



Air & Surface Transport Nurses Association Position Statement

Pain Management During Patient Transport

“Pain is the ultimate teacher. It teaches all creatures to avoid fire, poison, sharp objects, and things that can harm. It alerts the body to injury and disease. Pain is a constant companion for humanity.” —Marcia Meldrum, Ph.D., University of California, Los Angeles, Department of Psychiatry and Biobehavioral Sciences (retired)

Background

The Air and Surface Transport Nurses Association (ASTNA) recognizes the importance of adequate management of patient pain during the transport process. Patients are dependent upon the transport team to prevent the unwanted consequences of inadequate pain management during transport.

At some point before, during, and/or after transport, patients are likely to experience pain; the transport team must understand how to assess the pain level of the patient. This is of particular importance for patients who are unable to adequately express or communicate their pain.¹

Based on this, the transport team should be able to:

1. Define the concept of pain.
2. Explain the pathophysiology of pain.
3. Describe the assessment of pain during the transport process.
4. Identify the pharmacological management of pain during the transport process.
5. Identify alternative methods to manage pain during the transport process.

Rationale

Pain is one of the primary symptoms of many illnesses and injuries; the consequences of untreated or unmanaged pain can leave the patient with lifelong problems. Current estimates for the amount of adults in the United States living with chronic pain (having pain on most days or every day) range from around 20% to nearly 40%; it is estimated that around 40% of older adults (age 56 and older) live with chronic pain.² Generally, the transport team provides management of acute pain due to illness or injury, and because of this, the transport team must understand that

the management of acute pain will ultimately have an impact on potential chronic pain. The transport team must therefore ensure that a patient's pain is appropriately managed.

The consequences of ineffective pain management include:

- Prolonged stress response
- Increased blood pressure, heart rate, and oxygen demand
- Decreased gastric motility
- Increased immobility
- Decreased immune response
- Delayed healing
- Increased risk of developing chronic pain
- May cause anxiety, depression, hopelessness, fear, anger, sleeplessness
- Increased hospital length of stay
- Negative impact on family or significant other

Definition of Pain³

The root of the word *pain* comes from Latin word *poena*, which means punishment or penalty.

In 2021, the International Association for the Study of Pain proposed the following definition of pain:

“...[A]n unpleasant sensory or emotional experience associated with, or resembling that associated with, actual or potential tissue damage.”

The definition has been expanded to include a broader definition of pain considering the patient's perception. This identifies the physiological, psychological, and spiritual components related to pain. In other words, pain is a personal experience.

Pathophysiology of Pain³

- Nociception is the body's way of becoming aware of pain; a nociceptor is a free nerve ending that responds to noxious stimuli. There are four phases of nociception:
 - Transduction: noxious stimuli (thermal, chemical, mechanical) cause ion channels on the nociceptors to open, creating electrical impulses that travel through the A-delta and C fibers; A-delta fibers conduct “fast pain” (sharp and acute pain), whereas C fibers conduct “slow pain” (dull and chronic pain)
 - Transmission: the passage of action potentials from the peripheral to central terminals of nociceptors in the central nervous system; one track is fast, resulting in acute pain and the other is slow, resulting in dull and chronic pain
 - Perception: the brain's decoding of the stimuli or what is causing the pain, including the conscious awareness of pain; may be influenced by genetics,

culture, sex, life experiences, past pain experiences, level of health, situation that caused the pain, etc.

- Modulation: augmentation or suppression of the sensory input occurring through supraspinal influences from the pons, medulla, and midbrain (e.g., the release of endogenous opiates)

Common Causes of Pain in the Transport Environment

- Injury (e.g., trauma)
- Disease process (e.g., acute myocardial infarction)
- Procedure pain (e.g., insertion of a chest tube)
- Preparation for transport
- Transporting: moving patient from scene or hospital bed to a transport stretcher to another vehicle or aircraft than back to another stretcher or bed
- Transport stressors (e.g., barometric pressure changes; thermal changes; noise, vibration; fatigue; smells; noise; gravitation forces; rough road conditions)
- Emotional stressors

Assessment of Pain During Transport⁵

Reasons why pain may not be assessed adequately during transport:

- Altered level of consciousness, due to:
 - Substance abuse
 - Postictal phase
 - Possible cerebrovascular accident/intracerebral hemorrhage
 - Hypoglycemic crisis
 - Respiratory distress
 - Trauma
 - Behavioral/psychiatric disorder
- Nonverbal
- Language barrier
- Refusal to respond

Note: Some patients may normally have altered levels of consciousness or may otherwise be nonverbal. In scenarios like this, a caregiver or family member may communicate with the transport provider regarding the patient's normal response(s) to pain.

Assessment Tools⁶

- FLACC Scale (based on observations of: face [e.g., grimacing, clenched jaw, etc.], legs [e.g., restless, kicking, etc.], activity [e.g., squirming, shifting, rigid, etc.], cry [e.g., moaning/whimpering, sobbing/screaming, etc.] consolability [e.g., easy reassurance, difficult to console, etc.]; scoring in each category from 0 to 2 and total score corresponds

to general severity of pain; can be used in very young patients or in any patient who is unable to communicate)⁷

- Wong–Baker FACES pain rating scale (combines pictures [six facial expressions that range from happy/pain-free to crying/worst pain imaginable] and numbers [from 0 through 10, corresponding with NPRS numbers]; can be used in patients older than 3 years of age)⁸
- Numerical rating scale (from 0 [no pain at all] through 10 [worst pain imaginable]; can be used for patients older than 9 years of age)

Pharmacological Management of Pain During Transport

Opioids are medications that affect specific receptors that allow binding of specific opioid medications to provide analgesia.⁹

- Common opioids used for pain management in transport include:
 - Fentanyl
 - Morphine
 - Hydromorphone
- Adverse effects of opioids include:
 - Respiratory depression
 - Nausea and vomiting
 - Flushing
 - Hypotension
 - Avoid use of concurrent benzodiazepines if possible
- Monitoring patients who have been administered opioids can include:
 - Use of continuous pulse oximetry
 - Use of continuous cardiac monitoring
 - Oxygen as indicated by the patient's status

Caution: Patients taking buprenorphine or buprenorphine/suboxone who require opioids for pain management will require larger doses of medications. It is strongly recommended that providers consult Medical Direction if/when these situations arise during transport.

Nonopioid medications used for pain management during transport include:

- Ketamine^{10,11}: a noncompetitive *N*-methyl-d-aspartate (NMDA) receptor antagonist that reduces the neurotransmission of the excitatory neurotransmitter glutamate
 - Has unique mechanism of action providing opioid-sparing effects as well as analgesic effects
 - Useful for intractable pain
 - Has been shown to reduce chronic pain; may prevent the development of chronic pain
- Antiemetics: medication to manage nausea and vomiting
 - Ondansetron

- Promethazine
- Anxiolytic: medications that help to reduce anxiety and should be given with caution when administered with opioid medications.
 - Lorazepam
 - Midazolam
- Regional anesthesia¹²: administration of a medication that numbs an area of the body; can be used for certain surgeries, as well as for pain management; comes with benefits and drawbacks to consider, including:
 - Provision of early anesthesia
 - Decreased need for opioids and sedatives
 - Facilitate smooth transport process
 - Take additional time to provide
 - Ultrasound use recommended
 - Risk of local anesthesia systemic toxicity
- Alternative methods for pain management during patient transport include^{13–17}:
 - Acupressure
 - Therapeutic environment
 - Presence
 - Music therapy
 - Battlefield acupuncture: needles inserted into specific areas of the ear; has an effect on the central nervous system that theoretically prevents the pain from surfacing.

ASTNA Position

ASTNA supports that transport nursing professionals understand the barriers to, and risks associated with, pain management during transport including:

- Identification of obstacles related to assessing a patient's pain during the transport process
- Patients who may not feel comfortable revealing their level of pain
- Patients who refuse pain medications
- Patients with difficult vascular access
- Patients with illnesses or injuries that may not require vascular access
- Delayed transport when pain medication is used
- Fear of patient complications and adverse reactions related to pain and procedures (e.g., providing care that may cause a change in the patient's level of consciousness related to the use of pain medications)
- Concern about patients who may be drug-seeking
- Recordkeeping for administration of opioids and other controlled substances

ASTNA supports the use of appropriate pain management based on the transport team's Patient Care Guidelines during the transport process.

ASTNA supports the need for adequate practitioner education regarding the use of both pharmacological and nonpharmacological methods to effectively and appropriately manage pain during the transport process.

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