Pain in the ED: Meeting the needs of Frequent Presenters to John Hunter Hospital Emergency Department

Fiona Hodson, Clinical Nurse Consultant Pain Management
Hunter Integrated Pain Service (HIPS)

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Access Economics: The High Price of Pain

Prevalence
– 3.2 million Australians with chronic pain in 2007
– Projected increase to 5 million by 2050

Total cost of chronic pain in 2007 estimated $34.3 billion or $10,847 per person with chronic pain

Access Economics, MBF Foundation in collaboration with University of Sydney Pain Management and Research Institute Nov 2007
PREVALENCE COMPARISONS – CHRONIC PAIN AND OTHER CONDITIONS, 2005 (‘000)

- Visual disorders
- Musculoskeletal*
- Cardiovascular*
- Chronic pain
- Hearing loss
- Mental & behavioural*
- Asthma*
- Nervous system
- Skin & subcutaneous tissue
- Diabetes melitus*
- Genito-urinary system
- Neoplasms*
- Blood & blood forming organs
- Infectious & parasitic


Note: Chronic pain, in addition to being a condition in its own right, is also an important component of NHPA conditions, for example cancer, musculoskeletal diseases and injuries.
HEALTH EXPENDITURE COMPARISONS, CHRONIC PAIN AND OTHER CONDITIONS, 2000-01
($ MILLION)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular diseases</td>
<td>5,400</td>
</tr>
<tr>
<td>Musculoskeletal conditions</td>
<td>4,500</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>4,200</td>
</tr>
<tr>
<td>Injuries</td>
<td>3,800</td>
</tr>
<tr>
<td>Other Cardiovascular conditions</td>
<td>3,600</td>
</tr>
<tr>
<td>Mental disorders</td>
<td>3,400</td>
</tr>
<tr>
<td>Cancer</td>
<td>3,000</td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>2,800</td>
</tr>
<tr>
<td>Depression</td>
<td>1,600</td>
</tr>
<tr>
<td>Stroke</td>
<td>1,500</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>800</td>
</tr>
<tr>
<td>Asthma</td>
<td>700</td>
</tr>
</tbody>
</table>

Note: Chronic pain, in addition to being a condition in its own right, is also an important component of NHPA conditions, for example cancer, musculoskeletal diseases and injuries.
Breakdown of $34.3 billion cost of chronic pain
The Problem

- Chronic pain patients are managed in acute system
- Evidence shows not best approach
- Example abdominal pain have:
  - multiple hospital admissions
  - extensive investigations
  - large numbers of invasive surgeries
  - prolonged hospital stays
  - unnecessary duplication of care
  - tendency toward deterioration rather than improvement in their pain and health over time
Background to Redesign Project

John Hunter Hospital (JHH) Emergency Department (ED) executive and the Hunter Integrated Pain Service (HIPS), identified a need to better manage patients who frequently present with complaints of pain. The project is built on previous redesign initiatives in HNE health:

• Persistent Abdominal Pain (PAP) Project (1)
• Older Person’s Journey & Frequent Presenters (2)
• Chronic Disease Care Coordination Program (3)
Project

Aim
To improve the patient journey by meeting the needs of patients who frequently present to the John Hunter Hospital Emergency Department with pain.

Objectives

• Reduce ED length of stay and avoidable ED presentations in the defined cohort
• Reduce avoidable acute hospital inpatient admissions and occupied bed days of defined cohort
• Development of new model of care that is transferable across other chronic and complex care conditions
Methodology

Centre for Healthcare Redesign - Methodology

**Project Initiation & Start-up**
- To develop the project scope and set up project, change, communication and stakeholder management plans

**Diagnostics**
- To collect and assess critical data about processes, patients and staff, identify key issues to be resolved and build stakeholder support

**Solution Design**
- To design and prioritise solutions to issues and build stakeholder support

**Implementation Planning**
- To develop a comprehensive plan for implementing solutions and measuring benefits

**Implementation Checkpoints**
- To implement solutions and confirm that benefits are being delivered

**Evaluation**
- To identify ways to improve the process, share lessons and drive sustainability

**Purpose**
- Project Management
- Project Objectives & Measuring Benefits
- Project Scoping
- Governance & Reporting
- Roles & Responsibilities
- Project Deliverables & Scheduling
- Project Costs
- Risk Management
- Change Management
- Stakeholder Management
- Communications Management
- Process Mapping
- Diagnostic Tools & Techniques
- Staff Interviews
- Patient Interviews
- Patient Tag Alongs
- Data Collection & Analysis
- Baseline KPI’s
- Issues Identification
- Issues Prioritisation
- Root Cause Analysis
- Building the Case For Change
- Literature Search for Best Practice Solutions
- Facilitated Problem Solving & Brainstorming
- Solutions Identification
- Cost/Benefit Analysis of Solutions
- Prioritisation of Solutions
- Detailed Solution Statements
- Develop Quick Wins
- Implementation Plans for Quick Wins
- Business Cases
- Implementation Teams
- Change Readiness Assessment
- Sponsorship Roles & Responsibilities
- Project, Stakeholder, Communication & Change Management Plans
- Performance Management
- KPI Definition & Measurement Plan
- Piloting Initiatives
- Implement Quick Wins
- Implement all Solutions
- Trouble Shooting
- Coaching & Support
- Monitoring and Reporting
- Post Implementation Evaluation
- Review & Redesign of Unsuccessful Initiatives
- Continuous Cycle of Redesign – Sustainability
- Sharing of Knowledge
- Writing For Publication

Project + Change + Stakeholder + Communication Management
Scope of Project

- R 51 Headache
- G 43.9 Migraine
- G 44.2 Tension headache
- M 25.59 Pain in joint
- M 79.69 Pain in limb
- M 79.19 Muscle pain (Myalgia)
- M 54.5 Low back pain
- M 54.99 Backache
- R 07.3 Chest wall pain
- R 07.4 Chest pain
- R 10.1 Epigastric pain
- R 10.4 Abdominal pain
- R 52.1 Chronic and intractable pain
- R 52.9 Generalised pain unspecified
- K 85 Chronic pancreatitis
- K 81.0 Acute cholecystitis

Male and Female aged 16 to 64 years of age > 3 JHH ED presentations over 12 month period 1/01/09 - 31/12/09

Presenting problem of pain or a pain related complaint and a discharge diagnosis of 16 specified pain related ICD10 codes

Data from hospital Patient Identification System (iPM), at JHH ED and surrounding public hospital ED’s such as Calvary Mater, Belmont and Maitland hospitals to determine other patient presentation patterns

Excluded from the scope:

People presenting with needs in the sub categories of trauma, mental health, ophthalmology, ENT, obstetrics and gynaecology and respiratory
Methodology included

- Identifying key issues (eg: PAP project)
- Stakeholder approach
- Tagalongs
- Process mapping
- Chart audit - iPM
- Focus groups consumer and health professionals
- Survey clinician and patients
Recurrent Themes - Retrospective Chart Audits

• “Serial Presenters- Serial Admissions”
• Utilize Extensive Health Care Resources
• Access Block, Delays in Mobilizing Care - ↑ L.O.S.
• Variable Interactions between Health Care Providers- ↑L.O.S, ↑ Serial Presentations & No’s Separations
• Underdeveloped Partnerships between Primary & Tertiary Health Care Providers/Services
• Acute “Curative” Paradigm – Unnecessary Rx/Duplication
• Siloed Approach V Integrated Approach to Mx
• Episodic V Longitudinal Approach to “Chronic Condition”
Current Patient Journey

35 process steps means 35 chances for error.

This process follows the journey of a typical abdominal pain patient but it was found to be similar to other pain presentations and highlights the complexity and time consuming journey for the patient, carer and staff.

In some cases this process has taken up to 20hrs
Proposed Patient Journey

A new model of care would see a reduction from 35 to 8 processes.

Simpler less complex patient journey with the key being identification and fast tracking from the Clinical Initiatives Nurse.
Findings

2009 John Hunter Emergency Department

iPM ED Data:

• 14,704 patients had a total of 30,736 presentations with pain or a pain related condition (49% of all presentations) (4)
• 511 patients presented 3 or more times for a total of 2,370 presentations
• 48 patients with 238 presentations fitted the scope

Chart audit:

• Repeated presentations to ED which were complex and uncoordinated with no specific pathway
• Extensive duplication of investigations, procedures and interventions
• Multiple hospital admissions
• Prolonged hospital stays

Other Findings:

Clinical management of frequent presenters with pain is inefficient and confusing for patients, staff and carers. This at times led to conflict and hostility within and between treating teams, patients, their families and hospital staff.
New Model of Care

- Identification
- Organisational processes
- Models of care
- Communication
- Education

Improving the patient journey
Model of Care

**Identification**
- Solution 1: Weekly iPM report
- Solution 2: Frequent presenter with pain alert on iPM
- Solution 3: Stamping of triage sheet to alert medical officer of management plan
- Solution 4: iPM alert linked to a flag on the electronic whiteboard

**Organisational processes**
- Solution 1: Appropriate and current management plans
- Solution 2: Rapid assessments and fast tracking according to red flags policy
- Solution 3: Persistent pain clinical pathways

**Education**
- Solution 3.1: Nursing staff training with regard to new processes
- Solution 3.2: Medical officer and all healthcare staff training with regard to new processes
- Solution 3.3: Patient education with regard to new processes and management plans
MANAGEMENT PLAN ACTIVE.
Please review before commencing treatment.
<table>
<thead>
<tr>
<th>Red Flags</th>
<th>Abdominal pain</th>
<th>Spinal/Back pain</th>
<th>Headache</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Witnessed bile stained or foul vomiting</td>
<td>● Trauma</td>
<td>● Altered mental state</td>
<td></td>
</tr>
<tr>
<td>● Appendicitis</td>
<td>● Neurological deficit in limbs or “saddle” area</td>
<td>● Abnormal pupil appearance, function</td>
<td></td>
</tr>
<tr>
<td>● Fever, otherwise unexplained</td>
<td>● Hx of malignancy</td>
<td>● Thunderclap headache</td>
<td></td>
</tr>
<tr>
<td>● Tachycardia</td>
<td>● Bowel or bladder incontinence or loss of sensation</td>
<td>● Meningeval signs</td>
<td></td>
</tr>
<tr>
<td>● Hypotension</td>
<td>● Weight loss</td>
<td>● New hypertension</td>
<td></td>
</tr>
<tr>
<td>● Oliguria</td>
<td>● IV drug use</td>
<td>● HIV</td>
<td></td>
</tr>
<tr>
<td>● Marked change from usual pattern of presentation</td>
<td>● Fever, otherwise unexplained</td>
<td>● Now onset &gt; 50 years of age</td>
<td></td>
</tr>
</tbody>
</table>

**Investigation when red flags present**
- ● Urea, creatinine |
- ● FBC, UEC, Coagulation studies |
- ● Blood culture (if fever) |
- ● Lumber puncture |
- ● General surgery |
- ● Neuroradiology |
- ● Orthopedic |
- ● Neurology |

1. When there are no red flags it is recommended that patients are discharged early from the ED with notification sent to the GP. (See guideline “Flags for Exacerbations of Persistent Pain” for further details)
2. Patients should not be admitted to the ESU.
3. Mild dehydration can be treated with intravenous fluids over several hours in the ED with subsequent discharge.
4. When specialty admission occurs it is recommended that Inpatient Pain Service consultation follows within 24 hours to review analgesic plans.

*Patients should not be admitted on the basis of pain intensity alone*
Flags for Exacerbations of Persistent Abdominal Pain

Introduction
These flags relate to managing exacerbations of persistent abdominal pain (>3 month duration). Frequent presenters will often have an individual care plan available in the medical record and also available at the triage desk patient management plan folder.

1. Red flags point to the possibility of serious underlying intra-abdominal pathology such as bowel obstruction, perforated viscous or intra-abdominal sepsis. Urgent emergency department (ED) attendance and then surgical assessment is required.
2. Orange flags indicate the presence of serious mental health or drug related issues requiring urgent liaison psychiatry or drug and alcohol advice in the ED.
3. Yellow flags indicate non-urgent medication, pain, mental health, or medical issues. Outpatient referral, generally organised by the GP, can be considered to pain management, mental health, drug and alcohol or gastroenterology services.

Red Flags
- Winniead b/o,vomiting or feculent vomit
- Peritonitis
- Fever, otherwise unexplained
- Tachycardia
- Hypotension
- Oliguria
- Marked change from usual pattern of presentation

Investigation when red flags present
- Urinalysis
- U/E, LFT, Lasee
- FBC
- Abdominal x-ray: supine and erect

Further action when red flags present
- Involve most senior available ED medical staff.
- Surgical assessment in ED by most senior on call surgeon available

Orange Flags
- Threatened self-harm or high suicide risk
- Drug withdrawal state

Action when orange flags present
- Assessment in ED by:
  - Liaison psychiatry
  - Drug and alcohol services

Yellow Flags
- Prominent pain behaviours
- Problems of cognition or mood
- Medication problems
- Associated medical problems

Action when yellow flags present
- Consider referral to:
  - Liaison psychiatry or Community mental health
  - Drug and alcohol services
  - Gastroenterology
  Phone: 49223435 Fax 49223436

1. When there are no red or orange flags it is recommended that patients are discharged early from the ED with notification sent to the GP.
2. Mild dehydration can be treated with intravenous fluids over several hours in the ED with subsequent discharge.
3. When surgical admission occurs it is recommended that Inpatient Pain Service consultation follows within 24 hours to review analgesic plans.

"Patients should not be admitted on the basis of pain intensity alone"
Solution 4.1: Care coordination role to enhance communication between the ED, patient, GP and other relevant care providers

Solution 4.2: Electronic storage of management plans and pathways

Solution 4.3: Yearly review of management plans and flags

Solution 5.1: Communication plan for all stakeholders updated regularly

Solution 5.2: Care coordination role to enhance communication between the ED, patient, GP and other relevant care providers

Solution 5.3: Develop ED electronic discharge and referral capability eg) GP, mental health and HIPS
# ED Pain Management Plan

## JOHN HUNTER HOSPITAL
DIVISION OF EMERGENCY MEDICINE
PATIENT MANAGEMENT PLAN

Developed by: Dr. XYZ and ZZZ CNS HPFS
Date: 24/03/2012
Version: 2
Approved by: JHH ED Executive
Review due: 24/03/2013

<table>
<thead>
<tr>
<th>NAME: ........</th>
<th>MRN: ........</th>
<th>DOB: ........</th>
</tr>
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<tbody>
<tr>
<td>ADDRESS: ....</td>
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### CURRENT DIAGNOSES / RECORDED CLINICAL PROBLEMS
1. Persistent abdominal pain related to sensitised nervous system
2. Cholecystectomy (1996)
5. Frequent admissions to ............ Hospital for pain management

### MEDICATIONS
- Citrilocram 315mg mane
- Amlodipine 20 mg nocte
- Methadone 10mg bd
- Metaxalone 2x20chets daily
- Magnesium Glycinate 1000mg nocte
- Saffokhil pro
- Pantesta secert bd

### ALLERGIES
- Morphine
- Side effects: 
  - Fentanyl, intravenous ketamine, buprenorphine, Ca channel blockers

### RECOMMENDATIONS FOR FLARE - UP MANAGEMENT IN THE COMMUNITY (Prior to admission)
1. Upper abdominal pain (Splinter of Oddi dysfunction)
   - Metoclopramide 10mg IMF for associated nausea
   - Buscopan 20mg IMI
   - Hot pack/hot shower/relaxation techniques
   - Present to OP if unrelied by above as early in the course of the flare-up as is practicable during surgery hours
   - Pethidine x 4 / month via GP at his discretion for either migraine or upper abdominal pain
2. Lower abdominal pain and diarrhoea
   - Paracetamol 1g
   - Metoclopramide 10mg IMF for associated nausea
   - Oxycodone 4.4mg wafer for associated nausea
   - hot pack/hot shower/relaxation techniques
3. Dehydration from either vomiting or diarrhoea
   - Early hydration with sips of warm water, ginger cordial, Gatorade and ice
   - Guespin (to bind bile salts)
   - Present to GP if vomiting prolonged and oral fluids can't be tolerated
   - Present to TCH if after hours
4. Migraine
   - Metoclopramide 10mg IMI
   - Hot pack/hot shower/relaxation techniques
   - Pethidine may be available via GP x 4 / month at his discretion for either migraine or upper abdominal pain
5. Psychological support is available through ........ (Community Psychologist)

### AMBULANCES SERVICE INSTRUCTIONS
1. Not to be given analgesia unless clear new pathology present i.e. no analgesia for her chronic abdominal pain.
2. Transport to John Hunter Hospital requested rather than Calvary Mater. This is because she is a complex patient well known to staff at JHH.

### RECOMMENDATIONS FOR JHH ED i.e. Specific instruction regarding treatment / management
1. If ........ presents to the Emergency Department, must be triaged as per Australasian Triage scale and assessed (preferably by the most senior ED physician available) according to ‘Flags for Exacerbation of Persistent pain’ guideline 2010.
2. Baseline observations must be attended, include Blood Glucose level and Weight, with a focus on identifying ‘Red Flags’
3. Notify ED Medical officer of Red flags
4. Please check history and documentation in CAP prior to commencing treatment.
5. Blood tests and a-rays may not be worthwhile repeating an every presentation but should be at the breaking point.
6. Doctors discretion and in accordance with the ‘Flags for exacerbation of persistent pain’ guideline
7. Should not be admitted based on pain intensity alone and she should not be admitted to the B3SU under the ED physician. If admitted should be under Dr. XYZ (or available gastroenterologist) with Dr. .......

### ANY SPECIAL INSTRUCTIONS
1. If patient discharged from ED, an Electronic CAP discharge summary must be completed.
   - If clinician has pain management concerns – liaise with HPFS and pharmacist.
   - HPFS office phone 23456, HPFS CNS speed dial 66666, HPFS CNS speed dial 66666
2. If patient admitted please contact Inpatient Pain Service (IPS) for ongoing inpatient pain management.
   - IPS Nurse page 2044, IPS Registrar page 2101
   - Afterhours – Contact IPS Registrar page 2101

### RECOMMENDATIONS FOR ADMISSION TO JHH
1. Should ....... require admission analgesic management can include sc injection of fentanyl or Methadone. This can be continued with continuation of background or/c Methadone at 10mg bd.
2. For perianal Phenergan 50mg IMI maybe considered 12th hourly
3. Tenexepam can be considered while in hospital to assist sleep.

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**JOHN HUNTER HOSPITAL**
DIVISION OF EMERGENCY MEDICINE
PATIENT MANAGEMENT PLAN

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Evaluation

John Hunter Hospital Emergency Department in 2009

14,704 patients made 30,736 presentations with pain or a pain related condition

511 patients were frequent presenters presenting 3 or more times for a total of 2,370 presentations

Sample: 42 patients aged 16-64yrs presented 3 or more times for 326 presentations (6.3/week) within 16 target ICD Codes of:
- Headache; Migraine; Tension headache; Pain in joint; Pain in limb; Muscle pain; Low back pain; Backache; Chest wall pain; Chest pain; Epigastric pain; Abdominal pain; Chronic and intractable pain; Generalised pain; Chronic pancreatitis; Acute cholecystitis.

PMP (Patient Management Plan) Group
11 patients presented 3 or more times for 119 presentations (2.3/week). These patients were identified as chronic and complex with escalating persistent pain needs and had management plans put in place in 2009.

No PMP Group
31 presented 3 or more times for 207 presentations (4.0/week) & were not identified as frequent presenters.
Key Outcomes

- 16 strategies of model, 10 (62.5%) fully implemented and sustained, 1 partially implemented and sustained, 1 not implemented and 4 either fully or partially implemented but not sustained.
- 94% compliance with PMP’s
- 48% reduction in occupied bed days
- 92% reduction in CT scans and ultrasounds (13 to 1)
- Patients without PMP’s had increased length of stay
- Four patients expedited up the surgical waiting list
- Patients fast tracked to the Pain Service
Key Outcomes

- Three patients stopped presenting to EDs within HNE
- Three of 42 patients were identified as frequent callers of the ambulance service and 6 were enrolled in the HNE Connecting Care program.
- 100% positive feedback from staff and patients for coordinated care processes between Ambulance, GP’s, ED, inpatient teams and Pain Service
- Potential savings of 450 bed days and $300,000 in 12 months at JHH, based on the finding that identified 35 frequent presenters
- Equates to additional 105 patients/year to the original 77 identified
- Savings estimation based on average LOS of 5.2 days
- 48% reduction in bed days at $847/day care could pay for ED care coordinator at $80,000
Future Scope

- Share plans with Ambulance Service and GP via an e-health patient record
- Electronic access to Management Plans for all hospitals independent of LHD
- Potential savings in bed days could pay for co-ordinator role
- Care coordination role linked to Integrative or Chronic Care Care Program
- Spreading model has potential to save thousands of bed days
- Broaden scope to include other chronic and complex patients frequently presenting to ED and the paediatric population