
Measuring Pain Management

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The Problem

There are long standing and well-recognised concerns regarding Acute Pain Management

- *Acute Pain Management: the Scientific Evidence (2005)*
- Inadequate provision of analgesia
- Inconsistent strategies throughout hospitals for the assessment and recording of acute pain
- Side-effects and complications relating to acute pain management strategies

Dolin et al 2002 – Effectiveness of postoperative pain management – BJA

Published data from 1973 – 1999 → 20,000 patients

- Moderate to Severe Pain 29.7% (26.4 – 33)
- Severe Pain 10.9% (8.4 – 13.4)

Possibly improving over time

Yates et al 1998 – Medical & Surgical Inpatients in Australian Hospitals – J Clin Nurs

Reviewed by NICS for the Pain Management Program

25 – 40% Inpatients experience significant pain

The Problem

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- *Acute Pain Management: the Scientific Evidence (2005)*

- Inadequate provision of analgesia
- Inconsistent strategies throughout hospitals for the assessment and recording of acute pain
- Side-effects and complications relating to acute pain management strategies

⇒ Inadequate information regarding the quality of care

The aim of this project

- To develop tools to measure quality of provision of clinical care in acute pain management
-

Quality of Pain Management

- Effectiveness of pain relief
 - Minimization of side-effects
 - Minimization of complications
-

■ **Steering Committee**

- Project Director & Project Officer
 - A/Prof David Scott, Ms. Wendy McDonald
- Director Medical Education Unit & Simulator Centre
 - Ms. Debbie Paltridge
- Quality Manager
 - Ms. Sarah Fallshaw / Dr. Mary-Jane White
- Services Development Officer / Executive representative
 - Ms. Sally Cunningham
- Consumer Representative
 - Mrs. Jenny Werner

■ **Expert Advisory Committee**

- Director Barbara Walker Pain Management Centre
- Nominated representative of Faculty Of Pain Medicine, ANZCA
 - Dr. Andrew Muir
- Manager Acute Pain Services, Austin Medical Centre
 - Dr. Jane Trinca
- Pain Nurse Consultant, Barwon Health, Geelong
 - Ms. Pam Reeves

■ **Victorian Quality Council**

- Dr. Tony Weaver; Prof. Anne-Marie Kelly; Dr. Les Reti; Mr. Eddie Gibbons

Project Outline

- **Review current information** and resources regarding measurement needs and strategies - literature review and wide consultation
 - **Establish what systems** are currently in place
 - **Identify the factors** (needs) that patients and clinical staff consider are required in order to provide what they would consider to be high quality care
 - **Develop a system** that fulfils the objectives
 - **Trial components / tools in clinical practice**
 - Incorporate these components into **resource toolkit**
-

Development of the Toolkit

Key Measurements, Observations and Indicator events determined
- based on Literature / Interviews / Other resources

- Pain Measurement

- Patient Education
- Nursing Education
- Bedside Resources
- Clinical Records

- Pain Outcomes

- Analgesia
 - Function
 - Non-critical Adverse Events
 - Critical Adverse Events
 - Indicator Events
-

Published Literature

- There's a lot out there!
 - 5th Vital Sign™
 - American Pain Society (1995)
 - Missoula Project
 - Toolkit and Objectives (1996-1999)
 - Australian & New Zealand College of Anaesthetists and Faculty of Pain Medicine
 - Acute Pain Management Scientific Evidence (1999/2005)
 - Veteran's Affairs
 - 5th Vital Sign / Pain Outcomes Toolkit (2003)
 - JCAHO
 - Pain Management Measurement and Action (2003)
 - National Institute of Clinical Studies
 - Pain Management Program 2002+
 - VQC
 - Review of Acute Pain Management in Victoria 2003



Australian and New Zealand College of Anaesthetists

Guidelines on Acute Pain Management [PS41(2000)]

■ 1. Introduction

- Effective treatment of acute pain is a fundamental component of quality patient care

■ 2. Principles of Acute Pain Management

- Adverse physiological and psychological effects may result from unrelieved severe acute pain
- Effective treatment of postoperative pain may reduce the incidence of postoperative morbidity
- Treatment of postoperative pain may reduce the incidence of chronic pain.

■ 8. Quality Assurance

- Regular audits of ... effectiveness ... and incidence of side effects and adverse effects.
 - It is recommended that a record is made of demographics, techniques used, pain, adverse effects and complications.
-

Objectives

- To Measure the Quality of Pain Management
 - Patient Level Care
 - System Level Reporting

 - Patient Level Care
 - Information / Education of Patients
 - Training and Education of Clinical Staff
 - Bedside Tools
 - Pain Assessment
 - Other Vital Signs / Outcomes
 - Intervention Guides
 - Reporting Documentation

 - System Documentation
 - Unit Management
 - Hospital Audit
 - Quality Review
-

Pain Intensity Scoring Systems

- Self Rated

- Pain is subjective
- Self-reporting gives the best (only) insight into the patient's perception of their pain
- Observers tend to underestimate pain

But

- Pain self-reporting is *variable*
 - Cultural, language, psychological
 - Expectations
 - Terminology and methodology
-

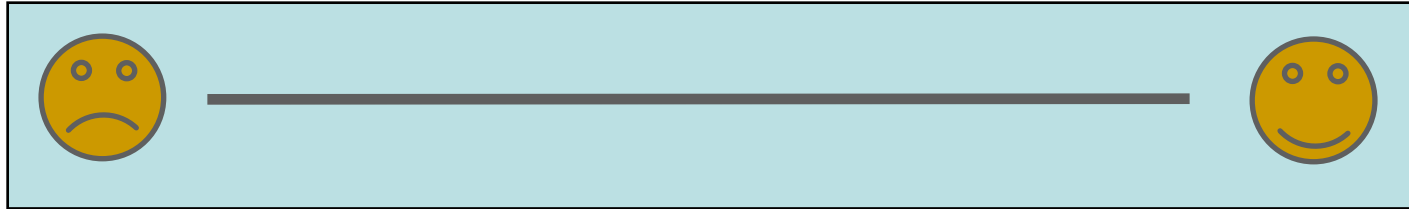
Pain Measurement Philosophy - *con*

- *“Measuring pain is a waste of time - just ask the patient if they need something”*
 - *“Pain is too subjective to measure - 65 on a VAS for one person is not the same for another”*
 - *“Scales converted to numbers are meaningless because 5 out of 10 is not twice the pain of 2.5 out of 10”*
 - *“Pain is too complex”*
-

Pain Measurement Philosophy - *pro*

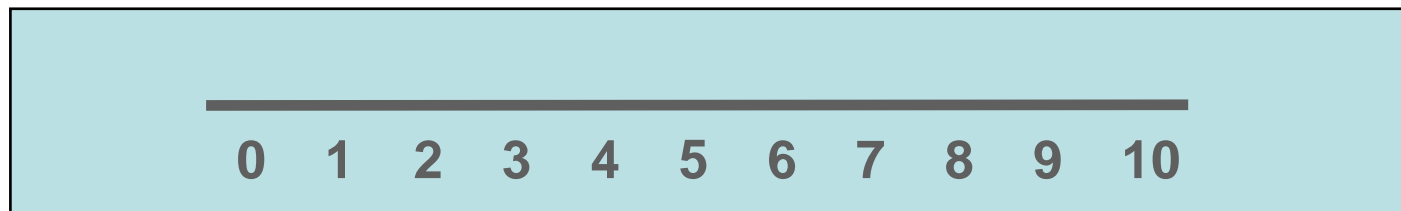
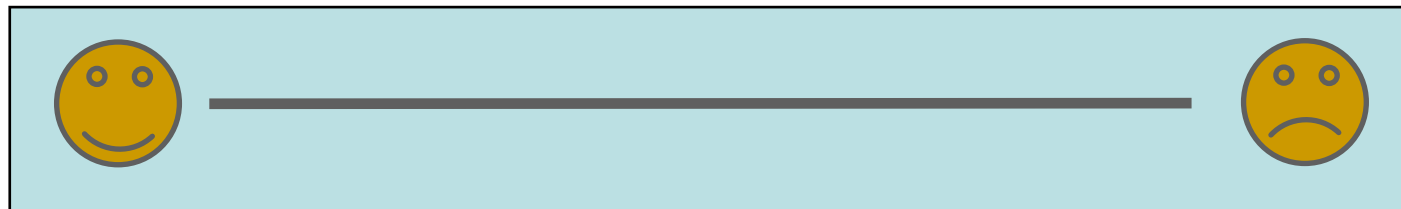
- Measurement assists clinical decision making
 - It allows consistent documentation over time
 - If you are *measuring* then you are at least *assessing* the patient
 - Measurement and documentation allows for continuity of patient care
 - Recall of pain is unreliable
 - Some form of measurement is needed for comparative research, audit or review
-

Visual Analog Scales

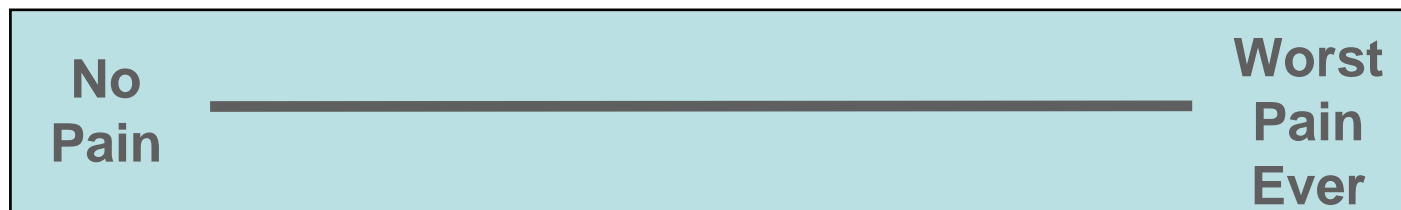


- Validated in psychology and chronic pain
- Acute pain
 - Extensive published data
 - Reliable and scalable
- Design and use important

VAS Design (cont)



- Best if pre-operative explanation
- Simple design with no 'cues'



VAS Labels

- Appropriate to age, culture, ability of patient
- What phrase best describes the *extreme limit* of pain intensity ?

❑ Worst pain I have ever experienced	16 %
❑ The worst pain I have ever felt	5 %
❑ Pain as bad as it could be	7 %
❑ The worst pain I could imagine	14%
❑ Severe pain	16%
❑ Agonising pain	38%

Verbal Rating Scales

■ Categorical Scales

□ Ranked Descriptors

- “None” – “Mild” – “Moderate” – “Severe”
- “None” – “Little” – “Lots”

- Terms Subjective
- Hard to reliably document

■ Numeric Scales

□ Ranked

- 0 to 10 (NRS-11)
- 0 to 5; 1 to 5; 0 – 20 etc.

- Need explaining

□ Advantages

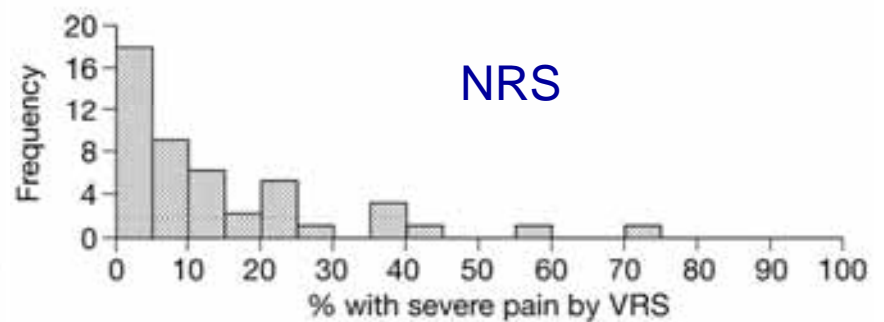
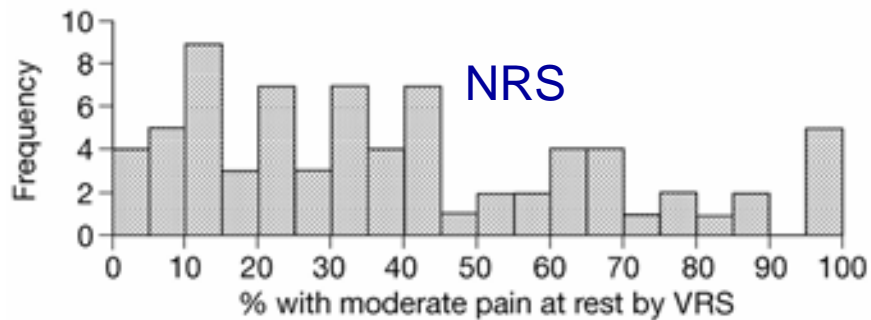
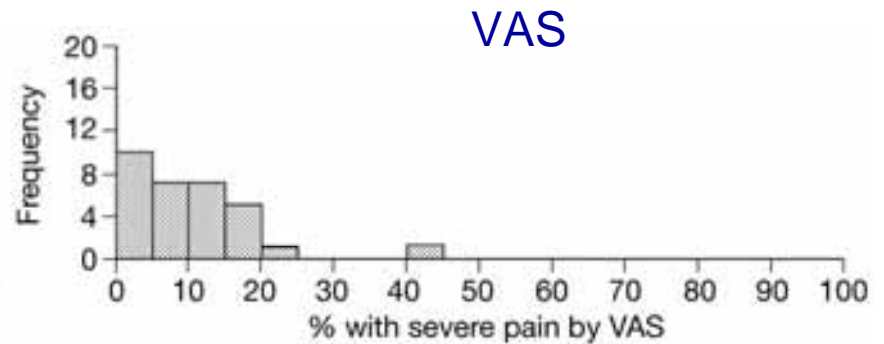
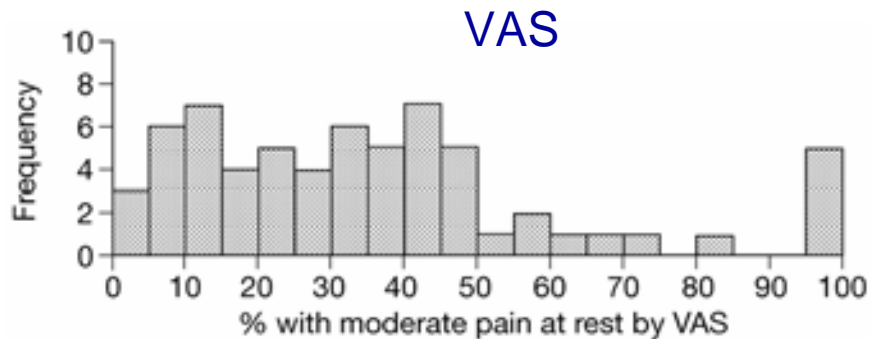
- Conceptually straightforward
- Can be mapped onto Descriptor Scales

□ Disadvantages

- Language Dependent
- Require converting a ‘sensation’ to a ‘number’



Verbal Scales and VAS



- Data from published reports 1973 – 1999
 - Approx 20,000 patients

Dolin et al BJA 2002;89:409-23

Pain Rating Scale Comparisons

Breivik E et al. *Clin J Pain* 2000; 16:22-228

- To assess agreement and sensitivity between
 - VRS – 4
 - 0 – No Pain; 1 – Mild; 2 – Moderate; 3 – Severe
 - NRS – 11
 - VAS
 - No Pain - - Pain Cannot Be Worse

 - Pooled data from two Oral Surgery studies
 - VRS-4 vs VAS (n=35)
 - NRS-11 vs VAS (n=28)

 - Results
 - Most Intra-individual variability
 - VRS-4 & NRS-11
 - Sensitivity of NRS-11 and VAS similar
 - VAS Most Powerful (simulation experiments)
-

Non-Verbal / Non-Numeric Scales

■ Faces Pain Scale

- Wong & Baker
- Well Validated
- Reliable markers of pain (*Frank et al., 1982*)
 - Children
 - Mentally handicapped
 - Adults including those with poor language skills (*Wong et al., 2001*)



□ Variations

- Number of Faces
- Image (cartoon / photo) e.g. 'Oucher Scale' (*Beyer et al., 1992*)
- 'Anchor' facial expressions (*Chambers et al., 1998*)

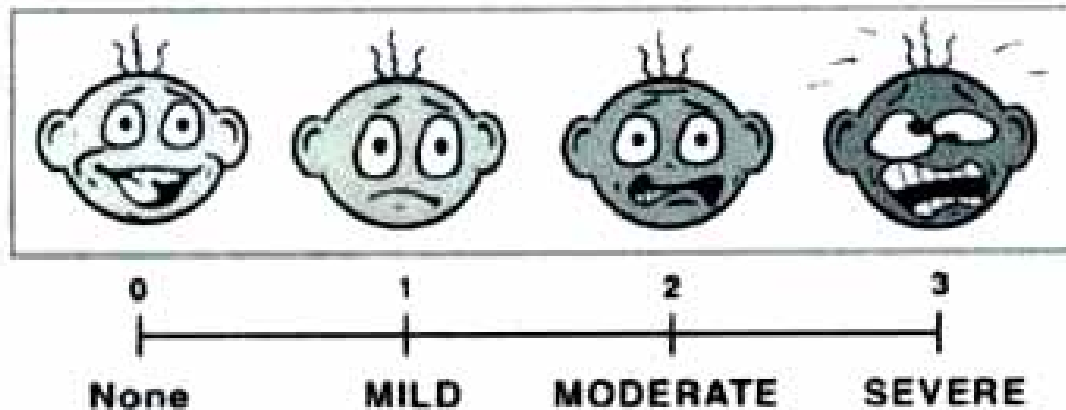


Verbal Graphic Scale

Verbal graphic scale for pain evaluation

PAIN

*Are you in pain at the moment?
Where on the line is your pain?*



- Milne pain Assessment Tool

- Blenkharn, A. et al. (2002). Intensive Crit Care Nurs 18(6): 332-41

Keeping the 'Numbers'

Wong Baker Face Scale (W)



Behavioural Scales

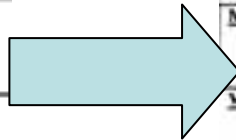
- Patients who cannot communicate their pain
 - Cognitively Impaired
 - Faces Pain Scale
 - Post-Anaesthesia
 - Acute Confusional States
 - Intensive Care
 - Emergency Departments
 - Intensive Care
 - Puntillo, K. (2003). "Pain assessment and management in the critically ill: wizardry or science?" *Am J Crit Care* 12(4): 310-6
 - Puntillo, K. et al. (2002). "Use of a pain assessment and intervention notation (P.A.I.N.) tool in critical care nursing practice: nurses' evaluations." *Heart Lung* 31(4): 303-14
 - Odhner, M. et al. (2003). "Assessing pain control in nonverbal critically ill adults." *Dimens Crit Care Nurs* 22(6): 260-7
 - Emergency Department
 - Australasian Triage Scale (ACEM - Le Vasseur, S. (2000-2001))
 - Observer-rated (physiologic) and Self-reported scoring
 - Pain rating may influence Triage Category
-

Behavioural Scales

- Patients who cannot communicate their pain
 - Cognitively Impaired
 - Post-anaesthesia
 - Acute Confusional States
 - Intensive Care & Emergency Departments
- FLACC Validated for Paediatrics

FLACC Scale (F)
(Face, Legs, Activity, Cry, Consolability)

	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly Normal position Moves easily	Squirming Shifting back/forth Tense	Arched Rigid or Jerking
Cry	No cry (Awake or Asleep)	Moans or whimpers Occasional complaint	Crying steadily Screams or sobs Frequent complaints
Consolability	Content Relaxed	Reassured by occasional touching, hugging or talking to. Distractable	Difficult to console or comfort



Behavioral pain assessment scale
(For Patients Unable to Provide a Self Report of Pain: Scored 0-10 Clinical Observation)

	0	1	2	
Face	Face muscles relaxed	Facial muscle tension, frown, grimace	Frequent to constant frown, clenched jaw	Face Score:
Restlessness	Quiet, relaxed appearance, normal movement	Occasional restless movement, shifting position	Frequent restless movement may include extremities or head	Restlessness Score:
Muscle Tone*	Normal muscle tone, relaxed	Increased tone, flexion of fingers and toes	Rigid tone	Muscle Tone Score:
Vocalization**	No abnormal sounds	Occasional moans, cries, whimpers or grunts	Frequent or continuous moans, cries, whimpers or grunts	Vocalization Score:
Consolability	Content, relaxed	Reassured by touch or talk. Distractable	Difficult to comfort by touch or talk	Consolability Score:
Behavioral Pain Assessment Scale Total (0 to 10)				/10

*Assess muscle tone in patients with spinal cord lesion or injury at a level above the lesion or injury. Assess patients with hemiplegia on the unaffected side. **This item cannot be measured in patients with artificial airways.

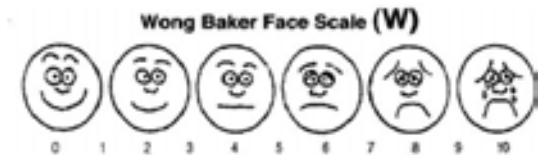
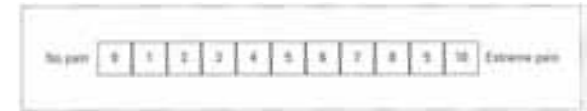
Behavioural Pain Assessment Scale

- Applicable to Adults
- Scaled 0 – 10
- Not formally validated although published data

Behavioral pain assessment scale				
<i>(For Patients Unable to Provide a Self Report of Pain: Scored 0-10 Clinical Observation)</i>				
Face	0 Face muscles relaxed	1 Facial muscle tension, frown, grimace	2 Frequent to constant frown, clenched jaw	Face Score:
Restlessness	0 Quiet, relaxed appearance, normal movement	1 Occasional restless movement, shifting position	2 Frequent restless movement may include extremities or head	Restlessness Score:
Muscle Tone*	0 Normal muscle tone, relaxed	1 Increased tone, flexion of fingers and toes	2 Rigid tone	Muscle Tone Score:
Vocalization**	0 No abnormal sounds	1 Occasional moans, cries, whimpers or grunts	2 Frequent or continuous moans, cries, whimpers or grunts	Vocalization Score:
Consolability	0 Content, relaxed	1 Reassured by touch or talk. Distractible	2 Difficult to comfort by touch or talk	Consolability Score:
Behavioral Pain Assessment Scale Total (0 to 10)				/10

Subjective Tools for Measuring Pain

- Visual Analogue Scale Ruler
- Verbal Numeric Rating Scale
- Faces Pain Scale
- Behavioural Rating Scale



FLACC Scale (F)
(Face, Legs, Activity, Cry, Consolability)

Face	0 No particular expression or smile	1 Occasional grimace or frown, withdrawn, disinterested	2 Frequent to constant frown, clenched jaw, quivering chin
Legs	0 Normal position or relaxed	1 Uneasy, restless, tense	2 Kicking or legs drawn up
Activity	0 Lying quietly Normal position Moves easily	1 Squirming Shifting back/forth Tense	2 Arched Rigid or Jerking
Cry	0 No cry (Awake or Asleep)	1 Moans or whimpers Occasional complaint	2 Crying steadily Screams or sobs Frequent complaints
Consolability	0 Content Relaxed	1 Reassured by occasional touching, hugging or talking to. Distractible	2 Difficult to console or comfort

Australian and New Zealand College of Anaesthetists **Guidelines on Acute Pain Management** [PS41(2000)]

4. Assessment of Analgesic Efficacy and Adverse Effects

- Regular assessments of analgesia and adverse effects
 - Assessment using self-reporting techniques
 - Pain should be assessed both at rest and **during activity**
 - Pain relief should be assessed with respect to **adequate function** including physical therapy requirements and mobilisation
-

Beyond Pain Intensity...

- The ability of patients to function (perform rehabilitation, physiotherapy or just move about) is widely recognised as a key outcome of effective acute pain therapy.
- Without effective pain relief enabling *function*, recovery will not be facilitated.
- In it's most basic form this involves assessment of patient pain scores when moving or coughing, however there may be *inconsistency in patient ratings* and *rehabilitation targets* differ from patient to patient.

“The benefits of effective pain relief will not be realised unless [postoperative] care plans are optimised to take advantage”

Henrik Kehlet

- Thus a three-level ‘Functional Activity Score’ (FAS) was developed...
-

Pain Assessment

- Pain Intensity
 - Subjective Scoring Systems
 - Functional Impact of Pain
 - Pain on Movement
 - Functional Activity Score
 - Monitoring For Side Effects and Complications...
-

Adverse Events Associated With Acute Pain Management

- Minor Morbidity
 - Nausea and Vomiting
 - Pruritus
 - Urinary Retention
 - Potentially Major Morbidity
 - Leg Weakness/Motor Blockade
 - Hypotension
 - Sedation
 - Critical Adverse Outcomes
 - Respiratory Depression
 - Loss of consciousness requiring high dependency or intensive care
 - Epidural Abscess
 - Epidural Haematoma
 - Permanent Neurological Injury
 - Death
-

Anaesthesia Indicators – Acute Pain

CLINICAL INDICATORS - A USERS' MANUAL

VERSION 4 FOR USE IN 2005

Australian and New Zealand
College of Anaesthetists
"Ulimaroa"
630 St Kilda Road
MELBOURNE VIC 3004
Phone: (03) 9510 6299
Fax: (03) 9510 6786



ACHS Performance and
Outcomes Service
5 Macarthur Street
ULTIMO NSW 2007

Phone: (02) 9281 9955
Fax: (02) 9211 9633

- Analgesic Efficacy
- Defined Clinical Events
- Major Adverse Events

ACHS Acute Pain Indicators



- **5.4 Respiratory Depression (requiring naloxone administration)**
- **5.5 Hypotension**
- **5.6 Nausea and vomiting (receiving prescribed antiemetic treatment)**
- **5.9 Persistent neurological dysfunction attributed to regional anaesthesia**
- **5.10 Occurrence of an epidural haematoma/abscess following neuraxial blockade**
- **5.11 Death resulting from analgesic technique**

Australian and New Zealand College of Anaesthetists Guidelines on Acute Pain Management [PS41(2000)]

4. Assessment of Analgesic Efficacy and Adverse Effects

- Regular assessments of analgesia and adverse effects
 - Assessment using self-reporting techniques
 - Pain should be assessed both at rest and during activity.
 - Pain relief should be assessed with respect to adequate function including physical therapy requirements and mobilisation
 - Side effects of opioid analgesic drugs should be documented and appropriate treatment given
 - A decrease in **respiratory rate** has been found to be an unreliable indicator of the presence or absence of respiratory depression. **Sedation** is a better indicator and sedation scores should be recorded in all patients receiving opioids for acute pain management.
-

Nausea & Vomiting

Bedside Care
Periodic Audit

Published Incidence & Definitions

- High impact on patient comfort
- Frequency increases with opioid use
- Nausea & Vomiting
 - 2.8% (37/1062) Epid Fent (Burstal et al., 1998)
 - 3.1% (31/1014) Epid Fent (Scott et al., 1995)
 - 3.7% (27/719) PCEA (Wigfull et al., 2001)
 - 14.8% (105/1030) PCEA (Liu et al., 1998)
 - 22% (929/4227) Epid Morph (de Leon-Casasola et al, 1994)
 - 27% (2111/5705) IT opioid (Gwirtz et al., 1999)
 - 13.7 – 22.1% (of 5837) mostly PCA (Miaskowski et al., 1999)
- Definitions
 - ❑ 0 - No nausea
 - ❑ 1 – Mild nausea, not requesting treatment
 - ❑ 2 – Moderate to severe nausea, requesting treatment
 - ❑ 3 – Vomiting

Sedation & Respiratory Depression

Bedside Care
Routine Audit
Indicator

Published Incidence

- High impact on patient safety
 - Associated with opioid use

- Not Requiring Nalxone

0.1% (1/719)	PCEA	(Wigfull et al., 2001)
13.2% (136/1030)	PCEA	(Liu et al., 1998)
0.8% (10/1062)	Epid Fent	(Burstal et al., 1998)
3% (131/4227)	Epid Morph	(de Leon-Casasola et al., 1994)
7% (75/1014)	Epid Fent	(Scott et al., 1995)
14.5-26.2% (of 5837)	mostly PCA	(Miaskowski et al., 1999)

- Requiring Nalxone

0.2% (2/719)	PCEA	(Wigfull et al., 2001)
0.2% (2/1030)	PCEA	(Liu et al., 1998)
0.3% (4/1062)	Epid Fent	(Burstal et al., 1998)
0.07% (3/4227)	Epid Morph	(de Leon-Casasola et al., 1994)
1.2% (12/1014)	Epid Fent	(Scott et al., 1995)
3% (210/5705)	IT opioid	(Gwartz et al., 1999)

Sedation & Respiratory Depression

Outcomes with Hospital-wide Standards

- Lee Moffit Cancer Center
 - Implemented JCAHO 5th Vital Sign Pain strategy
- Patient Satisfaction Increased
- Adverse Event Reports Increased
 - 16 opioid-related over-sedation events
 - From 65,388 inpatient days (11,596 admissions)
 - 11 received naloxone (0.1%) – 0.35% of PCA users
 - 7 ICU admissions – 3 ventilated
 - 1 death
 - Warning signs
 - Increased sedation level over 12 h - 93%
 - Decreased respiratory rate prior – 10%

“These findings highlight an inherent patient safety concern when titrating opioid analgesia to a one-dimensional pain rating scale”

Sedation & Respiratory Depression

Monitoring Standards and Scales

- New Sedation Scale - Lee Moffit Cancer Center - Vila (2005)
 - A. Awake and Alert
 - B. Asleep but easily aroused by voice only
 - C. Consciousness Impaired with arousal only by stimulation
 - C. Confused
 - D. Disoriented
 - Emphasised
 - Need for **Sedation Scoring** in addition to other vital signs
 - Action (C or higher)
 - Physician Notification
 - Oxygen
 - Pulse Oximeter
 - Encourage non-opioid adjuvants
-

Sedation & Respiratory Depression

Toolkit Requirements

- Standardized Sedation Scale
 - An assessment of depth of 'sleep'
 - Routine Charting of Sedation Score
-

Motor Block

■ Impact

- Discomfort
- Mobility / Activity Restriction
- Pressure areas
- 'Red Flag' for Neuraxial compression

■ Population

- Spinal or Epidural Analgesia

■ Incidence

- Dependent upon definition

□ Weakness

0.1% (1/719)	PCEA	(Wigfull et al., 2001)
2 – 6%	Epid thoracic	(Ready, 1999)
3% (21/1030)	PCEA	(Liu et al., 1998)
8.4% (109/1062)	Epid Fent	(Burstal et al., 1998)
24 - 51%	Epid (lumbar)	(Ready, 1999)

□ Epidural Abscess / Haematoma

- 1:3,500 to 1:10,000
 - Diagnosis and treatment within 8 hours critical
-

Motor Block - Assessment

- Formal Neurological Assessment
 - Sophisticated
 - Rarely 'routine'
 - Training required
 - Contradictions in 'Safe' end-points

- Ungraded Assessment
 - Hard to define deterioration (or improvement)

- Bromage Scale
 - Designed for epidurals not spinal cord compression
 - Widely used
 - Easy to consistently apply

Bromage Motor Block Scale

0 – (None) Full flexion of hip, knees and feet

1 – (Partial) Just able to move knees and feet

2 – (Almost Complete) Only able to move feet

3 – (Complete) Unable to move feet or knees

Critical Outcomes

- Minor Morbidity
 - Nausea and Vomiting
 - Pruritus
 - Urinary Retention

 - Potentially Major Morbidity
 - Leg Weakness/Motor Blockade
 - Hypotension
 - Sedation

 - Critical Adverse Outcomes
 - Respiratory Depression
 - Condition Change requiring high dependency or intensive care
 - Epidural Abscess
 - Epidural Haematoma
 - Permanent Neurological Injury
 - Death
-

Questions Needing Answers



- What were the *ultimate outcomes* that reflected the aims of pain management ?
- What was considered the *minimum factors* necessary to be measured / monitored in order to achieve these aims?
- How was this being *done at present* within our hospital system?
- What did the current practitioners throughout the hospital system consider to be *important strengths and deficiencies* in their own clinical practice?
- What *reporting* was currently being undertaken – what information and to whom?

Metropolitan Hospitals Assessed

Vimy House

Box Hill

St. Vincent's Private

Austin

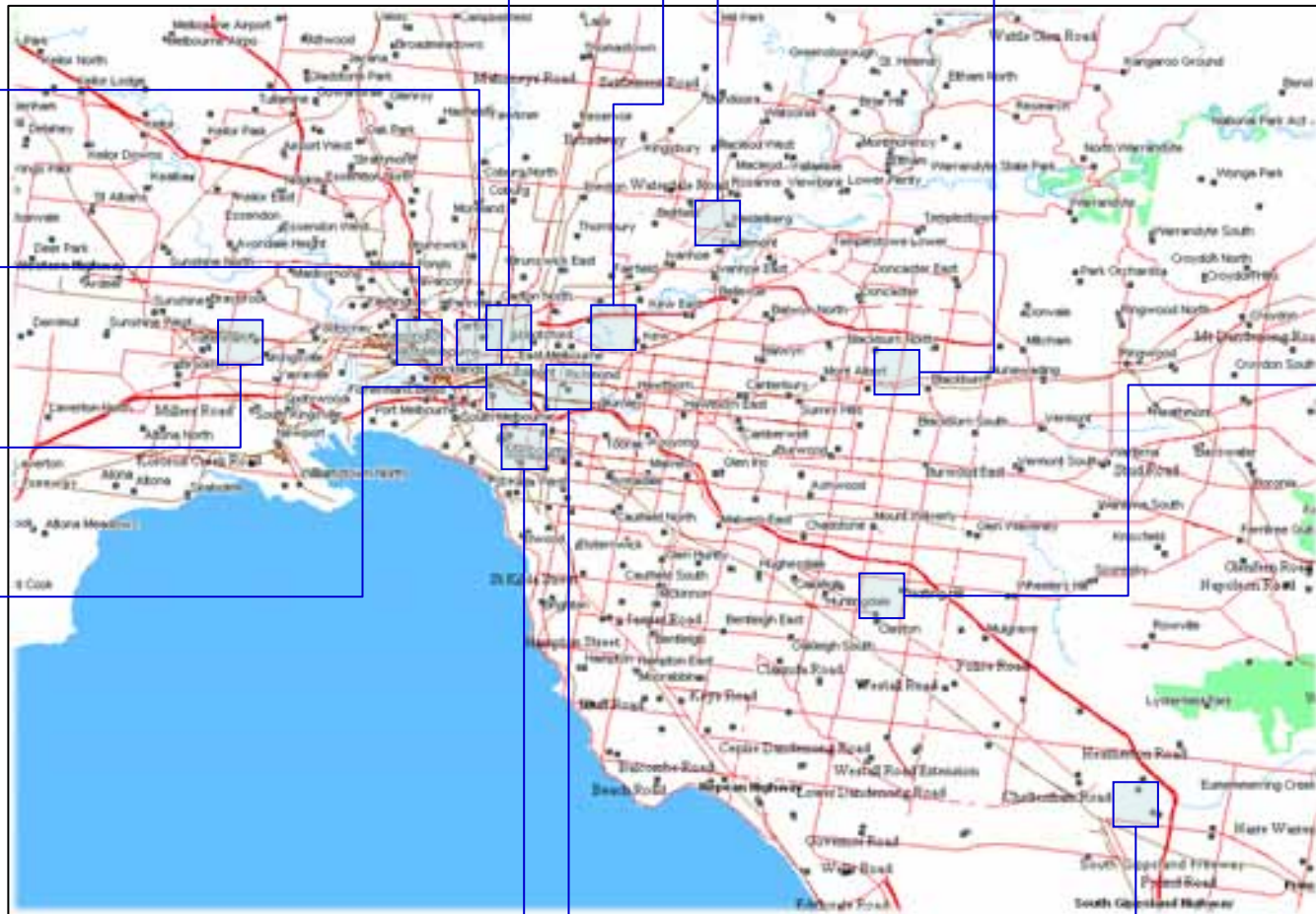
St. Vincent's

Royal Melbourne

Monash Medical Centre

Western

Mercy



The Alfred

Epworth

Dandenong

Regional Hospitals Assessed



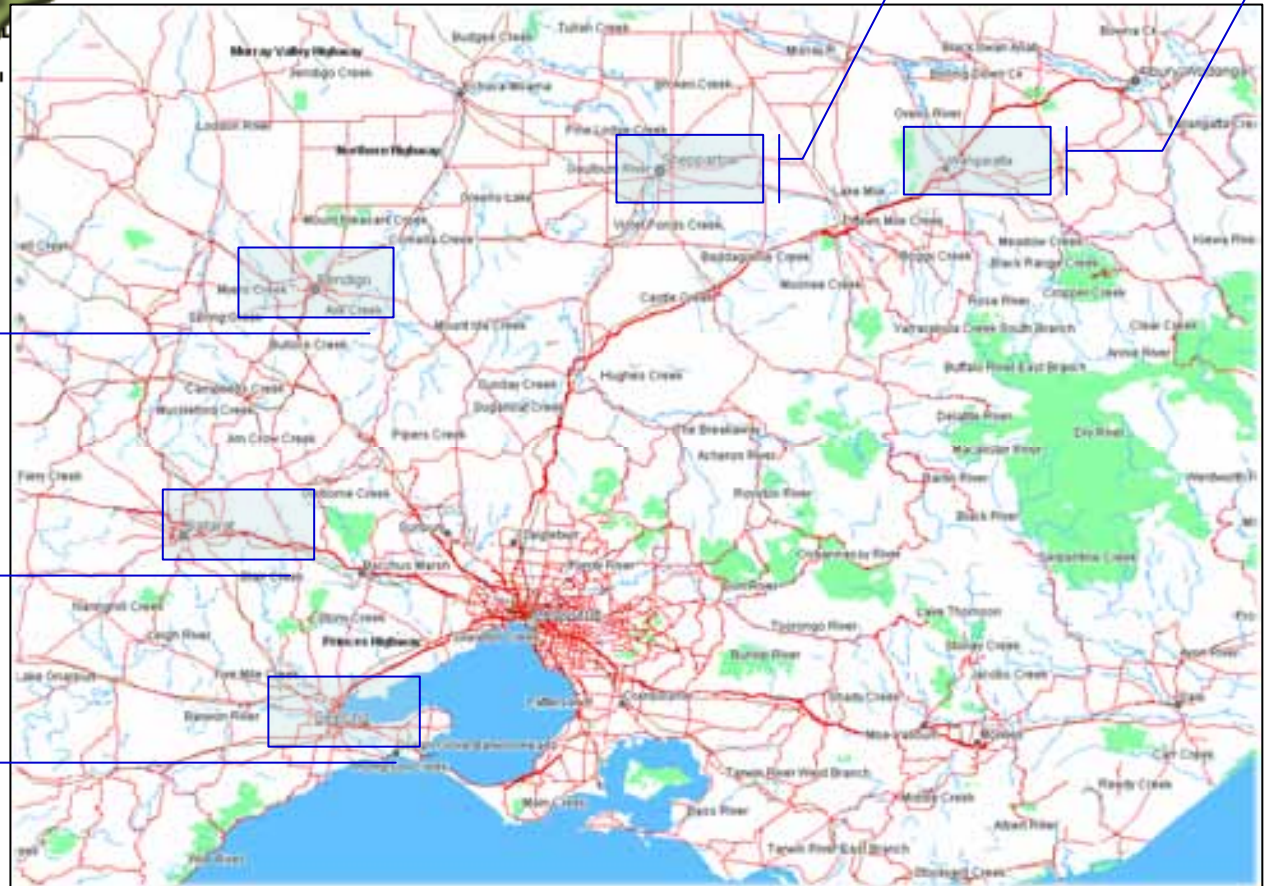
Shepparton

Wangaratta

Bendigo

Ballarat

Geelong



Clinical Interviews & Consultations

- Acute Pain Nurses 18
- Acute Pain Consultants 10
- Emergency Nurses/Consultants 7
- Intensive Care Nurses 9
- Pre-admission Staff 6
- PACU Nurses 5
- Ward Nurses (non-training) 4
- Health Information Manager 1
- Patients...



Information Sought From Consultations

- The criteria and tools used to measure pain intensity
 - How these are adapted for patients with special needs
 - Standing orders and policies for treatment interventions
 - The methods of clinical record keeping used
 - The systems in place to record and report data
 - Staff training and education programs
 - Goals that individuals would like to achieve in acute pain management
 - Perceived deficiencies in current systems and strategies
 - Any suggestions for improvement
-

Emergency Department Overview



- Triage
 - Australasian Triage System
 - Scales – Verbal NRS-11 / Number on card / Faces
- Cubicles
 - Variable – usually a 0-10 scale for intensity
 - 'P' on body map / PQRST
 - Chart column added if needed
- Treatment end-points
 - Not defined often
 - < 4/10 in some centres
- Quality assessments
 - Time to first analgesia (audit from clinical & DD records)
 - Time to pain control

PACU - Overview

■ Patients

- ❑ Initially often heavily sedated
- ❑ Expectation of improvement

■ Scales

- ❑ Verbal Descriptor Scales (1 – 4)
- ❑ Verbal NRS-11

■ Charting

- ❑ Importance recognised
- ❑ Few had dedicated columns / thresholds
- ❑ No functional assessment

■ Treatment End-points

- ❑ Usually to < 4/10 or 'comfortable'
- ❑ Necessary for discharge

■ Quality

- ❑ No systems



7-74

Date: 8/2/06

Time	P.	R.	B.P.	SaO ₂	Medication	Comments
2105	88	24	144/76 a/r line	99%	60/102 min hidson mask	pt supine head up 30°, awake % of pain and moaning. Spent vent. Abdo wound dressing small ooze but intact. IDC - draining ✓, IUT ⊕ aim N Saline almost through - stat. ⊕ radial art line.
2110					MORPHINE 2 Sng IV	
2115					MORPHINE 2 Sng ✓ IUT 4/24 N Saline commenced	
2120	82	20	157/67 a/r line	99%	MORPHINE 2 Sng IV	pain 9/10
2125					MORPHINE 2 Sng IV	
2130					MORPHINE 2 Sng IV	pain 9/10
2135	79	20	147/65 a/r line		Ketamine 10mg IV - D'Griffith	
2138					Ketamine 10mg IV - D'Griffith	
2140					Ketamine 10mg IV + PARACETAB 40mg IV - D'G	
2145					MORPHINE 2 Sng IV	
2150	80		142/63 a/r line		MORPHINE 2 Sng IV	pain 9/10
2150					Ketamine 10mg IV + PARACETABOL 1gm IV - D'Grif	
2200	74		135/57 a/r line	99%	Tramadol 100mg IV + PCA MORPHINE commenced	
2210	72		132/60 a/r line	99%		
2220	72	16	130/58 a/r line	99%		pain now 6/10 pt appears much more settled.

SISTER OF CHARITY MEDICAL CENTER

Ward - Overview

- Wide range of pain management systems
- Pre-education
 - Often about pain expectation and treatment modality
 - 'Agreed Comfort Score' in one hospital
- Often Surgical but not Medical wards
- Pain Assessment
 - Verbal Descriptors (1 – 4)
 - Verbal NRS-11
 - One centre – NRS / Boxed NRS / VAS / Faces
 - Useful but tools needed at bedside
 - Movement-related pain acknowledged
 - Highly variable assessment / recording
 - 'Custom' Pain Scores
 - For APS
 - Mixed Observer / Subjective



Ward – Overview (cont)

- Assessment of Cognitively Impaired
 - ❑ Clinical Impression
 - ❑ Carer Advice
 - ❑ Behavioural Scales

- Language Barriers
 - ❑ As above
 - ❑ Translation cards

- Usually could not assess activity-related

- Paediatrics
 - ❑ Well developed system

- Charting
 - ❑ Depended on APS guidelines / involvement
 - ❑ Highly variable between (within) institutions
 - ❑ Usually no space on routine charts



Ward - Management

- Treatment End-points
 - Generally <4/10 or 'comfortable'
 - Intervention Thresholds variable
 - Some Clearly Described
 - Usually Imprecise
 - Inconsistent Reportable Levels
 - Quality Evaluation
 - Dependent on an APS
 - Data often collected but not collated
 - Infrequently Reported
 - Adverse Events – M&M if major
-

Intensive Care Unit

- Pain Measurement and Management Fragmentary
 - Wide range of patient impairment
 - Analgesia not seen as a key objective
 - Pain Assessment
 - Physiologic responses
 - Behavioural
 - Verbal Descriptors / NRS
 - Few had tools
 - Charting
 - Not specific
 - Quality
 - Satisfaction / Recollection
 - Not reviewed
-

Site Consultations - Intervention Definitions

■ Pain

- Pain score 8-10
- Persistent pain score > 2 or episode of 4 (0 to 4 scale)

■ Motor Block

□ Contradiction

- Bromage Score (0 = Normal)
- Neurological Assessment (0 = Abnormal)

□ Notification

- *'Notify APS if back pain or weakness'*
- *'Notify if unexpected leg weakness'*
- *'Persistent weakness to be reported to the APS'*
- *'Bromage 2 or 3 must be reported...'*
- *'Report any decrease in movement or sensation in lower limbs...'*
- *'Notify immediately of a Bromage of 3..'*
- *'Back pain or unexpected leg weakness is an emergency...'*
- *'Report Bromage > 1 if more than 6 h post surgery'*

Site Consultation - Hypotension

- Multiple Thresholds

- Blood Pressure

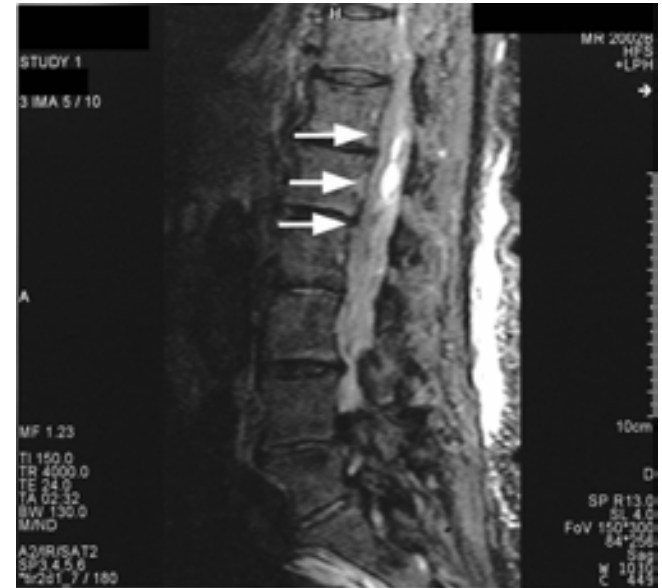
- *Less than 100 mmHg*
 - *Less than 90 mmHg*
 - *Less than 80 mmHg*
 - *Less than {specified by MO}...*
 - *Drop of 30 mmHg from previous value*
 - *Drop of 15 mmHg from previous value*

Site Consultation – Opioid Side Effects

- Nausea / Vomiting
 - Respiratory Depression
 - Rate < 8
 - Sedation
 - Not allocated / space on routine charts
 - Terminology 'rousable', 'drowsy', 'sleepy'
 - Strategy for the 'Asleep' patient
 - Variable Scales
 - Variable Thresholds
-

Site Consultation – Critical Events

- All agreed on significance of
 - Naloxone use
 - Transfer to HDU / ICU
 - Epidural Haematoma / Abscess
 - Neurological Injury
 - Death
- Recording and Auditing
 - Sentinel Events (of course)
 - Others variable
 - Internal QC / M&M
 - VCCAMM

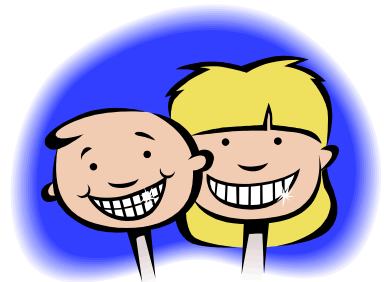


Quality of Pain Management

- Doing a 'good job'...

But How Do You Know...?

- Outcomes
 - Average Pain Scores (APS)
 - By Day
 - By Admission
 - Episodes > 7
 - Satisfaction Scores



Toolkit Development

- Measuring and Recording Pain

■ Key Elements

- ❑ Patient involvement - Education
 - ❑ Consistent tools used
 - ❑ Baseline assessments
 - ❑ 'Standardised' scoring system
 - ❑ Functional Activity Score
 - ❑ Core Chart Components
 - ❑ Defined Outcomes
-

National Institute of Clinical Studies

Barriers to the treatment of pain

Ruth Cornish – Pain Program Manager

Clinician Barriers

- Attitudes & beliefs of staff
- No routine pain assessment
- Under-estimation of patients' pain
- Analgesia misconceptions
- Prescribing & administration inconsistencies
- Inadequate knowledge and education

Patient Barriers

- Inevitability of pain
- Stoicism
- Analgesia fears & misconceptions
- Being a “good” patient
- Distracting from treatment
- Trade-offs: analgesics & side effects



Patient Education Brochure and Consultation

MANAGING YOUR PAIN

How you can help us to best respond to your needs – making your recovery as smooth as possible...



WE CARE ABOUT YOUR PAIN – BUT YOU NEED TO HELP US TOO...

Tell us about your pain

By controlling pain as best we can, you are likely to recover faster. You need to tell us how you feel and particularly how strong your pain is. You will be asked on a regular basis to rate your pain – this is how we know how you are feeling and what is working best for you.

How to tell us

When you come into the hospital you may be given your own 'pain slider', which has a sliding pointer that you can position to indicate how much pain you are experiencing.



Not much pain at all



Quite a lot of pain

Positioning the pointer at the far left end indicates 'no pain' and the far right end

indicates 'worst pain ever'. You would slide the pointer to the position in between which best represents your current pain. You will then be asked to rate your pain in the same way after moving or coughing to see if that makes a difference. These pictures show how this might look on a pain slider.

A 'pain slider' is not used to everyone, a common alternative way of letting us know if you have pain is by asking you to rate it on a scale out of ten.

Pain is scored on a scale, graded from 0 to 10, with 0 being 'No Pain' and 10 being 'Worst Pain Ever'

Tell us where your pain is and what it's like

Pain from different parts of the body comes from different causes. Knowing *where* your pain is coming from and *how it feels* (is it aching, or burning or stabbing?) helps us to give you the best treatment.

What else can you do?

Ask for pain relief before you get too uncomfortable. It is harder to ease pain once it has taken hold.

Remember to tell your nurse or doctor about any pain that doesn't get better, even after having pain medicine.

Pain Treatment Options

Your pain may be treated in a number of ways – what works best for you will be decided by you and your doctor and nurses and based on the location and type of pain that you have.

Some options include:

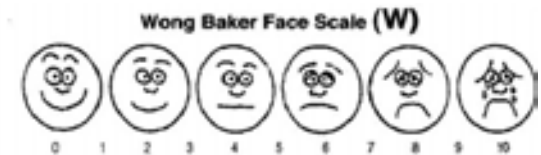
- **Tablets** that you swallow
- **Occasional injections**
- Pain medicine injected into the drip, either as **continuous drip** or via small doses controlled by you (**Patient Controlled Analgesia (PCA)**)
- **Local Anaesthetics** given near your wound that block the feeling of pain
- **Epidural pain medicine** given into your back that blocks pain near your wound
- Use of **special techniques** for moving and coughing etc that minimise discomfort.

- Revision based on user/consumer consultation

Subjective Tools for Measuring Pain

- Visual Analogue Scale Ruler
- Verbal Numeric Rating Scale
- Faces Pain Scale
- Behavioural Rating Scale

All result in a 0 – 10 'Pain Score'



FLACC Scale (F)
(Face, Legs, Activity, Cry, Consolability)

Face	0 No particular expression or smile	1 Occasional grimace or frown, withdrawn, disinterested	2 Frequent to constant frown, clenched jaw, quivering chin
Legs	0 Normal position or relaxed	1 Uneasy, restless, tense	2 Kicking or legs drawn up
Activity	0 Lying quietly Normal position Moves easily	1 Squirming Shifting back/forth Tense	2 Arched Rigid or Jerking
Cry	0 No cry (Awake or Asleep)	1 Moans or whimpers Occasional complaint	2 Crying steadily Screams or sobs Frequent complaints
Consolability	0 Content Relaxed	1 Reassured by occasional touching, hugging or talking to. Distractible	2 Difficult to console or comfort

Tools for Measuring Function

■ Functional Activity Score (FAS)

- “This is an activity related score. Ask your patient to perform an activity related to their painful area or condition. (e.g. Deep breathe and cough for thoracic injury or move affected leg for lower limb pain)”
- Observe and talk with your patient during the chosen activity and score A, B or C

A – No limitation - activity is unrestricted by pain

B – Mild limitation - activity is mild to moderately restricted by pain

C – Severe limitation - the ability to perform the activity is severely limited by pain

*Relative to Baseline

Pain Assessment

- Pain Intensity
 - VAS
 - NRS
 - Faces
 - Behaviour
 - Functional Impact of Pain
 - Functional Activity Score
 - Monitoring For Side Effects and Complications...
-

Sedation & Respiratory Depression

Toolkit Outcomes

Bedside Care
Routine Audit
Indicator

- Standardized Sedation Scale
- An assessment of depth of 'sleep'
- Routine Charting of Sedation Score
- Reportable Thresholds

Sedation Scale

0 = Awake, Alert

1 = Mild Sedation

1S = Asleep



Easy to Rouse

2 = Moderate Sedation,
unable to remain awake

3 = Difficult to rouse

Routine Ward Charting

THERMIC/OBSERVATION CHART

Given Name: _____

D.O.B.: _____

Rule off at 2400 hours

Date:

Post-procedure Day:

Time:

SpO ₂ on RA (%)																				
Pain Score (0-10)																				
Functional Activity Score																				
Sedation Score																				
Daily Fluid Balance																				
Weight (kg)																				
Bowels: (\uparrow - \downarrow)																				

Oxygen Abbreviations

NP Nasal prongs AP Aquapak
 FM Face mask RA Room air
 FP Fisher & Paykel
 F_IO₂ Fraction of inspired oxygen

Sedation Score 0-3

0 = Awake, alert
 1 = Mild sedation
 1S = Asleep } easy to rouse
 2 = Mod sedation, unable to remain awake
 3 = Difficult to rouse

Pain Score 0-10

0 = No pain
 10 = Worst possible pain

Functional Activity Score*

(Cough/Movement)
 A = No limitation
 B = Mild limitation
 C = Severe limitation
 * relative to baseline

Motor Block - Assessment

Bedside Care
Routine Audit
Indicator

- Neurological Assessment
- Basic Assessment
- Bromage Scale
 - Widely used
 - Easy to consistently apply
 - Charting to detect change
 - Reportable events

Bromage Motor Block Scale

0 – (None) Full flexion of hip, knees and feet

1 – (Partial) Just able to move knees and feet

2 – (Almost Complete) Only able to move feet

3 – (Complete) Unable to move feet or knees

Motor Block Assessment

– Special Analgesia Charting

Respiratory Rate	20		
	15		
	10		
	5		
Sedation Score	0		
	1		
	1.5		
	2		
Pain Score	0		
	2		
	4		
	6		
Functional Activity Score *	A		
	B		
	C		
Dermatome Sensory Block	T2		
	T4		
	T7		
	T12 - L1		
Bromage / Motor Block	0		
	1		
	2		
	3		
Hourly Volume			

Sedation Score

0	Awake/Alert	} easy to rouse
1	Mild Sedation	
1.5	Asleep	
2	Mod Sedation, unable to remain awake	
3	Difficult to Rouse	

Bromage Score

0 (None)	Full flexion of knees and feet
1 (Partial)	Just able to move knees and feet
2 (Almost complete)	Only able to move feet
3 (Complete)	Unable to move feet or knees

- Reportable
 - ❑ Depends on *change*
 - ❑ Consideration of *clinical circumstances*

Core Chart Components

- All Hospital Vital Sign Charts (TPR / Thermic)
 - Pain Intensity Score
 - Functional Activity Score
 - Sedation Score
 - Design
 - Incorporate into existing designs
 - Adopt 'Templates' offered
 - Frequency of Observations
 - On admission
 - Minimum once per shift
 - Post-intervention frequency per institution
-

Chart Modifications – Special Analgesia

Respiratory Rate	20 15 10 5																				
Sedation Score	0 1 1.5 2 3																				
Pain Score	0 2 4 6 8 10																				
Functional Activity Score *	A B C																				
Dermatome Sensory Block	T2 T4 T7 T10 T12 - L1 L2 or lower																				
Bromage / Motor Block	0 1 2 3																				
Hourly Volume																					

Sedation Score	0 Awake/Alert 1 Mild Sedation } easy to rouse 1.5 Asleep 2 Mod Sedation, unable to remain awake 3 Difficult to Rouse	Pain Score 0-10 0 = No Pain 10 = Worst Possible Pain ● At Rest ✕ Cough/Movement	Functional Activity Score* (Cough/Movement) A = No Limitation B = Mild Limitation C = Severe Limitation * Relative to baseline
Bromage Score See diagram	0 (None) Full flexion of knees and feet 1 (Partial) Just able to move knees and feet 2 (Almost complete) Only able to move feet 3 (Complete) Unable to move feet or knees	Dermatomes See Diagram	T2 Mid Sternum T4 Nipple line T7 Xiphisternum T10 Umbilicus L12 - L1 Groin L2 Lateral and anterior upper thigh

Tools for Measuring and Managing Adverse Events

Sedation Score

O ₂ Device							
Litres / min							
F _i O ₂ / O ₂ %							
SpO ₂ on O ₂ (%)							
SpO ₂ on RA (%)							
Pain Score (0-10)							
Functional Activity Score							
Sedation Score							
Daily Fluid Balance							
Weight (kg)							
Bowels (↑ ↓)							
<u>Oxygen Abbreviations</u>			<u>Sedation Score 0-3</u>				
NP	Nasal prongs	AP	Aquepak	0	=	Awake, alert	} easy to rouse
FM	Face mask	RA	Room air	1	=	Mild sedation	
FP	Fisher & Paykel			1S	=	Asleep	
F _i O ₂	Fraction of inspired oxygen			2	=	Mod sedation, unable to rem air	
				3	=	Difficult to rouse	

REPORTABLE OBSERVATIONS

Notify Anaesthetist or Unit responsible for the patient if any of the following parameters occur

Pain Score 0-10 PAIN Functional Activity Score (FAS)	Persistent severe pain - Consecutive scores of 8-10/10 Equal Inadequate Analgesia 2 Consecutive FAS of C (Severe Limitation)
SEDATION SCORE	Sedation Score of ≥ 2 Sedation Score of ≥ 2 and Respiratory Rate < 8
MOTOR DEFICIT (Epidural Specific)	Motor Block (Bromage Score) > 1 for prolonged period Increase in motor block post epidural removal
BACK PAIN MEDICAL EMERGENCY (Epidural Specific)	Unexpected or new back pain Pain, Inflammation or Swelling at the epidural insertion site Fever - Temperature $> 38.5^{\circ}\text{C}$ Tingling, numbness or weakness in either or both legs New Urinary or Faecal Incontinence
HIGH BLOCK T4 or Above Nipple Line (Epidural Specific)	Tingling/numbness in fingers Presence of weakness in arms Respiratory Difficulty
HYPOTENSION (Epidural Specific)	Systolic Blood Pressure < 90 mmHg Pulse Rate < 55 with Blood Pressure < 100 mmHg
PRURITUS (itching)	If patient complains and/or requests treatment
NAUSEA VOMITING	Not responding to prescribed treatment

Other Major Adverse Outcomes or Complications

Analgesia Treatment Summary Form

Does this patient have a pre-existing pain condition (> 3 months)?

Was acute pain relief needed during this admission?

Was **Naloxone** (Narcan) given during this admission?

Did a **significant clinical event** occur which was *likely to be* related to analgesic therapy?

HDU/ICU Admit MET call Cardiorespiratory arrest Severe Hypotension

Did a **peripheral nerve injury** occur resulting in a deficit persisting after discharge?

Was a **CT or MRI** performed to investigate a possible epidural haematoma or abscess?

Did an **epidural haematoma or abscess** occur?

Was a CT or MRI performed to investigate a possible epidural haematoma or abscess?

Did an epidural haematoma or abscess occur?

AN

RM

SUMMARY FORM

Information Pathways

Toolkit

IV

QC
Indicator
Reporting

CONTINUAL

III

Inter-hospital
Performance
Review

ANNUAL

II

Hospital / APS Review
Ward or Unit Audit and Review

ANNUAL

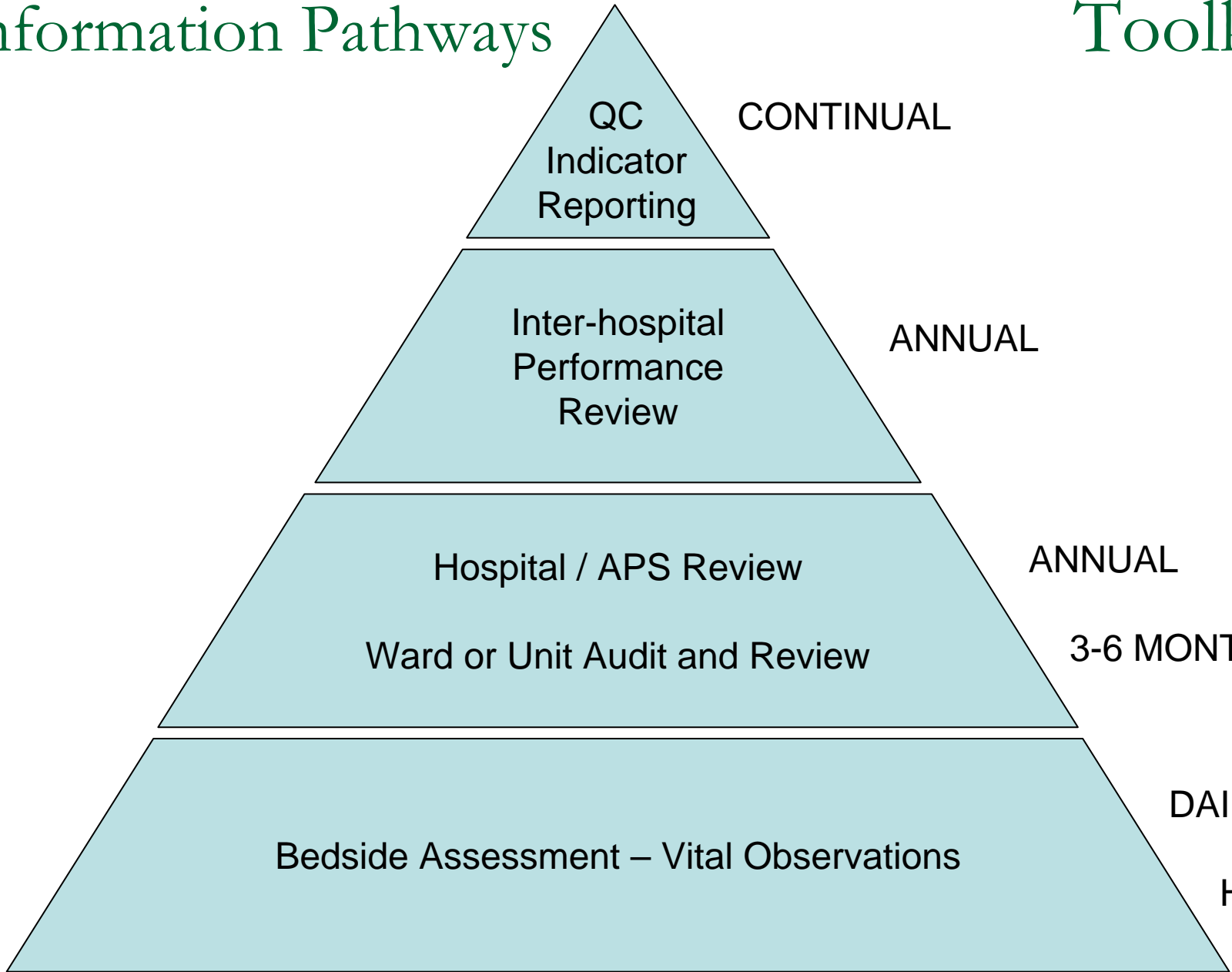
3-6 MONTHLY

I

Bedside Assessment – Vital Observations

DAILY

HOURLY



Education and Training

- Staff Education Sessions
 - 5 – 60 min
- Education Resource Kit



Hospitals Assisting with Trials



Shepparton

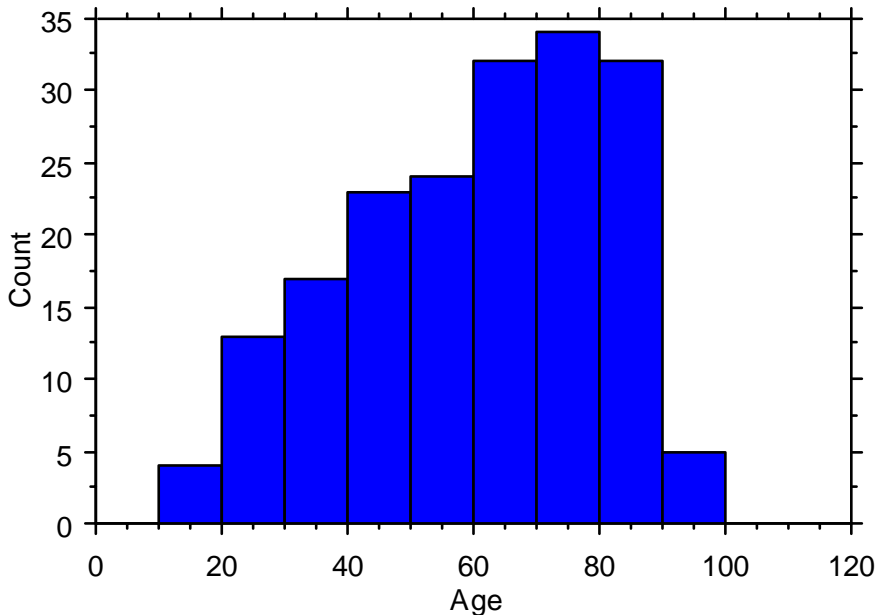
St. Vincent's

Box Hill



Patient Feedback

- 189 Patients from SVH, BHH, GVH
- Age 60 ± 20 years (16 – 95)



Case Type		%
Surgical		
ENT	2	1%
General/Gynae	56	32%
Neurosurgery	2	1%
Orthopaedic	54	31%
Plastics	3	2%
Trauma	16	9%
Urologic	2	1%
Vascular	11	6%
Medical / Non-Surgical		
	31	18%

Patient Feedback - Education

■ Population

- 134 patients with data, M ~ F
- Duration of Acute Pain Management: 3.3 days

■ Brochure

- Read 64%
- Found useful 86%

■ Tools – Introduction and Use

- Well explained 86%
- Confident in use 81%



Comments – Brochure & Discussion

“Brochure good”

“Understand better”

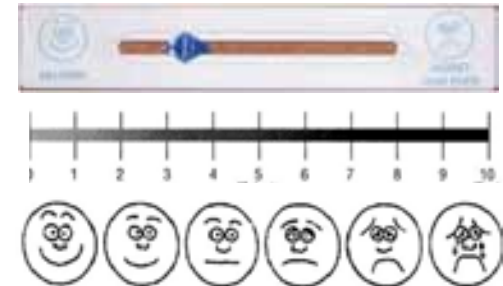
“Really good help with the tools”

“The conversation explanation how the ranking of 1-10 was excellent and vital for patient and nurses to understand one and other”

Patient Feedback - Tools

■ Tools used during admission

- VAS Ruler 24%
- Verbal Numeric Scale 75%
- Faces Scale 8%
- (Behavioural Scale 4%)

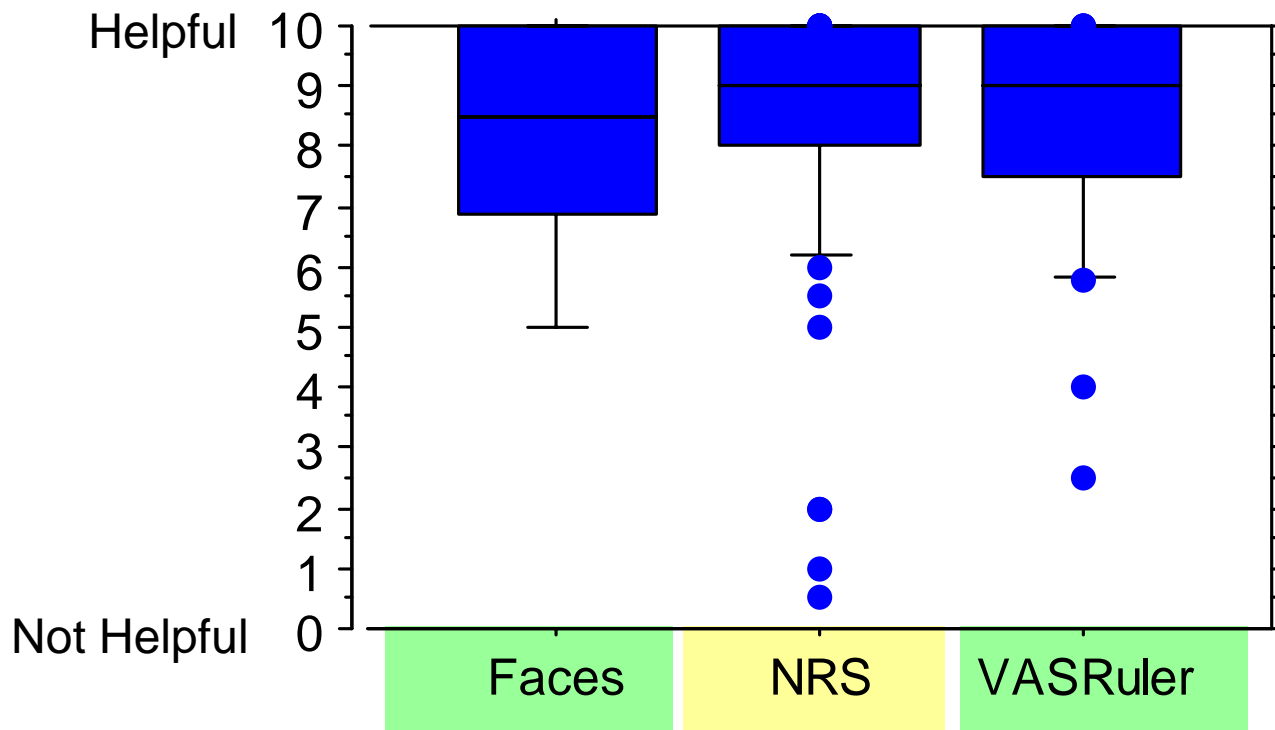


■ Tools

- | | Well Explained | Confident |
|-------------|----------------|-----------|
| □ VAS Ruler | 90% | 81% |
| □ NRS | 83% | 76% |

Patient Feedback - Tools

■ Telling Staff About Pain

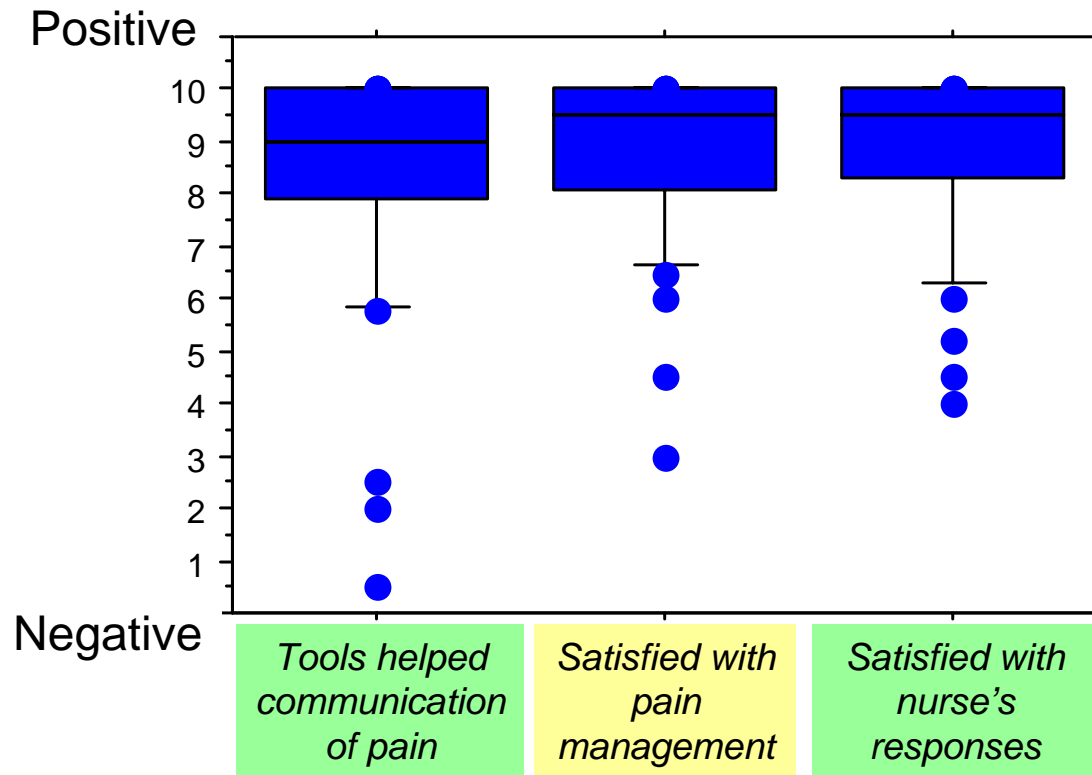
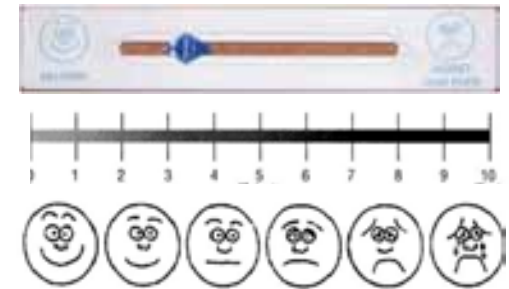


Patient Comments – Pain Measurement

- “They always were asking if you had any pain and were more than willing to help”
 - “Was sometimes annoying being asked so often how bad the pain was...”
 - ‘I just wanted to say I had pain’
 - “[I] thought more on number-line rather than VAS.”
 - “I found the number system excellent and the staff response very efficient”
 - “Think using Low Med High better way”
 - “Would like descriptor i.e. burning, sharp as had different types of pain whilst in hospital”
 - “Good system”
 - “Easy to use”
-

Patient Feedback - Tools

- Tools overall satisfaction



Patient Comments – Pain Management

- *“All staff were very helpful at all times”*
 - *“Pain management was excellent”*
 - *“I found the doctors unreceptive to the amount of pain I was in.”*
 - *“The doctors are great, same with all the nurses”*
 - *“The nurses provided excellent care in regards to pain management/measurement.”*
 - *“Nurses provide excellent care. Observations were not a problem.”*
 - *“At night it was difficult to get pain medicine”*
 - *“Its hard to look back on pain later as at the time it seems very intensive”*
 - *“Youz (sic) doing a wonderful job - keep it up”*
-

Nursing Staff Evaluation

- 63 Ward Nursing Staff
- 19 DOSA / Preadmission
- Experience: 1 – 10+ years

The tools used by nurses with the patients were:

- **VAS Ruler**

- 43 nurses representing 226 patients

- **NRS**

- 61 nurses representing 373 patients

- **Faces**

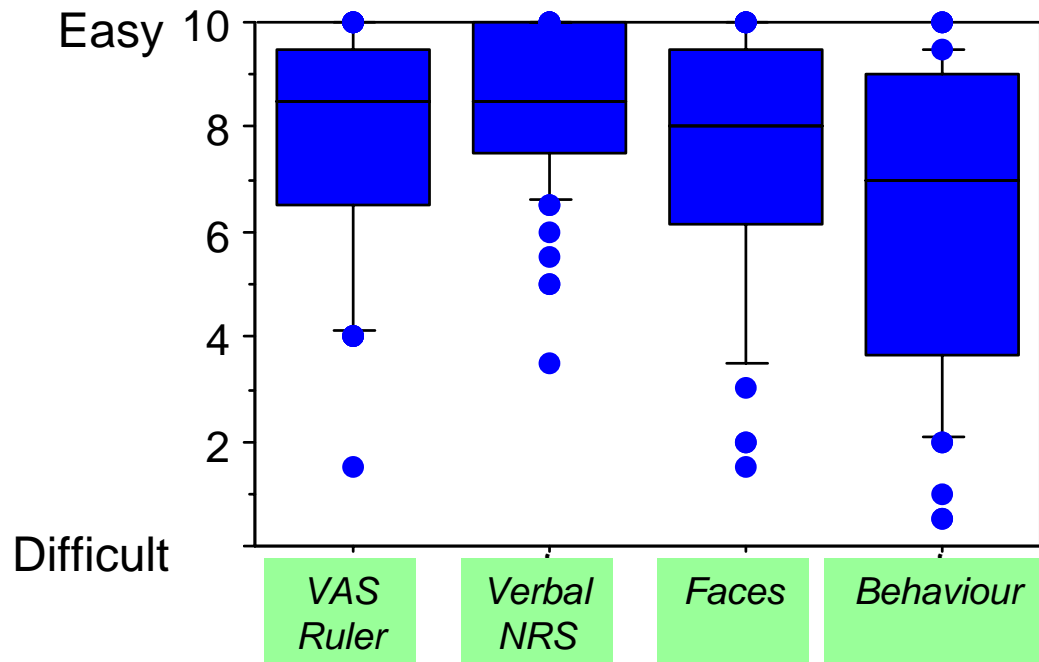
- 32 nurses representing 99 patients

- **Behavioural**

- 20 nurses representing 60 patients

Nurse's Evaluation

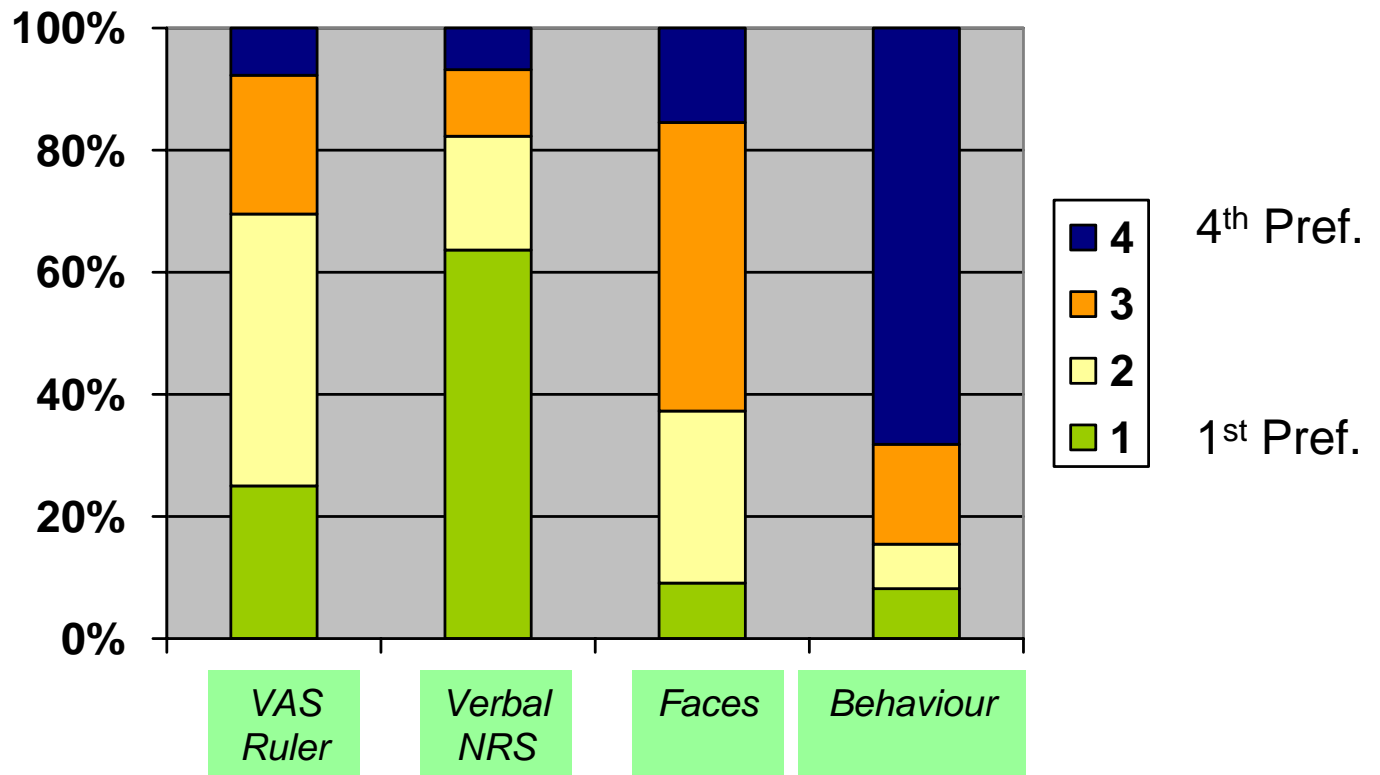
- Tool ease of use



n=80

Nurse's Evaluation

■ Tool ranking



n=80

Nurses' Comments – Pain Tools

- *“Pain rulers were fantastic for patients with difficulty communicating, for young mentally alert patients I found the number rating scale more efficient”*
 - *“People interpret each scale differently....”*
 - *“At start of shift [it was] hard to know what method my patient was using to rate pain - maybe this needs to be documented on 1st assessment”*
 - *“VAS- a little confusing “*
 - *“FACES - only relevant to children and I only had adults”*
 - *“NRS - this was easiest”*
 - *“Ruler good for non-English speaking patients”*
-

Functional Activity Score

Functional Activity Score*

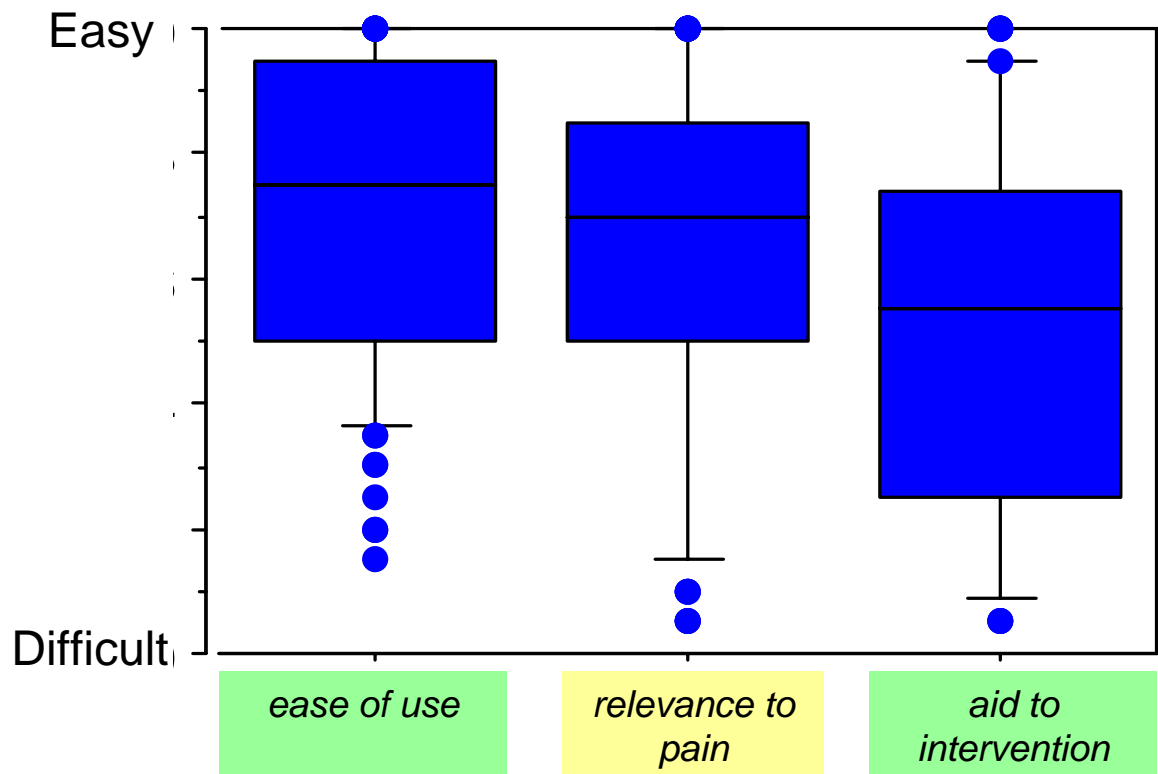
(Cough/Movement)

A = No Limitation

B = Mild Limitation

C = Severe Limitation

* Relative to baseline



FAS Comments

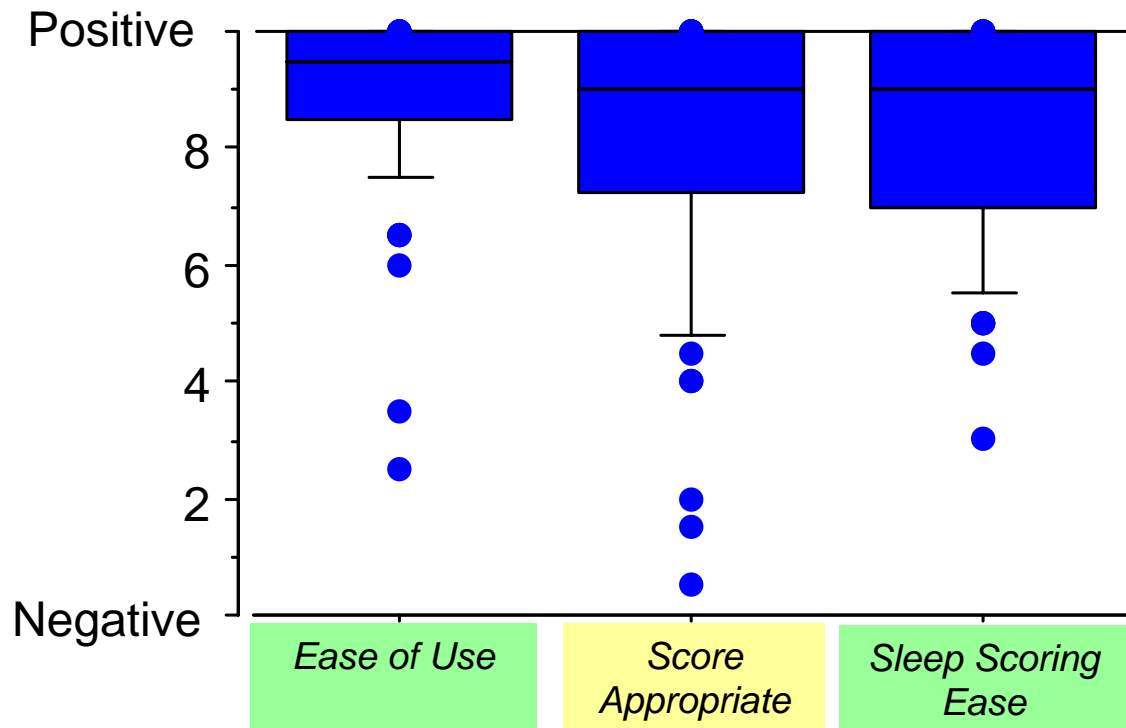
- *"FAS application confusing for post-spinal anaesthetic patients"*
 - *"FAS most useful when C for decisions"*
 - *"FAS not being used properly or consistently - more education needed"*
 - *"Sometimes hard to get pts to move hip/knee to check [FAS]"*
 - *"FAS was difficult to assess for ortho patients"*
 - *"Pain assessment in ortho patients also includes comparison between different patient's abilities. This incorporates staff member's experience in dealing with these patients."*
 - *"FAS difficult to define - more detail needed"*
 - *"FAS extra work"*
 - *"Difficult at times - unsure if limitations due to pain or other factors especially with dementia patients"*
 - *"With more practice this will be more practical and fabulous for patient care"*
-

Safety Monitoring - Sedation

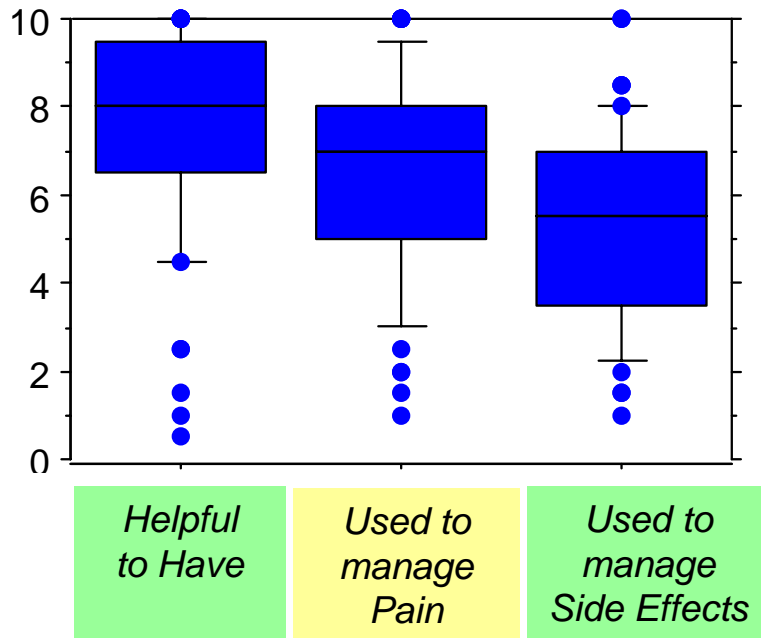
3.1 How **easy** did you find the Sedation Score to use with your patients?

3.2 How **appropriate** did you find the Sedation Score levels for your patients?

3.3 The Sedation Score level for a patient apparently asleep (resting in bed with eyes closed, stirs easily when observations are taken) has been defined as Level 1S. Do you think this is easy to use?



Reportable Observations Guide

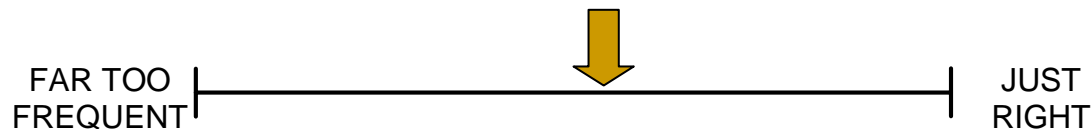


- “Useful for junior staff”
- “Never had such clear guidance”

Pain Score 0-10 PAIN Functional Activity Score (FAS)	Persistent severe pain - Consecutive scores of 8-10/10 Equals Inadequate Analgesia 2 Consecutive FAS of C (Severe Limitation)
SEDATION SCORE	Sedation Score of ≥ 2 Sedation Score of ≥ 2 and Respiratory Rate < 8
MOTOR DEFICIT (Epidural Specific)	Motor Block (Bromage Score) > 1 for prolonged period Increase in motor block post epidural removal
BACK PAIN MEDICAL EMERGENCY (Epidural Specific)	Unexpected or new back pain Pain, Inflammation or Swelling at the epidural insertion site Fever - Temperature $> 38.5^{\circ}\text{C}$ Tingling, numbness or weakness in either or both legs New Urinary or Faecal Incontinence
HIGH BLOCK T4 or Above Nipple Line (Epidural Specific)	Tingling/numbness in fingers Presence of weakness in arms Respiratory Difficulty
HYPOTENSION (Epidural Specific)	Systolic Blood Pressure < 90 mmHg Pulse Rate < 55 with Blood Pressure < 100 mmHg
PRURITUS (Itching)	If patient complains and/or requests treatment
NAUSEA VOMITING	Not responding to prescribed treatment

Observation Frequency

- Considered 'too often' by some
 - Rating 6.2 ± 2.8



- “[I] think frequency of observations for pts with infusions (epidural, PCA) is fine but those that have had a GA and don't have infusions could have them [less often]”
- “Just right on normal charts”
- “Far too frequent on infusion charts”

Trial Recommendations:

Baseline pain and FAS scores at admission and once per shift
Otherwise used hospital's usual

Accumulating Data

- Checked off progressively during stay...

Analggesia Treatment Summary Form		YES	NO
Does this patient have a pre-existing pain condition (> 3 months)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Was acute pain relief needed during this admission?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If <i>yes</i> , what treatment for pain relief was used (select one or more):			
	<i>Tick</i>		
Oral medications (inc. opioids, NSAIDs, paracetamol)	<input checked="" type="checkbox"/>	131	
IM or S/C analgesics	<input type="checkbox"/>	69	
IV analgesic infusions (opioids, ketamine, NSAIDs)	<input type="checkbox"/>	6	
Patient Controlled Analgesia (PCA)	<input checked="" type="checkbox"/>	29	
Peripheral Nerve Block Catheter Infusion (e.g. Femoral, Axillary, Paravertebral)	<input type="checkbox"/>	43	
		12	
Epidural or Spinal Infusion	<input type="checkbox"/>	24	

ANALGESIA TREATMENT

Significant Adverse Events

	YES	NO
Was Naloxone (Narcan) given during this admission?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Did a significant clinical event occur which was <i>likely to be</i> related to analgesic therapy? HDU / ICU Admit MET call Cardiorespiratory arrest Severe Hypotension	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Did a peripheral nerve injury occur resulting in a deficit persisting after discharge?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Was a CT or MRI performed to investigate a possible epidural haematoma or abscess?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Did an epidural haematoma or abscess occur?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SUMMARY FORM

- Checked off progressively by clinical staff
- Possible for HIS or ward clerical staff to validate

Trial Adverse Events

- During trial
 - Three were related to opioid-induced sedation
 - Two probably unrelated to pain management

 - *Case 101: Young female post orthopaedic procedure.*
 - Analgesia oral and IM/SC/IV opioids prn.
 - Two consecutive Sedation Scores of 2 triggered a report by nursing staff to the RMO
 - Oxygen applied, observation frequency maintained and opioids with-held until sedation level improved.
 - No naloxone required.
 - It would not have registered on the ATS Form.

 - *Case 125: Middle-aged female post orthopaedic procedure.*
 - Multimodal analgesia including PCA
 - Acute chest pain on Day 2 (6/10), plus desaturation and tachypnoea (Resp rate 22-24). Chest pain was 6/10.
 - Triggered an RMO review and she was given anginine with little effect.
 - Naloxone was given (and flagged on the ATS Form)
 - She ultimately had a cardiac arrest, caused by a perioperative myocardial infarct from which she was resuscitated.
 - In this situation, acute pain observations merely aided the vigilance in her care.
-



				98	98	96	95		96	96	95			95	94	94
	0	2	2	2	0	6	7		8	0	0	0	0	3	3	2
	B	B	B		B	5	5		B	B	B	B	B	B	F	F
	1	1	1		1	1	1		0	1	2		2	1	1	1

SpO ₂ on O ₂ (%)					98	96	99	99	100	100	98	99	100				100	99			
SpO ₂ on RA (%)											98	98	96	95			95	94	96		
Pain Score (0-10)	0	0	0	0	0	2	2	2	0	6	7		8	0	0	0	0	3	3	2	1
Functional Activity Score	B	B	B	B	B	B	B	B		B	5	5		B	B	B	B	B	F	F	B
Sedation Score	1	1	1	1	1	1	1	1		1	1		0	1	2		2	1	1		0

Adverse Events (continued)

- *Case 155: Elderly female - medical management of hip pain*
 - Renal failure on haemodialysis.
 - SC morphine.
 - Sedation score detected at 2, and RMO notified.
 - Observation frequency was increased, oxygen given and haemodialysis arranged which improved her condition.
 - Sedation scoring is of value in multiple clinical situations, as are clearly defined reportable thresholds.

- *Case 212: Elderly female*
 - Cardiopulmonary arrest during an endoscopic procedure.
 - No naloxone given.
 - This event was presumably related to sedation given during a diagnostic procedure.

- *Case 112: Middle aged female following general surgery*
 - PCA opioids and epidural analgesia
 - Observations were stable until 2130 when noted to be sleeping (Sedation scores 1S) with a respiratory rate having decreased to 8/min.
 - Next observations were at 2300. Respiratory rate of 8 was still noted but the patient was more difficult to rouse (Sedation Score 2)
 - Naloxone was given with good effect. This event was flagged by the ATS Form.
 - This case highlights the risks from parenteral opioids, the need for hourly assessments, and the need for clear directions on what actions to take.

Beyond the Bedside

- Data collection for use by wards, clinical units or hospitals
- Indicator information for state-wide review
- Denominator details vital

Was Naloxone (Narcan) given during this admission?	<input type="checkbox"/>	<input type="checkbox"/>
Did a significant clinical event occur which was likely to be related to analgesic therapy? HDU/ICU Admit MET call Cardiorespiratory arrest Severe Hypotension	<input type="checkbox"/>	<input type="checkbox"/>
Did a peripheral nerve injury occur resulting in a deficit persisting after discharge?	<input type="checkbox"/>	<input type="checkbox"/>
Was a CT or MRI performed to investigate a possible epidural haematoma or abscess?	<input type="checkbox"/>	<input type="checkbox"/>
Did an epidural haematoma or abscess occur?	<input type="checkbox"/>	<input type="checkbox"/>
Health Information Services use only.		
Number of days of Acute Pain Therapy this admission: (i.e. number of days more than three pain assessments or FAS entered)	<input type="checkbox"/>	
Number of days in which a Functional Activity Scale score of three (3) 'C' scores occurred.	<input type="checkbox"/>	

SUMMARY FORM

Quality of Pain Management

- How often was pain relief *significantly* inadequate?
- Out of how many patients?

Health Information Services use only:

Number of days of Acute Pain Therapy this admission:
(i.e. number of days more than three pain assessments
or FAS entered)

Number of days in which a Functional Activity Scale score of
three (3) 'C' scores occurred:

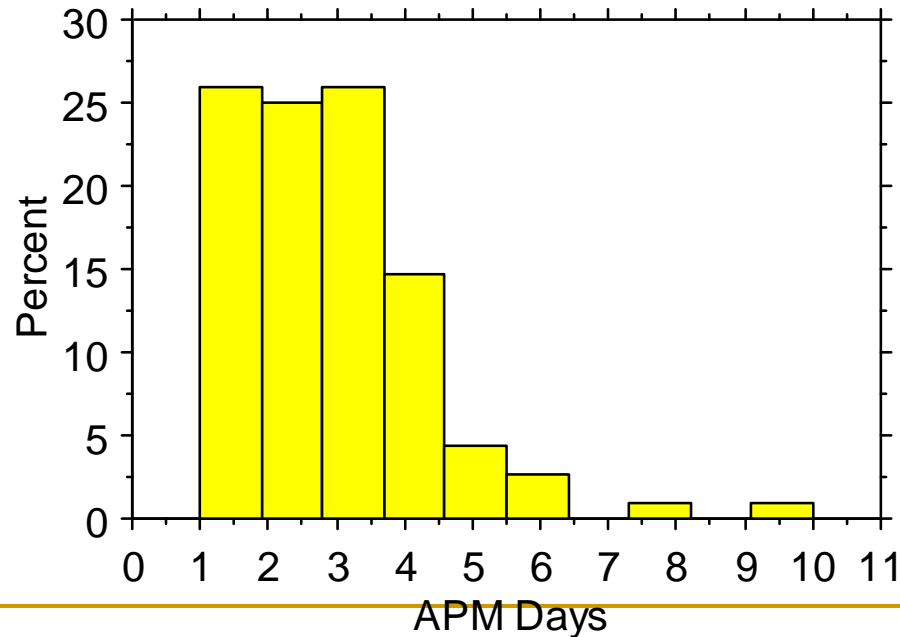
How long? – Days of treatment

Health Information Services use only

Number of days of Acute Pain Therapy this admission:
(i.e. number of days more than three pain assessments
or FAS entered)

4

	Range	Median	Mode	Mean (SD)	Proportion n=124
Total days	1 – 18	4	1	4.6 ± 3.5	
APM days	1 – 10	2		2.6 ± 1.5	



Effective Analgesia - Options

■ **Days** when pain control was not achieved

- Pain Intensity > 7
 - Once
 - Consecutive (e.g. 2 in row)
- Functional Activity Scale (FAS) Score
 - Once
 - Consecutive (2 in row)
 - Cumulative (3 in 24h period)

■ **Episodes** of Inadequate Analgesia

- Pain Intensity > 7
 - Count of all events
 - Count Consecutive events
 - Functional Activity Scale (FAS) Score
 - Count of Episodes of Consecutive Events
-

Analgesia – By Day

	Range	Median	Mode	Mean (SD)	Proportion n=124
Total days	1 – 18	4	1	4.6 ± 3.5	
APM days	1 – 10	2		2.6 ± 1.5	
3FAS days	0 – 2	0	0	0.15 ± 0.4	11.3%
Pain7 days	0 – 8	0	0	0.5 ± 1.2	27%

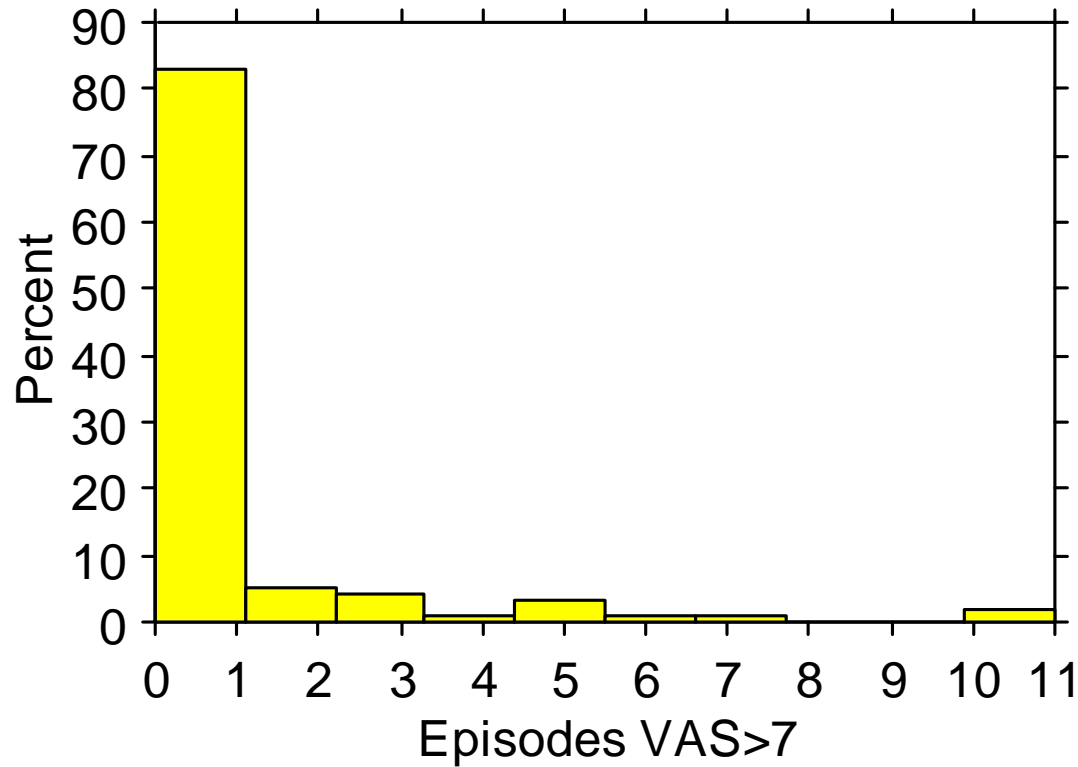
- 3FAS days - Number of **days** where 3 FAS ‘C’ scores were recorded in the 24 h period
 - Inadequate or extremely difficult to manage pain control
- Pain7 days - Number of **days** where a pain intensity score exceeded 7 at least once
 - Normally would not indicate a ‘failure’ of pain management
 - Is a prompt for clinical intervention

Analgesia – By Episode

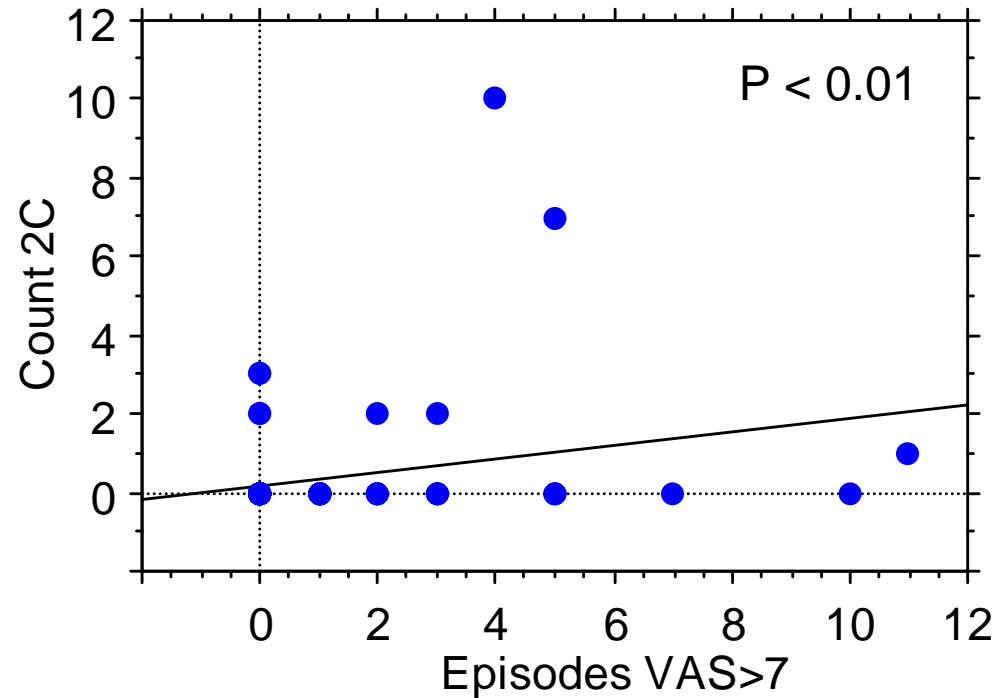
	Range	Median	Mode	Mean (SD)	Proportion n=124
2FAS episodes	0 – 10	0	0	0.5 ± 1.6	15%
Pain7 episodes	0 – 11	0	0	0.8 ± 1.9	27%

- **2FAS episodes** - Number of *episodes* where 2 FAS ‘C’ scores occurred consecutively
 - May indicate inadequate pain management
- **Pain7 episodes** - Number of *episodes* where a pain intensity score exceeded 7
 - May indicate poor or inconsistent pain management
 - Do not indicate how a patient may be ‘coping’ with pain

High VAS Scores - Episodes



VAS and FAS



- These outcomes are measuring *different* but *inter-related* phenomena
- Patients may have significant functional limitation at VAS scores lower than 8
- The criteria of 2 consecutive FAS C scores may not define the optimal threshold

Coding and Health Information Services

Health Information Services use only:

Number of days of Acute Pain Therapy this admission:
(i.e. number of days more than three pain assessments
or FAS entered)

Number of days in which a Functional Activity Scale score of
three (3) 'C' scores occurred:

- *The coding burden was considered to be high by HIS Managers*
- *Options to reduce this include:*
 - ❑ *Ward-level data entry by clinical or non-HIS clerical staff*
 - ❑ *Provision of increased HIS resources (staff) to cover additional coding needs*
 - ❑ *To conduct the more detailed survey ('quality of pain relief – FAS scores etc) over a shorter 'audit' period e.g. 2 to 4 weeks*

ACHS Acute Pain Indicators



- **5.1 Patient satisfaction with pain relief**
- **5.2 Analgesia adequate to enable acute rehabilitation**
- **5.3 Pain intensity scores recorded by nursing staff**
- **5.4 Respiratory Depression (requiring naloxone administration)**
- **5.5 Hypotension**
- **5.6 Nausea and vomiting (receiving prescribed antiemetic treatment)**
- **5.7 Presence of an educational program for nursing staff**
- **5.8 Presence of formal protocols**
- **5.9 Persistent neurological dysfunction attributed to regional anaesthesia**
- **5.10 Occurrence of an epidural haematoma/abscess following neuraxial blockade**
- **5.11 Death resulting from analgesic technique**

Education and Training

Policy	Metropolitan	Private	Regional
Epidural	100%	100%	100%
Intrathecal Infusion	30%	30%	
Intrathecal Opioids	40%	30%	60%
Patient Controlled Analgesia	90%	100%	100%
Opioid Resistance	30%		
Ketamine	90%		80%
Regional Perineural Infusions	80%	60%	60%
Wound Local Anaesthetic Infusions	10%	30%	40%
Tramadol	30%		30%
Opioid – subcutaneous	40%	60%	20%
Intravenous Lignocaine	20%		20%
Opioid – Infusions	80%	100%	40%
Nitrous Oxide	20%		20%
Labour Analgesia	20%		40%
PACU Opioids	20%		20%

Conclusions

- Need to Measure Pain Management Outcomes
- Patients Value the Extra Involvement
- Clinical Staff consider that Measuring Pain Treatment Outcomes meets a Significant Need
- Functional Activity Scoring is Achievable
- The Toolkit is Designed to Adapt to Existing Systems
 - Add-in or Incorporate
 - Layer-on
- Quality Evaluation needs Quality Information



A comprehensive but adaptable system is likely to be capable of enhancing clinical care and improving measurement of the quality of care