

INTRODUCTION

Pain is one of the commonest symptoms in patients presenting to ambulance services.

Control of pain is important not only for humanitarian reasons but also because it may prevent deterioration of the patient and allow better assessment.

There is no reason to delay relief of pain because of uncertainty with the definitive diagnosis. It does not affect later diagnostic efficacy.¹

Many studies have demonstrated the inadequacy of pre-hospital pain relief^{2,3} and that time to pain relief is reduced by pre-hospital administration of analgesia.⁴

Pain is a multi-dimensional construct (see Table 1).

Table 1 – Dimensions of pain

Pain consists of several elements:	Pain relief will depend on:
• Treatment of the underlying condition. • Psychological support and explanation. • Physical methods e.g. splinting. • Pharmacological treatment.	• Cause, severity and nature of the pain. • Age of the patient. • Experience/knowledge of the clinician • Distance from receiving unit • Available resources.

ASSESSMENT

An assessment should be made of the requirements of the individual. Pain is a complex experience that is shaped by gender, cultural, environmental and social factors, as well as prior pain experience. Thus the experience of pain is unique to the individual.

It is important to remember that the pain a patient experiences cannot be objectively validated in the same way as other vital signs. Attempts to estimate the patient's pain should be resisted, as this may lead to an underestimation of the patient's experience. Several studies have shown that there is a poor correlation between the patient's pain rating and that of the health professional's, with the latter often underestimating the patient's pain.⁵

Instead, Ambulance Clinicians need to seek and accept the patient's self-report of their pain. This is reinforced by a popular and useful definition of pain: "pain is whatever the experiencing person says it is, existing whenever he/she says it does."⁶

Pain scoring

All patients in pain should have their pain assessed for its:

- nature
- severity
- duration
- location and radiation
- other factors that exacerbate or relieve the pain.

All patients with pain should have a pain severity score undertaken. It has been recognised that pain scoring increases awareness of pain, reveals previously unrecognised pain⁷ and improves analgesic administration.⁸

There are a variety of methods of scoring pain using visual analogue scales and simple scoring systems. JRCALC consider that a simple **0-10** point verbal scale (**0='no pain'** and **10='the worst pain imaginable'**) will be the most appropriate method in most pre-hospital situations.

This should be undertaken on all patients who are in pain and should be repeated after each intervention (the timing of the repeat score depends on the expected time for the analgesic to have an effect). The absolute value is used in combination with the patient assessment to determine the type of analgesia and route of administration that is most appropriate. The trend in the scores is more important than the absolute value in assessing efficacy of treatment. Scoring will not be possible in all circumstances (e.g. cognitively impaired individuals, communication difficulties, altered level of consciousness) and in these circumstances behavioural cues will be more important in assessing pain).

MANAGEMENT

Analgesia should normally be introduced in an incremental way, considering timeliness, effectiveness and potential adverse events. However, it may be apparent from the assessment that it is appropriate to start with stronger analgesia e.g. in apparent myocardial infarction, fractured long bones. Entonox should be supplied until the other drugs have had time to take effect and if the patient is still in pain, other analgesics administered. Administering analgesia in this step-wise, incremental way minimises the amount of potent analgesia that is required.

Any pain relief must be accompanied by careful explanation of the patient's condition and the pain relief methods being used.

Management of Pain in Adults

Patients with chronic pain, including those receiving palliative care, may experience breakthrough pain despite their usual drug regime. They may require large doses of analgesics to have significant effect. If possible, contact should be made with the team caring for the patient.

TREATING THE CAUSE

Many conditions produce pain and it is vital to treat the cause of the pain, including underlying conditions. This will also help relieve the pain in many situations e.g. giving GTN in cardiac pain, oxygen in sickle cell crisis.

Table 2 – Non-Pharmacological Methods of Pain Relief.

Psychological	<i>Fear and anxiety</i> worsen pain, reassurance and explanation can go a long way towards alleviation of pain. Distraction is a potent analgesic, commonly used in children, but may also apply to adults; simple conversation is the simplest form of distraction.
Dressings	<i>Burns dressings</i> that may cool, such as those specifically designed for the task ⁹ or <i>cellophane wrap</i> , can alleviate the pain. Burns should not be cooled for more than 20 minutes total time and care should be taken with large burns to prevent the development of hypothermia. ¹⁰ However, analgesia should also be provided at the earliest opportunity.
Splintage	Simple splintage of fractures provides pain relief as well as minimising ongoing trauma and bleeding.

NOTE: Most commonly, a patient requires a combination of pharmacological and non-pharmacological methods of pain relief. For example, morphine may be required to enable a splint to be applied.

Table 3 – Pharmacological Methods of Pain Relief (*refer to specific drug protocols*).

Inhalational analgesia	<i>Entonox</i> (50% Nitrous Oxide 50% Oxygen) is a good analgesic for adults who are able to self administer and who can rapidly be taught to operate the demand valve. It is rapidly acting but has a very short half life, so the analgesic effect wears off rapidly when inhalation is stopped. It can be used as the first analgesic whilst other pain relief is instituted. It can also be used in conjunction with morphine, particularly during painful procedures such as splint application and patient movement.
Oral analgesia	<i>Paracetamol</i> and <i>ibuprofen</i> may be used in isolation or together for the management of mild to moderate pain. It is important to assess the presence of contra-indications to all drugs including simple analgesics. Non-steroidal anti-inflammatory drugs are responsible for large numbers of adverse events, because of their gastro-intestinal side effects and their effects in asthmatics. Some ambulance services may also wish to add a paracetamol/codeine combination to their formulary.

Parenteral and enteral analgesia

Morphine is approved for administration by Paramedics. It remains the gold standard for parenteral analgesia and can be used intravenously or orally. As with other opiates morphine is reversed by naloxone. When administering opiates, naloxone **MUST** be available. If clinically significant sedation or respiratory depression occurs following the administration of opiates the patient's ventilations should be assisted. Decisions to reverse the opiate effect using an opiate antagonist such as naloxone should be made cautiously as this will return the patient to their pre-opiate pain level.

Opiate analgesics should not be given intramuscularly because of erratic absorption.

The intravenous route has the advantage of rapid onset and the dose can be easily titrated against analgesic effect.

Oral morphine is useful for less severe pain but has the disadvantage of delayed onset, some unpredictability of absorption and having to be given in a set dose. It has the advantage of avoiding the need for intravenous access. It is widely used for patients with mild/moderate pain from injuries such as forearm fractures and hip fractures. Those with severe pain are best treated with an intravenous preparation, augmented with entonox if required.

Opiates are often required in sickle cell disease¹¹ (a review is underway to look at the optimal analgesic treatment in sickle cell disease¹²).

There is no evidence that metoclopramide is effective in relieving the nausea induced by opiates in hospital situations^{13,14} but this has not been evaluated in the pre-hospital environment where motion sickness may also contribute.

Intranasal opiates (morphine, diamorphine and fentanyl)

Intranasal opiates are not currently approved for administration by Paramedics. Although it has been suggested that they may be useful in the pre-hospital environment and are sometimes used by Doctors, legal restrictions on the administration of opiates by Paramedics have to be addressed before this will be possible. Intranasal opiate analgesia is becoming used more frequently in hospital¹⁵ and has the advantage of potent, rapid action without needing parenteral administration.

Topical analgesia

In vulnerable adults or needle phobic adults, where venepuncture may be required in a non urgent situation, **tetracaine gel 4%** can be applied to the skin overlying a suitable vein and the area covered with an occlusive dressing. Such an application takes about 20-30 minutes to work.

METHODS OF PAIN RELIEF WHICH REQUIRE APPROPRIATELY TRAINED DOCTORS

These methods are included because it is necessary to know what can be done to reduce pain before hospital, if time and logistics allow. A suitably trained (immediate care trained) Doctor should be called early to the scene if it is thought that such assistance may be necessary. Hospital personnel may not all have these skills.

Table 4 – Relief Which Requires Appropriately Trained Doctors.

Ketamine analgesia/ anaesthesia	Ketamine is particularly useful in entrapments where a person can be extricated with combined analgesic and sedative effects. At present only Doctors may administer ketamine. Ketamine is a non-opiate, parenteral analgesic that at higher doses is a general anaesthetic agent. It is particularly useful in serious trauma because it does not significantly depress blood pressure or respiration. Adults may experience unpleasant emergence phenomena. Ketamine produces salivation so careful airway management is important, although unnecessary interference should be avoided as laryngospasm may occasionally occur. Atropine may be used concurrently to minimise hypersalivation.
Regional anaesthesia	There is limited room for regional nerve blocks because of the environment and the need to transport the patient to hospital in a timely manner. However, they can be very effective in certain circumstances of severe pain and do not induce drowsiness or disorientation. Femoral nerve blocks may be useful and provide good analgesia for a lower limb injury such as a fractured femur. Clinicians undertaking regional anaesthesia must be suitably trained, prepared and experienced.

Key Points – Management of Pain in Adults

- Pain should be treated as early as possible.
- Pain relief does not affect later diagnosis.
- Pain management consists of treating the cause wherever possible, and analgesia involving psychological, physical and pharmacological interventions.
- All patients should have a pain score before and after each intervention.

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METHODOLOGY

Refer to methodology section.