption and avoidance of 1st pass effects
  - Theoretically direct nasal to CNS delivery allows lower dosing with less delivery to none targeted organs
- Rapid onset
- Titrated
- Short acting





### Indications

- Age > 6 months (corrected age)
- Minor painful procedures of short duration
- Limited IV access
- Potent & rapid onset of analgesia required
- Single procedural analgesic agent
- Adjunct to N20 (undertake risk assessment)





## Indications

- Paediatric minor painful injuries or procedures:
  - Orthopaedic trauma not requiring an IV (or prior to IV)
  - Pain control is needed but oral medication is too slow
  - Burn dressing changes
  - Re-packing wounds such as abscesses
  - IM shot for pain control (IN works as well or better with faster onset and no pain on delivery)





## Contraindications

- < 6months (corrected age)</li>
- UMSS ≥2
- Bilateral occluded nasal passage
- Epistaxis



## Dosing RCH CPG

Analgesic <mark>opioid</mark>					
If opioid or seda	tion agent administered	within	2 hours, assess	UMSS & undertake consulta	ation
Indications			Contraindicat	ions	
Age > 6 months	(corrected age)		< 6months (cor	rected age)	
Minor painful pr	ocedures of short durat	ion	UMSS ≥2		
Limited IV acces	s		Bilateral occlud	ed nasal passage	
Potent & rapid o	onset of analgesia requir	ed	Epistaxis		
<u> </u>	al analgesic agent				
	undertake <u>risk assessme</u>				
Onset of action			Duration of e	fect	
· .	ffect (2-5 minutes)		30-60 minutes		
Initial Dose				if UMSS <2 may administer a	fter 10 minutes)
1.5 micrograms/			0.75 - 1.5 micro		
				ddition of >6months (7kg) in	fant dosing
		-		ution for intravenous use	
•	Volumes have been rou	nded to	the nearest 0.	05mL	
Weight	Initial dose	Volur	ne	Top-up dose	Volume
estimate(kg)	(1.5micrograms/kg)	Initia	l dose (mL)	(0.75 - 1.5 micrograms/kg)	Top up dose (mL)
	(,8,,8,			(	
7	10 mcg	0.2 m	L	5mcg (limited)	0.1mL
10	15 mcg	0.3 m	1	7.5 - 15 mcg	0.15 - 0.3 mL
			-		
12	18 mcg	0.35 r	mL	9 - 18 mcg	0.2 - 0.35 mL
14	20 mcg	0.4 m	L	10 - 20 mcg	0.2 - 0.4 mL
16	24 mcg	0.5 m	L	12 - 24 mcg	0.25 - 0.5 mL
18	27 mcg	0.55 r	mL	13.5 - 27 mcg	0.25 - 0.55 mL
20 - 24	30 mcg	0.6 m	L	15 - 30 mcg	0.3 - 0.6 mL
25 - 29	37.5 mcg	0.75 r	mL	18.75 - 37.5 mcg	0.35 - 0.75 mL
30 - 34	45 mcg	0.9 m	L	22.5 – 45 mcg	0.45 - 0.9 mL
35 - 39	52.5 mcg	1.05 r	mL	26.5 - 52.5 mcg	0.5 - 1.05 mL
40 - 44	60 mcg	1.2 m	L	30 - 60 mcg	0.6 - 1.2 mL
45 - 49	67.5 mcg	1.35 r	mL	33.7- 67.5 mcg	0.65 - 1.35 mL
> 50	75 mcg	1.5 m	1	37.5 - 75 mcg	0.75 - 1.5 mL



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### IN Fentanyl order IP Procedural Sedation Order set



der S	
	Medications
- I ·	Chloral Hydrate Dosing 0-3 months (corrected age)
	Chloral Hydrate Dosing 0-3 months (corrected age) Cardiology INPATIENTS only chloral hydrate 500 mg/5 mL solution (Non-cardiology patients - seek consultation) Once, Discuss with procedural sedulion support services
`	<ul> <li>Chloral Hydrate Dosing 3-12 months (corrected age)</li> <li>chloral hydrate 500 mg/5 mL solution (Standard dosing)</li> <li>30 mg/kg, Once, 30 mg/kg initial. 20 mg/kg if required in 20-30 min. Give only if UMSS score &lt; 2.</li> <li>chloral hydrate 500 mg/5 mL solution (Moderate Dosing)</li> <li>50 mg/kg, Once</li> </ul>
•	✓ Chloral Hydrate Dosing 1-18 years ☐ Chloral Hydrate 1-18 years
	Chloral Hydrate Dosing 3-36 months (OUTPATIENTS - Cardiology and Medical Imaging)
ľ	Recommend < 4 months corrected age: attempt feed & wrap if appropriate for procedure Chloral Hydrate 3-36 months (OUTPATIENTS - Cardiology and Medical Imaging)
	Y Oral Midazolam
	midazolam injection (>4 months pre-nitrous) 0.3 mg/kg, Oral, Once, Tastes bitter and acidic, administer with sweet solution.
	Origing, Oria, Oria, et al. a data and adult, parameter with street solution.     Of midazolam injection (+ 4 months standard)     O.5 mg/lg, Oral, Once, Tastes bitter and acidic, administer with sweet solution.
ŀ	Y Buccal Midazolam
	midazolam injection 0.3-0.5 mg/kg, Buccal, Once, Tastes bitter and acidic, administer with sweet solution.
ľ	✓ Intranasal Midazolam ☐ midazolam 5 mg/mL solution - pre-nitrous 0.2 mg/m, Nasal, Once ☐ midazolam 5 mg/mL solution - standard 0.4 mg/m
	Y Intravenous Midazolam
	If patient is >6 months and <12 months, give 1 mL bolus and repeat at intervals of no less than 5 minutes to achieve or maintain anxiolysis. If patient is >12 months, give 1-2 mL bolus and repeat at intervals of no less than 3 minutes to achieve or maintain anxiolysis.
	Intermittent midazolam with flumazenii (for patients <50 kg) Intermittent midazolam with flumazenii (for patients >=50 kg)
•	Intranasal Fentanyl       Intranasal Fentanyl (7-10 kg)       Intranasal Fentanyl (> 10 kg)       Naloxone
	Y Nitrous Oxide
	initrous oxide gas Ward and ambulatory areas: maintain UMSS score <= 2 Critical care areas: maintain UMSS score <= 3
	Y Sucrose
	sucrose 33% oral solution     0.5-2 mL, for 3 doses, Give 2 min before procedure. Maximum of 5 mL per procedure.
•	✓ Local Anaesthetics ☐ Knonceine_princeine (EMLA) cream
_	

Order set

• IN Fentanyl

Adjuncts

- Topical LA's (Emla, AnGEL)
- Sucrose

**Procedural Support** 

- List of agents
- EPT Referral
- Links to PSWA Procedure & CPG's

### Activates Nursing order

- Sedation Narrator
- Observations & Weight





## **IP Procedural Sedation order set**

	Order Sets ?	Actions 🔻		
	Order Sets	^	Summary Orders	
Chart Review			olders V	Close X
	Seach + Add O Advanced		Manage Orders Go to Order	Sets
IP Summary	<ul> <li>Favourites</li> </ul>			Options 🔻
Results Review	IP Procedural Sedation		Providers	Options •
Work List	Right click on an Order Set to add to favourites.	Open	Place new order	+ New
WORK LIST		- 1	Per procedure: no cosign require	
	Orders	1	Orders from Order Sets	
	Clear All O	rders	IP Procedural Sedation	Remove
	Order Sets		Observations	×
Flowsheets	Y IP Procedural Sedation		Continuous starting Today at 12:56 Until Specified BP Cuff Restrictions: No	î
VICTOR	Please read CPG for guidance on dosing before prescribing.		Restrictions: No	
Fluid Balance	Procedural Pain Management CPG   Procedural Pain Management Policy   Resuscitation CPG   Medical Emergency Response Procedure   Communicating Procedures to families CPG   Observation and Continuous Monitoring CPG (Nursing)   Sucrose (oral) for proce pain management in infants CPG (Nursing)   Analgesia and Sedation CPG	dural	Weigh Patient Routine - Once First occurrence Today at 12:56	×
¢,	General, Nursing & Other	Close	Nursing Communication to sedation) Until discontinued starting Tod	×
MAR Notes	Nursing     Nursing     Observations     Descriptions     Descriptions     Descriptions     Description     Description		at 12:56 Until Specified Proceed to sedation narrator to writy risk assessment, exclusio criteria, fasting and consent.	
Patient Story	Ivaring Communication (Prior to sedation)     Unit discontinued starting 1C48 μt 12:58 that Specified     Proceed to sedation market to verify risk assessment, acutusion criteria, fasting and consent.			
Education Orders	Medications	Close		
Chronic Pain P	Chloral Hydrate Dosing 0-3 months (corrected age)     Chloral Hydrate Dosing 0-3 months (corrected age) Cardiology INPATIENTS only     chloral Hydrate Dosing 0-3 months (corrected age) Cardiology INPATIENTS only			
ADT Navigators	Once, Discuss with procedural sedation support services	_		
Sedation Docu Pain / Procedu	Initial information of the provide standard cosing)     So may fail 2 may affect required in 20.30 min. Give only if UMSS score < 2.     Chickna's hydrate 500 mg/S mL solution (Moderate Dosing)     So mg/s, Once			
Order Sets		~	<u>R</u> emove All Sa <u>v</u> e Work	✓ <u>S</u> ign

<u>Order Sets</u> = Select from L panel <u>Go to order sets</u> = Select from R panel <u>Search order sets</u> = IP Procedural Sedation <u>Favourites</u> = R click to add <u>Open Order sets</u> = centre panel <u>Select Medication & Sign</u>



### **Documentation = Sedation Narrator**



$\langle \nabla \rangle$	Sedation Documentation	0.01.565		? Resize ≎
<u> </u>	Refresh ≪ Data Validate			
$\square$		*	Event Log Patient Summary Orders	⊗ Expand All ⊗ Collapse All
Chart Review	There are no active alerts		The time filed for device data may appear out of chronological order. Please look to the 'Device Time' in the data to see the	Sedation Events   Sedation Documentation Start
IP Summary	MAR (16) 5 MAR 🚍 🖄		correct time.	Sedation Documentation State
Results Review	Edit MAR Note			Pre-Sedation
Work List	Review Blood Orders     Blood Admin		File	+ Pre-Sedation Checklist
	Transfuse Red Cells (Units): (0 of 2 released)		·····	Intra-Sedation
	No currently active released units		Sp02	+ Intra-Sedation Checklist
	Overdue at 16/6 13:00		DeAwake and alert 1=Minimally sedated 2=Moderately sedated	+ Observations
Flowsheets	🛬 📱 🛛 ranitidine tablet 75 mg		Level of Sedation 3=Deep sedation 4=Unrousable	Primary Assessment
VICTOR	75 mg : Oral		Show: Deleted	+ Fluid Balance
Fluid Balance	Infusions			Neurological - Simple     Pain Assessment
	Plasma-Lyte 148 and glucose 5 % infusion (contains potassium 5 mmol/L)		Time Event Details User	Pain Assessment     O     Quick Update
<u>ç</u>	1,000 mL : Intravenous			Find an Event + Add
MAR	Last Action at 16/6 08:30: Stopped		Sedation Documentation Start	
	Sodium chloride 0.9% IV infusion 1,000 mL			Post-Sedation
Notes	↓ 1.000 mL : Intravenous		Time: 13:05:56 () Date: 16/06/2016	Post-Sedation Checklist     O     Procedural Sedation Summary
Patient Story	Last Action at 16/6 12:14: Rate/Dose Verify		Comments:	· · · · · · · · · · · · · · · · · · ·
Education	PRN			IVs ×
Orders	🋬 🚊 paracetamol 250 mg/5 mL suspension 600 mg			Airways, Tubes & Drains  Wounds  Wounds
Oharala Dala D	15 mg/kg : Oral Last Action at 12/6 03:52: Given		Accept X Cancel	Procedures ×
Chronic Pain P	Admin Instructions		A Truth V Truth	Blood Administration
ADT Navigators	naloxone injection 40 mcg			General ×
Sedation Docu	1 mcg/kg : Intravenous			Mental Health 🛛 🕹
Pain / Procedu	Admin Instructions			ED Obs 🛛 🕹
	aloxone injection 80 mcg			
	Admin Instructions			
	🖶 📱 naloxone injection 400 mcg			
	10 mcg/kg : Intravenous     Admin Instructions			
JEN F	Image: Second ansatz of the			
	Last Action at 16/6 04:36: Given			
	Admin Instructions			
)	metoclopramide injection 8 mg     0.2 mg/kg : Intravenous			
🗲 Customise	Last Action at 16/6 07:54: Given			
More >	Admin Instructions	~		
KATE A.	Staff Message			
			v v	

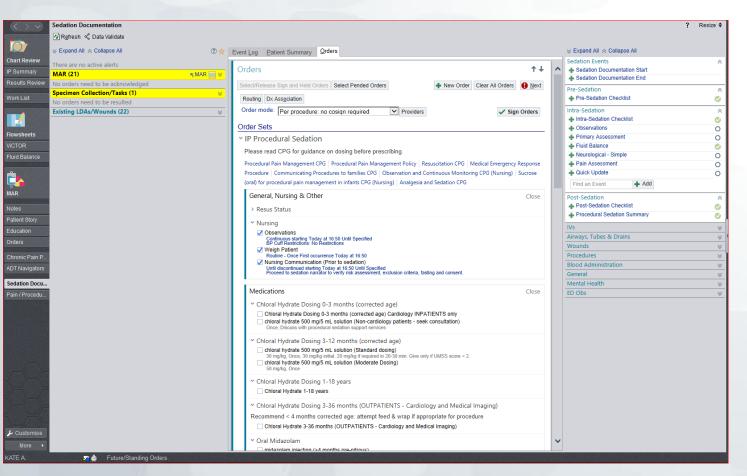
### **Record of Sedation now SN EMR Checklists**

Locate in More – click to add to side bar - Open & Resize Accept Sedation Documentation Start Don't file END until summary complete Start & End Bookend the Sedation Narrator

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### **Sedation Narrator**



Views Event Log, Patient Summary and Orders <u>Event Log</u> = Checklists & Observations <u>View Orders</u> = IP Procedural Sedation Order Set <u>Patient Summary</u> = IP Summary





### **Sedation Narrator - Pre-Sedation**



Sedation Documentation 장Refresh		? Resize
Sexpand All Collapse All	Event Log Patient Summary Orders	
Alerts (4)	The time filed for device data may appear out of chronological order. Please look to the 'Device Time' in the data to see correct time.	Sedation Documentation Start
<ul> <li>✓ Active</li> </ul>	🖕 QuickBar	Sedation Documentation End
Pre-Sedation Checklist Incomplete     Oh 00m     Pre-Sedation Checklist	Resp	File Pre-Sedation  Pre-Sedation Checklist  Intra-Sedation
Intra-Sedation Checklist Incomplete <sup>0h 00m</sup> Intra-Sedation Checklist	Sp02     Image: Sp02       BP     Image: Sp02       Level of Sedation     Image: Sp02       3=Deep sedation     4=Unrousable	Intra-Sedation Checklist     Observations     Primary Assessment
Post-Sedation Checklist Incomplete     Oh 00m	Show: Deleted Status Char	Pain Assessment
Post-Sedation Checklist      Procedural Sedation Summary     Oh 00m     Incomplete	Pre-Sedation Checklist Time taken: 12:53:44 ① 16/06/2016 📋 Show: Row Info Last Filed All Choices	Find an Event     Post-Sedation
Procedural Sedation Summary	Values By Create Note  Sedation Exclusion Criteria	Post-Sedation Checklist     Procedural Sedation Summary
MAR K MAR	Outside MET Criteria as per ViCTOR)	IVs Airways, Tubes & Drains Wounds Procedures
New Orders Acknowledge All	Mandatory emergency call indicated or clinical review not completed for rapid review.	Procedures Blood Administration
Speech Pathology Inpatient Referral     Order Comments      Order Comments     Order Comments	Nitrous Oxide Age Less Than 2 Years of Age Risk of airway obstruction.	General Mental Health ED Obs
Specimen Collection/Tasks (1)	Severe Pulmonary D Yes N/A	
Complete Nerve Conduction / Electromyography  Complete Nerve Conduction / Electromyography  15/06 17:40 No orders need to be resulted	Hypertension Associated with Limited Exercise Tolerance Risk of Hypoxia.	
Existing LDAs/Wounds (1)         X       Image: Comparison of the property o	Gas Filled Space Ves N/A Risk of expansion of gas filed space.	
	e g. Pneumothorax, lung cyst, obstructive pulmonary disease, bowel obstruction, recent cranicomy with pneumocephatus resulting in trapped gas, significant middle ear disease or surgery resulting in trapped gas and decompression sickness. Respiratory Illness or Infection	
	or Intection Risk of airway obstruction. e.g. Pneumonia or respiratory tract infection with excessive secretions and poor	~

<u>Checklists</u> appear in Left panel of SN as Active Alerts Mandatory to complete Pre-Sedation Checklist prior Show Row Info for PSWA Procedure tips for: <u>Exclusion Criteria, Risk Assessment, Consultation</u> <u>Exclusion Staffing, Equipment, Consent & Preparation Clinical part</u>





### **Sedation Narrator Intra-Sedation Checklists**

	= Expand All ⊗ Collapse All	(?) +	Event Log Patient Summary	Orders					
Review Ale	erts (3)	*			nological order. Please look to the 'Device Time' in th	a data to e	200	Sedation Events	*
nary			the correct time.	appear out of child	longical order. Please look to alle bevice Tille II al	s data to s	500	Sedation Documentation Start	
Review	~ Active		🗸 QuickBar					Sedation Documentation End	
			Pulse	1				Pre-Sedation	*
	Intra-Sedation Checklist Incomplete	0h 07m	Resp	1		-	File	Pre-Sedation Checklist	<b>S</b>
	Intra-Sedation Checklist		SpO2	5				Intra-Sedation	*
			BP C	1				Intra-Sedation Checklist	0
	Post-Sedation Checklist Incomplete	0h 07m			t 1-Minimally sedated 2-Moderately sedated			Observations	0
	Post-Sedation Checklist		Level of Sedation	3=Deep sedation	4=Unrousable			Primary Assessment	0
								Fluid Balance	0
ce l	Procedural Sedation Summary	0h 07m		snow:	Deleted Status Changes Orders Flowsheet	s/Assessm	nents	Neurological - Simple	0
	Incomplete		Time Event	Details		User		Pain Assessment	0
	Procedural Sedation Summary		12:56 Pre-Sedation Check		on Exclusion Criteria - Deteriorating Child (Physiologica			+ Quick Update	0
	<ul> <li>Procedural Sedation Summary</li> </ul>			Limits	Dutside MET Criteria as per VICTOR): No s Oxide - Age Less Than 2 Years of Age; N/A Severe			Find an Event 🕂 Add	
				Pulmor	nary Hypertension Associated with Limited Exercise			Post-Sedation	*
MA	ıR	5 MAR 🔤 ⊗			nce: N/A Gas Filled Space: N/A Respiratory Illness or n; No (?myasthenia gravis)			Post-Sedation Checklist	0
No	orders need to be acknowledged				on Risk Assessment - Patients Already Receiving			Procedural Sedation Summary	0
Sp	ecimen Collection/Tasks (2)	~			rrent Opioids or Sedative Agents?: N/A Prior Adverse and/or Allergic Reaction to a Sedation Agent: N/A Acute			IVs	
	Constitute Name Constantion / Electrony			lliness	<ul> <li>Respiratory: N/A Acute Illness - Surgery: N/A Pregnand</li> </ul>	y:		Airways, Tubes & Drains	*
	Complete Nerve Conduction / Electromyog	15/06 17:46			gnificant Cardiovascular Disease: N/A Significant atory Disease: N/A Significant Renal Disease: N/A Acute			Wounds	×
				System	ic Infection: N/A Abnormal Conscious State / Risk of			Procedures	×
P	Collect Venous Blood Gas and print requis	16/06 12:55			ICP: N/A Significant Risk of Delayed Gastric Emptying on or Secretion: N/A NITROUS ONLY: Patient with Sickle			Blood Administration	×
irs 👘		10/00 12:55		Cell Di	sease / Immunosuppression: N/A			General	*
	orders need to be resulted				dation Checklist - Patient ID: Yes Falls Assessment ated: Yes Fasted from (Date); 16/06/16 Fasted from			Mental Health	×
iu Exi	sting LDAs/Wounds (1)	*		(Hours	: 12:30 Adequate Staffing Available: Accredited Risk			ED Obs	×
u ×	Seripheral IV (Paed) 15/06/16 L	ett Antecubital			ment Completed: Yes Informed Consent Obtained for the on Agent Including Indications and Side Effects: Yes	•			×
				Inform	Staff, Parents and Carer of the Possible Risk of Nitrous				
					n Pregnancy: N/A Pain Relief Administered: N/A Topical Anaesthetic Administered: N/A Non-Pharmacological	/			
1				Option	s Discussed with Family: Yes Current General Health:				
1-				Health	y Emergency Equipment Checked and Functional: Yes Oxide Unit Checked: Yes				
			12:55 / Pre-Sedation Check	list Sedati	on Exclusion Criteria - Deteriorating Child (Physiologica	I KD			
1					Outside MET Criteria as per VICTOR): No s Oxide - Age Less Than 2 Years of Age: N/A Severe				
100				Pulmor	ary Hypertension Associated with Limited Exercise				
1/20				Tolerar	nce: N/A Gas Filled Space: N/A Respiratory Illness or				
100			12:55 Sedation Documents		n: No (?myasthenia gravis)	KD			
			12.55 / sedation Documents	ation start		KD.	×		

Intra-Sedation Checklist Time out/ Pt Identification & Continuous monitoring Observations/ UMSS captured in <u>QuickBar & File</u> <u>Document if UMSS 2 – 5 minutely</u> & use Notes to add N20 % / commentsTalking



### **Sedation Narrator - Intra-Sedation**



Sedatio	on Documentation											?	Resize \$
Refr	esh Data Validate												
Expa	nd All 😞 Collapse All 👔	Event Lo	9 Patient Summary	y <u>O</u> rders							⇒ E	Expand All 😞 Collapse All	
here a	ire no active alerts	The time	filed for device data m	av appear out of chro	nological order. Plea	se look to the 'Device T	me' in the data to	see the correct time.				dation Events	~
MAR (		▲ Quick		ay appear out of circ	noiogical order. ried	ise look to the Defice I	ine in the data to	see are correct ante.				Sedation Documentation Start	
	It MAR Note										+	Sedation Documentation End	
	iew Blood Orders	Pulse		D						File		-Sedation	~
	od Admin	Resp									. +	Pre-Sedation Checklist	C
Trans	fuse Platelets (mL), 180 mL (1 of 1	SpO2							1		Inte	ra-Sedation	~
releas		BP		D								Intra-Sedation Checklist	C
C. 🛛	Transfuse Platelets (mL), 180 mL	Univer		0=awake/alert	1=minimal sedation	2=moderate sedation	3=deep sedation	4=unrousable				Observations	Ø
	Unit: 25 32349-13312		an Sedation (UMSS)									Primary Assessment	0
	Intravenous Last Action at 10/5 18:37: New Bag	Score		how: Deleted	Orders 🗸 Status Cha	nges Flowsheets/As	essments VMe	lication Admins VLDA V	Preview De	evice Da	ta 🕂	Fluid Balance	C
	Transfusion Documentation							y of Michigan Sedation Score			+	Neurological - Simple	0
In frank					(UMSS): awake						<b>^ +</b>	Pain Assessment	0
Infusio		12:4				Fimer - Restart Observati			ND		+	Quick Update	0
	morphine (DBL) 0.5 mg/kg = 9.3 mg in sodium chloride 0.9% 50 mL	12:4		ent		Fimer - Restart Observati			KA		Pos	st-Sedation	6
	infusion	12:4	5 S Observations			SpO2: 97 % (Device Tir by - SpO2: 97 % (Device			KA			Post-Sedation Checklist	C
-	Documentation is overdue 0-20 mcg/kg/hr : Intravenous Last Action at 11/5 11:23:	12:3	5 🖋 morphine bolus I	from infusion Given	Dose: 2 mL Roi	ute: Intravenous II IV (Pead) 06/05/16	11116. 12.43.43)		ND		+	Procedural Sedation Summary	Ø
	Rate/Dose Verify Admin Instructions	12:3	4 🖋 QuickBar				0 SpO2: 98 % BP: 1	102/62 Level of Sedation: Awa	ke ND		IVs	ways, Tubes & Drains	*
	sodium chloride 0.9% IV infusion	12:3	4 Obs Reassessme	ent	Observations 1	Fimer - Restart Observati	ons Timer: Yes		ND		Wo	ounds	*
	5 mL/hr : Intravenous Last Action at 11/5 00:32:	12:3	3 Orders Modified			mcg in sodium chloride 0. 500 mcg in sodium chlor		t (Modified during verification	MR			ocedures	*
	Rate/Dose Verify	12:1	6 Orders Discontin	nued	paracetamol 24	0 mg/5 mL suspension 2	8.4 mg		SK			od Administration	*
PRN		12:0	0 💉 tRAMadol capsul	le 19 mg Not Given	Reason: Other Comment: More	phine administered inst	ad		KA			neral Intal Health	*
	morphine bolus from infusion	12:0	0 Other Flowsheet	t Documentation	Other flowshee	et entries - Respiratory D	stress: Nil Level of	Consciousness (AVPU): Alert	BM			Obs	*
×	2 mL : Intravenous Last Action at 11/5 13:06: Given	12:0	0 🖋 QuickBar		Sedation Quick	kbar - Resp: 28 SpO2: 98	% Level of Sedatio	n: Awake and alert	BM				
	Admin Instructions	12:0	0 Obs Reassessme	ent	Observations 1	Fimer - Restart Observati	ons Timer: Yes		BM				
	naloxone injection 18.6 mcg	12:0	0 / Observations			Resp: 28 SpO2: 98 % by - SpO2: 98 % O2 Deliv	ery Device: RA		BM				
¥	1 mcg/kg : Intravenous	11:5	3 Home Medication	n Reviewed					SS				
¥	naloxone injection 37.2 mcg 2 mcg/kg : Intravenous Admin Instructions	11:4	7 💣 Pre-Sedation Ch	ecklist	(10mcg/kg/hr N Sedation Agent Acute Illness - S Cardiovascular	Norphine IV UMSS 0) Pri N/A Acute Illness - Resp Surgery: Yes (stable pos Disease: Yes (known) S	or Adverse Event an iratory: Yes (wet co op cardiac) Pregn gnificant Respirator	y Disease: N/A Significant Ren					
	naloxone injection 186 mcg 10 mcg/kg : Intravenous Admin Instructions				N/A Significant ONLY: Patient v	Risk of Delayed Gastric E with Sickle Cell Disease /	mptying or Vomiting mmunosuppression	cious State / Risk of Raised ICF or Secretion: N/A NITROUS 1: N/A Completed: Yes Fasted from					
	ondansetron 4 mg/2 mL injection 1.86 mg 0.1 mg/kg : Intravenous Last Action at 9/5 15:53: Given				(Date): 11/05/16 Assessment Co Indications and Nitrous Oxide in	5 Fasted from (Hours): 07 mpleted: Yes Informed C Side Effects: Yes Inform Pregnancy: N/A Pain Re	30 Adequate Staffi onsent Obtained for Staff, Parents and C lief Administered: Y	ng Available: Accredited Risk the Sedation Agent Including arer of the Possible Risk of es (bolus to be given and Non-Pharmacological Options					
	ondansetron disintegrating tablet 3 mg				Discussed with	Family: Yes Current Gen unctional: Yes Nitrous Ox	ral Health: Healthy	Emergency Equipment					
-	0.15 mg/kg : Oral Last Action at 9/5 15:53:	11:4	6 🖋 Sedation Docum	entation Start					BM	×			
	See Alternative	11:4	6 Orders Acknowle	edged	New - paracetar	mol 250 mg/5 mL suspen	ion 280 mg		BM		~		

Document 5 minutelyUMSS & Observations if UMSS > 1Use Notes to make commentsUMSS 2N20 @ 60% weaned to 40% or Patient vomitDon't forget to Fileyour dataMelbourne<br/>Children's

Use Intra-Sedation Buttons for additional information Right

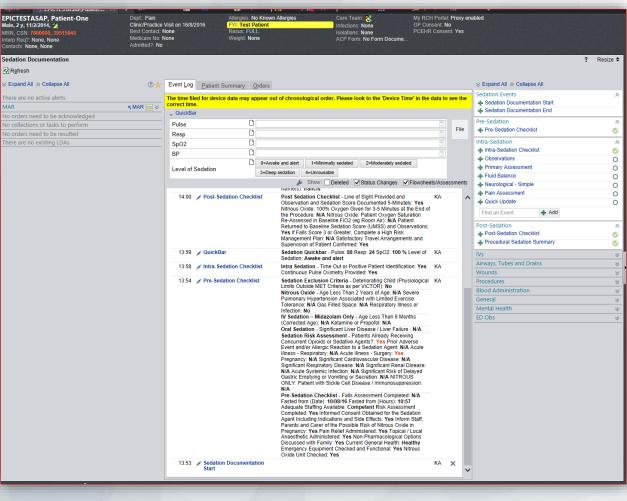




### Sedation Narrator Post-Sedation Checklists 🐋

Refresh

MAR



Post-Sedation Checklist Line of sight provided / 02 given/ Return to Baseline Is Patient Safe to Discharge/ Transfer ? Melbourne



The Royal

Hospital

Children's

Melbourne

### **Sedation Summary & Documentation END**



ASAP, Patient-One Dept: Pain 2/2014, 2 000000, 39:15048 Best Conta None, None Medicare N ne, None Admitted?:	: None Weight: None	Infections: None GP Co	H Portal: Proxy en nsent: No R Consent: Yes	abled	
ocumentation					? Resize 🗢
☆ Collapse All ⑦	The time filed for device data may appear	; out of chronological order. Please look to the "Device Time" in the	data to see the	<ul> <li>➢ Expand All ⊗ Collapse All</li> <li>Sedation Events</li> <li>In Sedation Documentation Start</li> </ul>	*
۶ MAR 🧮 ۲	Correct time.			Sedation Documentation Start	
eed to be acknowledged	Pulse			Pre-Sedation	*
ns or tasks to perform			File	+ Pre-Sedation Checklist	<b>S</b>
eed to be resulted existing LDAs				Intra-Sedation	*
existing LOAS	opoz			+ Intra-Sedation Checklist	o l
	51		111	Observations	0
	Lovel of Sedation	wake and alert 1=Minimally sedated 2=Moderately sedated		Primary Assessment	0
	3=D	eep sedation 4=Unrousable		Fluid Balance	0
		Show: Deleted  Status Changes  Flowshee	ets/Assessments	Neurological - Simple	0
	Time Event	Details	User 🔨	+ Pain Assessment	0
	14:07 Sedation Documentation E		KA X	Quick Update	0
	14:01  Procedural Sedation	Procedural Sedation Summary - Procedure: Wound	KA	Find an Event 📥 Add	
	Summary	managment Procedure Attempts: 1 Procedure Outcome: Successful Consultation for this Event: Comfort Kids Program		Post-Sedation	*
		(p7933) Sedation: Yes Analgesic: Yes Adjuncts: Yes Side		Post-Sedation Checklist	<b>S</b>
		Effects / Adverse Events: Yes Non Pharmacological Techniques Used: Yes		Procedural Sedation Summary	<b>Ø</b>
		Pharmacological Summary - Sedative Agent: Nitrous oxide;		IVs	*
		Other (Comment) (in fentanyl 1.5mcg/kg) Nitrous Oxide (%): 50 Analgesic Response to Nitrous Oxide: Excellent Deepest		Airways, Tubes and Drains	*
		Level of Sedation: 1 Anxiolytic Response to Sedation Agent:		Wounds	*
		Calm, cooperative Analgesic (Oral): Paracetamol Analgesic Response: Excellent		Procedures	
		Side Effects/Adverse Events - Gastrointestinal Side Effects:		Blood Administration	`
		Nausea Non Pharmacological Techniques Used? - Preparation: Carer		General	*
		or parental present; Educational Play Therapist present		Mental Health	*
		Coping Techniques Used: Positioning for comfort Positioning for Comfort; Hugging Procedural Support Teams Involved;		ED Obs	*
		Educational Play Therapy Procedural Support Team Member			
	14:00 Post-Sedation Checklist	Name(s): francis Post Sedation Checklist - Line of Sight Provided and	КА		
		Observation and Sedation Score Documented 5-Minutey, Yes Nitrious Covide 1096 oxygon Given for 3-5 Minutes at the End of the Procedure NA Nitrous Oxide Patient Oxygen Saturation Re-Assessed in Baseline Flo2 (ge Room Air): Nik Patient Returned to Baseline Flo2 (ge Room Air): Nik Patient Returned to Baseline Flo2 (ge Room Air): Nik Patient Score 3 or Greater, Complete a High Risk Management Plan: NIA Satisfactory Travel Arrangements and Supervision of Patient Confirmed Yes	f		
	13:59 💉 QuickBar	Sedation Quickbar - Pulse: 88 Resp; 24 SpO2: 100 % Level of Sedation: Awake and alert	KA		
	13:58 💉 Intra-Sedation Checklist	Intra Sedation - Time Out or Positive Patient Identification: Yes Continuous Pulse Oximetry Provided: Yes	KA		
	13:54 🕜 Pre-Sedation Checklist	Sedation Exclusion Criteria - Deteriorating Child (Physiological Limits Outside MET Criteria as per VICTOR). No Nitrous Oxide - Age Less Than 2 Years of Age. No Putmonary Hyperfension Associated with Limited Exercise Tolerance: NA Gas Filled Space. NA Respiratory limes or I'V Sedation - Midrazolam Only - Age Less Than 6 Months (Corrected Age): NA Kelamine or Propotol: NA Oral Sedation - Significant Liver Flaire: NA	KA		

Procedural Sedation Summary - was this a Successful event or Not - AE's Procedure attempts/ Sedation agent/ Analgesia (includes LA) / Adjuncts (sucrose/ lip smacker) Non Pharmacological Procedural Support (EPT CF CKP & Coping Strategy used) FILE End Bookend the event & SN completeresearch and Children's







## **IP Summary -Sedation Timeline**

- C 🖁 👪 🛛 🖻 🖻	Summary 📓 Index 📱 VICTOR Graph 📳 1	leeds Cosign 📱 Longitudinal Plan Of Care 📱 Sedation Timeline	Report: Sedation Timeline
Time Range: 🔌	Select Time Range		
Sedation Timeline			
	: Today 15:06 to 16:03		
Time	Event		User
16:03:14	Sedation Documentation End	Intranasal Fentanyl not required Burns dressing+bath successful with EPT support IPAD oxycodone 3.6mg and clonidine 20mcg + top up 15mcg ( delay start due to not fasted for procedural sedation)	Kate Austin, Registered Nu
16:03:13	Sedation Quickbar	Sedation Quickbar - Level of Sedation: (sitting out of bed watching TV)	Kate Austin, Registered N
16:02:54	Sedation Quickbar	Sedation Quickbar - Level of Sedation: Awake and alert	Kate Austin, Registered N
15:57:16	Summary of Procedural Sedation	Procedural Sedation Summary - Procedure: Wound managment : Procedure Attempts: 1; Procedure Outcome: Successful : Consultation for this Event Comfort Kids Program [0733]; CPMS [p5773] : Comfort Kids Program Advice: in fehranyl available use procedural sedation order set : CPMS Advice: Conditine dose range increase ; Analgesic: Yes ; Adjuncts: No ; Side Effects / Adverse Events: No ; Non Pharmacological Summary - Deepest Level of Sedation: 1; Anxiolytic Response to Sedation Agent: Calm, cooperative ; Analgesic (Oral) Oxycodome; Clonidine Used': Yes On Pharmacological Techniques Used' : Program 3.6 ; Clonidine Oral (mcg) 35 ; Analgesic Response : Excellent Non Pharmacological Techniques Used' : Program Condition: Educational Play Therapity Present ; Conjing Techniques Used: Distraction / alternative focus; Positive self-tatik; Non-medical talk ; Distraction Techniques Used: Utilised an IPad; Singing ; Procedural Support Teams Involved: Educational Play Therapy ; Procedural Support Team Member Mane(s) (Divis larkins	; ;
15:56:44	Post-Sedation Checklist	Post Sedation Checklist - Line of Sight Provided and Observation and Sedation Score Documented 5-Minutely. Yes ; Nitrious Oxide: 100% Oxygen Given for 3-5 Minutes at the End of the Procedure: N/A; ; Nitrous Oxide: Patient Oxygen Saturation Re-Assessed in Baseline FIO2 (eg Room Air); N/A; ; Patient Returned to Baseline Sedation Score (UMSS) and Observations: Yes ; If Falls Score 3 or Greater, Complete High Risk Management Plan: N/A	
15:38:20	Other Flowsheet Documentation	Other flowsheet entries - Height: (55cm seated - hip to top of head); Weight: 19.3 kg; Weight Method: Bare	Kathy Bicknell, Registere
15:38:20	Sedation Quickbar	Sedation Quickbar - Level of Sedation: (watching ipad)	Kate Austin, Registered N
15:37:16	Other Flowsheet Documentation	Other flowsheet entries - Restart Observations Timer: Yes	Kate Austin, Registered N
15:37:16	Sedation Quickbar	Sedation Quickbar - Pulse: 86 ; Resp: 22 ; SpO2: 100 % ; Level of Sedation: Minimally sedated	Kate Austin, Registered I
15:36:20	Sedation Quickbar	Sedation Quickbar - Level of Sedation: Awake and alert	Alison Kendrick, Register
15:17:15	Other Flowsheet Documentation	Other flowsheet entries - Restart Observations Timer: Yes	Kate Austin, Registered I
15:17:15	Sedation Quickbar	Sedation Quickbar - Pulse: 90 ; Resp: 24 ; SpO2: 99 % ; Level of Sedation: Awake and alert	Kate Austin, Registered 1
15:10:37	Intra-Sedation Checklist	Intra Sedation - Time Out or Positive Patient Identification: Yes ; Continuous Pulse Oximetry Provided: Yes	Lisa Brennan, Registered
15.06:19	Pre Sedation Checklists	Sedaton Exclusion Criteria - Deteriorating Child (Physiological Limits Outside MET Criteria as per ViCTOR): No Nitrous Oxide - Age Less Than 2 Yarsi of Age: NA, 5 Severe Plumonary Hypertension Associated with Limited Exercise Tolerance: NIA; 4 Filled Space: NA, Respiratory Illness or Infection: No Vi Sedation - Rik Adaczalam Ohy - Age Less Than 6 Months (Corrected Age): NA; Ketamine or Propofol: NA Oral Sedation: Rik Adaczalam Ohy - Age Less Than 6 Months (Corrected Age): NA; Ketamine or Propofol: NA Oral Sedation: Rik Adaczalam Ohy - Age Less Than 6 Months (Corrected Age): NA; Ketamine or Propofol: NA Oral Sedation: Rik Adaczalam Ohy - Age Less Than 6 Months (Corrected Age): NA; Ketamine or Propofol: NA Prophony: NA, Significant Criteria Atteady Recording Concurrent Opiolds or Sedative Agents?: 1 Yas (oxycode and clonidine UMSS Sedation: Rik Adacsalam Ohy - Adactive Sedative Agents?: 1 Yas (oxycode and clonidine UMSS Systemic Infection: NA, Abnomal Conscious Statu C Rikk of Falaett (ICP: NA); Significant Risk of Delsease, NA, Significant Risk of Delsease AM, Statu Systemic Infection: NA, Abnomal Conscious Statu C Rikk of Falaett (ICP: NA); Significant Risk of Delsead Sattic Emplying or Vomitting Secretion: NA, NITROUS ONLY: Patient with Sickle Cell Disease I/M, Falaett Ves, Frasted from (Date): 500716; Fasted from (Hours): 13:15; Adequate Stattling Available: Competent ; Risk Assessment Completed Yes; Fasted Kon (Micoa): 500716; Fasted from (Hours): 13:15; Administered Yes; Topical / Local Anaesthetic Administered: NA; Non-Pharmacological Options Discussed with Parine right Resting Advantation Presessed and Checked IN A	0) ; or
15:06:11	Sedation Documentation Start		Lisa Brennan, Registered

### Go to IP Summary Left panel

Sedation Timeline review previous Sedation eventsure Add to IP Summary toolbar using Right top right in



esearch and

# Administration



- Draw up appropriate dose for weight (CPG)
- plus 0.1ml extra to the first dose (dead space)
- Attach Mucosal Atomiser Device (MAD300) on to the end of the syringe
- Sit the child at approximately 45 degrees or with head to one side
- Directed MAD at 45 degrees to spray the turbinates
- Do not direct MAD horizontally along the nasal floor
- Avoid dose running into pharynx & swallowed (reduce bioavailability & efficacy)
- Insert the device loosely into the nostril
- Press the plunger quickly
- Doses are to be divided between nostrils (1/3 to ½ ml per nostril is ideal)
- If NGT. Can push up to 1 ml per nostril though some will run off (titrate)
- Do NOT draw up 0.1ml extra for second dose when re-using the delivery device (MAD)





### Administration

#### Intranasal Fentanyl

#### Delivery via Mucosal Atomiser Device (MAD300) per the Intranasal Fentanyl CPG

Draw up appropriate dose for weight (see above table) plus 0.1ml extra to the first dose (to account for the dead space in the device)

Attach Mucosal Atomiser Device (MAD300) on to the end of the syringe

Sit the child at approximately 45 degrees or with head to one side

The MAD is directed at 45 degrees to spray the turbinates, rather than along the nasal floor

If directed horizontally the dose runs into pharynx & is swallowed (reducing bioavailability and efficacy) Insert the device loosely into the nostril and press the plunger quickly

Dose are to be divided between nostrils

Note: Do NOT draw up 0.1ml extra for second dose when re-using the delivery device (MAD)



#### Intranasal Fentanyl CPG Intranasal Midazolam fact sheet

#### Adverse effects

Respiratory depression Hypotension Nausea and vomiting- increase risk of vomiting when combined with N<sub>2</sub>O Chest wall rigidity ( only reported with large IV doses) Pruritus Monitoring

HR, RR, SpO<sub>2</sub>, UMMS monitored continuously

#### Reversal agent Naloxone

Naloxone bolus 0.1mg/kg IM or IV, maximum 2mg





### Mucosal Administration Device





### LMA MAD Nasal": Features



#### Using the LMA<sup>®</sup> MAD Nasal<sup>™</sup> Intranasal Mucosal Atomization Device



# PROCEDURE



STEP 1: Remove and STEP 2: Pierce the discard the green medication vial vial adapter cap. with the syringe vial adapter.

of the MAD Nasal" Device snugly

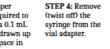
and outward (toward the top of the ear).

For use with drugs approved for intranasal delivery.

TO ORDER, CALL 1.866.246.6990 OR VISIT OUR WEBSITE WWW.LMANA.COM

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STEP 3: Aspirate the proper volume of medication required to treat the patient (an extra 0.1 mL of medication should be drawn up to account for the dead space in the device).





STEP 7: Briskly compress the syringe STEP 6: Using the free hand to hold the occiput of the head stable, place the tip plunger to deliver half of the medication into the nostril. against the nostril aiming slightly up

STEP 8: Move the device over to the opposite nostril and, repeating steps 6 and 7, administer the remaining medication into the nostril if indicated





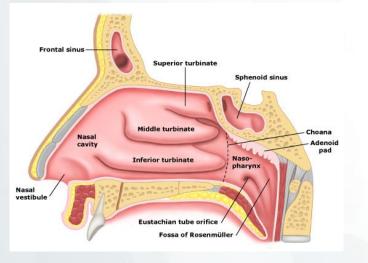


Yeleflex

LMA MAD Nasa



# A&P of the nose





- Nasal mucosal surface area (150-180cm<sup>2</sup>)
- High blood flow
- pH 5.5-6.5 maintains glycoproteins to which drugs attach
- Nasal drug absorption depends on
- Direct connection to CNS via the olfactory route





# IN fentanyl – child



#### Intranasal fentanyl delivery procedure

#### Intranasal fentanyl delivery Materials:

#### 1. 1 ml or 3 ml syringe

- 2. Needle to draw up the fentanyl
- Atomizer
   Vial of fentanyl
- 4. Viai of fentanyi

#### Procedure:

- Aspirate the proper volume/dose of fentanyl per the weight based dosing protocol of the study
- 2. Twist off/remove the syringe from the needle/needleless device
- Attach the atomizer tip via Luer lock mechanism – it twists into place.
- 4. Using your free hand to hold the crown of the head stable, place the tip of the atomizer snugly against the nostril aiming slightly up and outward (towards the top of the ipsilateral ear).
- Briskly compress the syringe plunger to deliver approximately <u>half</u> of the medication into the nostril.
- Move the device over to the opposite nostril and briskly administer the remaining half of the medication into that nostril.
- Consider using a pulse oximeter for 45-60 minutes following medication delivery due to the rare but possible risk of respiratory depression from an opiate.











# **Adverse Effects**

- Respiratory depression
- Hypotension
- Nausea and vomiting- increase risk of vomiting when combined with N20
- Chest wall rigidity (only reported with large IV doses)
- Pruritus



# **Monitoring & Reversal**



- HR, RR, SpO2, UMMS monitored continuously
- Naloxone bolus 0.1mg/kg IM or IV, maximum 2mg
- <u>Naloxone</u> is effective, <u>intranasal</u> if you need a reversal agent
- Remember extra volume into the syringe to account for the dead space that will remain.
- Don't use same MAD due "dead space"





# Considerations

- NGT
- Bleeding
- Opioid effect IN fentanyl
  - Patient require additional analgesia, consider timing the procedure with the patient's baseline analgesia
  - N20





# **IN fentanyl N20**

- The maximum percentage of N20 which can be delivered is 70%, with a minimum O2 30%
- Additional opioid or sedation agents may have synergistic effect producing excess sedation
- Assess before commencing N20
  - If UMSS  $\leq$  1 N20 must be titrated to maintain UMSS  $\leq$  2
  - If UMSS is  $\geq$  2 do not administer N20 seek consultation



### Recap

### • Assessment

- UMSS
- Sedation narrator
- Procedure
- Pain
- Dual agents
- Consultation
- Dosing
  - CPG / Procedure
- Technique





### The Royal Children's Hospital Melbourne

### **RCH R&R**

- Procedural Sedation- ward & ambulatory areas at RCH
- Intranasal Fentanyl CPG
- Intranasal Midazolam fact sheet
- <u>Prommer, , 2011</u>
- <u>Buck, 2013</u>

