SAEMS

ABDOMINAL PAIN STANDING ORDER

Self-Learning Module

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January 27, 2009

PURPOSE

This SAEMS Standing Order Training Module has been developed to serve as a template for EMS provider training. The intent is to provide consistent and concise information to all providers practicing within the SAEMS Region. The content of the Training Module has been reviewed by the Protocol Development and Review Sub-Committee, and includes the specific standing order, resource and reference material, and instructions for completing the Training Module to obtain continuing education credit. One hour of SAEMS continuing education credit may be issued following successful completion of the module.

OBJECTIVES

Upon completion of this learning module the participant will be able to:

1. Review basic abdominal evaluation techniques

2. Recognize life-threatening abdominal pathology

3. Apply the Abdominal Pain Standing Order appropriately

INSTRUCTIONS

1. Watch the Power Point presentation. Review the accompanying information, Standing Order, and any additional reference material as necessary.

2. Complete the attached posttest by and return it to your supervisor or base hospital manager:

3. A SAEMS CE Form will be issued to providers scoring greater than ____% on the Posttest.

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INTRODUCTION

The Abdominal Pain Standing Order was originally developed in 2005, in response to an increasing number of patients presenting with the chief complaint of abdominal discomfort. Although the abdominal cavity contains most of our internal organs and is responsible for a multitude of physiologic processes, recognition and management of the acute, life-threatening case is fairly straightforward for the EMS provider.

ABDOMINAL PAIN

Incidence

The complaint of abdominal pain is a common one. It is however, one of the most difficult conditions to diagnose and treat. Fortunately, EMS providers are not expected to diagnose, but are expected to assess, recognize, and treat the patient with an acute abdominal condition.

Abdominal pain represents approximately five to ten percent of all emergency department visits, many of which arrive by ambulance. The symptoms of abdominal pain can be associated with transient, mild disorders or serious disease, but determining the cause is very difficult. Pain may be the only indication of the need for surgery, with fifteen to thirty percent of abdominal pain patients requiring immediate surgical intervention. Fortunately, the majority of patients with the complaint of abdominal pain will not experience a catastrophic event.

Most complaints of abdominal pain and the associated symptoms of nausea, vomiting, and diarrhea arise from problems within the abdomen itself. Acute and severe abdominal pain is almost always a symptom of intraabdominal disease. However, ten to fifteen percent of abdominal pain originates from *outside* the abdomen such as; lumbar spine fracture, myocardial infarction, pulmonary embolism, and pneumonia, yet the primary complaint is abdominal pain.

As a prehospital provider it is not necessary to identify the cause, but to recognize the basic signs of serious conditions, and to provide necessary interventions and transportation. The patient with an acute abdomen can deteriorate quickly, requiring frequent reassessment and rapid transportation.

Abdominal Pathology

Several organ systems (gastrointestional, genitourinary, circulatory, and reproductive) are found in the abdomen; it is the largest body cavity. Pain in the abdomen can be a symptom of inflammation, disease, injury, or organ dysfunction. Associated symptoms such as nausea, vomiting, anorexia, **hematuria** or melena usually indicate a serious problem. The “acute abdomen”

refers to the sudden onset of abdominal pain that is often associated with other signs and symptoms such as nausea, vomiting, anorexia, and tenderness to palpation upon physical examination. Many of the conditions that produce an acute abdomen can result in death if not recognized and treated early.

The “acute abdomen” can be defined as: An intraabdominal process of recent onset (up to three days) causing severe pain and often requiring surgical intervention. This may be caused by one or more of the following conditions:

Inflammatory process (appendicitis)
Mechanical process (**incarcerated hernia**)
Vascular occlusion (**mesenteric arterial thrombosis**)
Congenital defect (**omphalocele**)
Traumatic event (ruptured spleen)

Abdominal emergencies can be divided into gastrointestional, genitourinary, or reproductive system emergencies. It is difficult for the prehospital provider to determine the source of the abdominal problem in the field, therefore the approach to managing the patient with acute abdominal pain should be consistent regardless of the system involved.

Following is a list of some conditions which may result in acute abdominal discomfort requiring rapid, life-saving surgical intervention:

- Bleeding Esophageal Varices
- Abdominal Aortic Aneurysm
- Ruptured Ectopic Pregnancy
- Perforated Ulcer
- Abdominal Trauma
- Appendicitis
- Incarcerated Hernia
- Peritonitis
- Intestinal Obstruction
- Mesenteric Infarction

Prehospital providers should consider the possibility of a gastrointestional hemorrhage in any patient with acute abdominal pain, especially if syncope has occurred or evidence of blood loss (shock) is present. Severe pain that precedes the onset of vomiting and lasts longer than six hours is likely to be caused by a surgically correctable illness.

Abdominal Assessment

Begin the assessment with airway breathing and circulation, skin color, condition, and temperature. Determine the patient’s level of consciousness and obtain baseline vital signs. If the patient presents with fever, shock, hemorrhage,

dehydration, or cardiac decompensation then a rapid survey with immediate transport would be prudent.

Prehospital providers should inquire about **A**llergies, **M**edications, **P**ast medical history, **L**ast oral intake and the **E**vents leading up to the present illness. Assessing the characteristics of pain is essential in *any* patient complaining of pain, but particularly in the patient with abdominal pain.

Pain Assessment

There are three patterns of pain that are associated with the abdomen; visceral, somatic, and referred. Since pain is the most prominent presenting complaint in the patient with an acute abdomen, it is helpful to understand the origin, location, and character of abdominal pain in order to understand its significance.

Visceral pain originates from the stretched muscle fibers in the wall of a hollow organ, spasm of these muscles, or stretching of the capsule of the organ when it attempts to relieve an obstruction. It is usually the first type of pain experienced. The sensory supply to the viscera is sparse and although visceral pain can be severe, it is diffuse and poorly localized. Visceral pain is often associated with nausea and vomiting. The intermittent quality of the pain with obstruction of a hollow viscus coincides with the peristaltic waves of the organ and can be described as colicky. Patients appear restless attempting to find some relief with writhing and massage of the affected area.

Visceral pain is followed by somatic pain. The parietal peritoneum lines the abdominal cavity and the interior surface of the diaphragm. The peritoneum becomes irritated when there has been bacterial invasion due to a ruptured viscus (i.e., perforated peptic ulcer), bleeding into the cavity (i.e., trauma), an extending infection (i.e., **pelvic inflammatory disease**), or through an ischemic process (i.e., mesenteric occlusion). When the parietal peritoneum is irritated, somatic pain results. Somatic pain is more localized and can be sharp and constant. It is usually aggravated by movement. These patients are typically hunched over and immobile.

Pain experienced at a site other than where the local irritation is occurring is termed referred pain. The overlapping sensory nerves in the spinal cord result in pain being felt in two areas. Pain can also radiate to distant sites, such as the right scapula with acute **cholecystitis**, or pain that originates in the flank and radiates to the groin suggesting renal colic.

Obtaining a thorough history of the patient's pain is also important in determining the pathophysiologic alterations contributing to the pain, and in making judgments about appropriate supportive measures such as the implementation of the Abdominal Pain Standing Order. Many practitioners find the following mnemonic helpful in evaluating pain:

O = onset:	When did the pain begin? Was it sudden or gradual?
P = provocation:	What initiates or aggravates the pain? What makes it better? Is it aggravated by position?
Q = quality:	What is the patient's own description of the pain? Dull, sharp, crampy, burning, tearing
R = region:	Where does the pain originate?
radiation:	Is it felt in other areas?
referred:	Does it travel to other areas?
S = severity (pain scale):	What is the degree of discomfort on a scale of 1to10?
T = timing:	Is the pain constant or intermittent? Does it occur or resolve in relation to meals?

Associated Symptoms

Inquire about associated symptoms such as fever, nausea and vomiting, diarrhea, constipation, and anorexia. An infectious process may result in an elevated temperature. Acute appendicitis often causes anorexia, and bowel obstructions often lead to vomiting. Remember that age and gender can provide helpful hints as well. Abdominal pain in babies is usually indicative of **atresia**, hernia or **stenosis**. In children it may be an **intussuseption**, hernia or appendicitis. Females could be suffering from cholecystitis, an ectopic pregnancy, or from pelvic inflammatory disease (PID). Males more commonly suffer from ulcers than do females. A geriatric patient might present with **mesenteric emboli** following the onset of atrial fibrillation, or a bowel obstruction due to adhesions from a prior abdominal surgery. Always ask about prior disease or surgeries. Pain that awakens the patient from sleep usually indicates significant disease.

Physical Exam

Assessment of the abdomen during the secondary survey begins by observing the patient, preferably in a supine position with the knees bent to reduce intra-abdominal pressure. Look for any scars, rashes, lesions, bruising, discoloration or indications of **ascites**. Observe the symmetry of the abdomen and look at the shape. If a pulsatile mass is observed, it may be indicative of an abdominal aortic aneurysm (AAA), which could potentially rupture if palpated. Patients with a palpable, pulsating mass should be immediately transported to the closest hospital capable of rapid surgical intervention.

Auscultation of the abdomen typically follows inspection because the bowel is sensitive to touch, and bowel sounds are best evaluated prior to palpation. Percussion determines the presence of gas or fluid in the hollow organs or in the peritoneal cavity. It is also performed to determine the size of an enlarged organ

(spleen or liver) or an intraabdominal mass. In the prehospital environment auscultation and percussion are two abdominal assessment techniques which are rarely performed.

Establish the location of the pain by having the patient point to the area most tender. Begin palpating from the furthest quadrant away from the pain. Palpate each quadrant by placing one (warm) hand on the abdomen and applying gentle pressure with the other hand over the top of the first. Note if the abdomen is soft or firm, and if there is increased pain when pressure is applied (point tenderness), if the patient tenses (guarding), or if the pain increases when rapidly releasing your hands (rebound tenderness).

Management

The SAEMS Abdominal Pain Standing Order may be considered for patients greater than 16 years of age who complain of abdominal pain. All patients should be managed with immediate supportive care to include oxygen and cardiac monitoring as appropriate. The following list includes the Abdominal Pain Standing Order exclusionary conditions which require medical direction authority contact:

- *Pregnancy:* These patients may often be transported directly to a labor and delivery in-patient unit, bypassing the emergency department. Telemetry information regarding gestational age, complications, etc. is important in making destination decisions.
- *Trauma triage criteria:* Patients who meet the SAEMS Trauma Triage Protocol criteria are not eligible for standing order usage. A full telemetry report to the trauma center is required.
- *Abdominal trauma:* Isolated blunt injury to the abdomen carries with it a high likelihood of severe intraabdominal injury. Consultation with a medical direction authority is suggested.
- *Mixed symptoms:* Abdominal pain associated with other complicating findings such as; chest pain, shortness of breath, or an altered level of consciousness would prohibit the use of the standing order.
- *Known history of cardiac disease:* Abdominal pain may sometimes be the presenting complaint of an extraabdominal event such as myocardial infarction.

After determining that the Abdominal Pain Standing Order is appropriate, the blood pressure and heart rate next define whether the patient is categorized as stable or unstable. For the stable patient with a blood pressure greater than 90 systolic and a heart rate less than 110, pain assessment and transportation in a position of comfort with supportive measures is indicated. The unstable abdominal pain patient presents with a blood pressure less than 90 systolic and a heart rate greater than 110. These patients require a fluid bolus of normal saline and the administration of intravenous ondansetron for nausea or

vomiting. Medication to address the pain requires an on-line order. Always reassess after each intervention.

Communication

As with any standing order, the receiving facility requires certain information to allow them to prepare for the patient's arrival. Relay the following essential information to the hospital:

- Age
- Sex
- Abdominal Pain Standing Order
- Transporting Unit
- Estimated Time of Arrival
- Stable or Unstable patient

This information will maintain continuity of care and facilitate patient transfer upon arrival.

Summary

Acute abdominal distress may be the result of conditions involving several different organ systems. According to some references there are approximately one hundred different causes of abdominal pain. The expectation of the field provider is not to diagnose, but to recognize and manage those potentially life-threatening conditions in patients complaining of abdominal pain. The SAEMS Abdominal Pain Standing Order has been developed to allow providers the freedom to assess and transport these patients with consistency in management and minimal interruption in patient care.

GLOSSARY

Ascites: the accumulation of serous fluid in the peritoneal cavity typically caused by liver disease.
Atresia: an abnormal condition in which a normal opening or tube in the body is closed or absent.
Cholecystitis: inflammation of the gallbladder.
Hematuria: the presence of blood in the urine.
Incarcerated Hernia: a hernia (a breakthrough of an organ through a tear in the muscle wall that surrounds it) that cannot be reduced without surgery.
Intussuseption: the telescoping of a length of intestine into an adjacent portion usually producing an obstruction.
Mesenteric Arterial Thrombosis: the formation of a blood clot inside a mesenteric blood vessel, obstructing the flow of blood.
Mesenteric Emboli: the migration of a clot that blocks a mesenteric blood vessel supplying the bowel.

Omphalocele: a congenital abdominal wall defect in which the intestines, liver, and occasionally other organs remain outside of the abdomen in a sac due to a defect in the development of the muscles of the abdominal wall.
Pelvic Inflammatory Disease: inflammation of the female reproductive pelvic organs.
Stenosis: a constriction or narrowing of a duct or passage.

ABDOMINAL PAIN STANDING ORDER

Initiate Immediate Supportive Care
- O2 to keep sat >90%
- Cardiac Monitor (if available)

INCL

Use standing order on patients greater than 16 years of age complaining of abdominal pain

EXCLUSION

Do not implement standing order on patients with the following symptoms:
- Pregnancy
- Meeting trauma triage criteria
- Abdominal trauma
- Mixed symptoms
- Known history of cardiac disease

STABLE
SBP >90 or HR <110

- Assess acuity and severity of pain
- Transport in position of comfort with supportive measures as indicated

If patient's condition deteriorates notify receiving facility of change in status. Consider transport to closest facility

UNSTABLE
SBP <90 or HR >110

- Follow STABLE patient orders
- Initiate a large bore IV of Normal Saline
- If the patient is pale/diaphoretic, or has a systolic SBP less than 90 or a heart rate greater than 110 administer 20 ml/kg Normal Saline
- Reassess hemodynamic and pulmonary status and rebolus as indicated
- For nausea or vomiting administer Ondansetron:
  ADULT: IV 4mg over 2-5 min. May repeat once after 15 min if no response.

Consider medical direction contact for analgesic orders.

MEDS Notification to receiving facility:
Advise if patient is *Stable* or *Unstable*

Generic Name: Ondansetron

Class: Antiemetic agent

Mechanism of Action:

Selectively blocks serotonin 5-HT_3 receptors located in the CNS at the chemoreceptor trigger zone and in the peripheral nervous system on nerve-terminals of the vagus nerve

Indications for use:

Nausea and vomiting

Contraindications:

Hypersensitivity
Use with caution in patients with hepatic impairment

Adverse Reactions:

CNS:	Headache, malaise, fatigue, dizziness, fever, sedation, extrapyramidal syndrome
Cardiovascular:	Chest pain, arrhythmias
Respiratory:	Hypoxia
GI & Hepatic:	Diarrhea, constipation, abdominal pain, xerostomia, decreased appetite
Skin:	Rash

Notes on Administration

Incompatibilities/Drug Interactions:

Inducers or inhibitors of P450 drug metabolizing enzymes may alter the clearance of Ondansetron. No dosage adjustment is recommended.

Adult Dosage:

4 – 8 mg IV slow push over 2 – 5 minutes
8 mg PO ODT or tablet

Pediatric Dosage: (1 month to 12 years old)

Greater than 40 kg- 4 mg IV slow push over 2 – 5 minutes
Less than 40 kg- 0.1 mg/kg IV slow push over 2 – 5 minutes
4-12 years old 4 mg PO ODT or ODT

Route of Administration:

IV, IM, PO

Onset of Action:

Unknown but probably 10 to 30 minutes

Peak effects:

Unknown

Duration of Action:

Half life is approximately 4 hours. Exact duration unknown but appears to be prolonged compared to half-life

Dosage Forms/Packaging:

4 mg/2 mL vial
4 or 8 mg ODT or tablet

Arizona Drug Box Standard Minimum Supply:

Optional- 4 mg

Special Notes:

Instructions for Use/Handling ZOFRAN ODT Orally Disintegrating Tablets: Do not attempt to push ZOFRAN ODT Tablets through the foil backing. With dry hands, PEEL BACK the foil backing of 1 blister and GENTLY remove the tablet. IMMEDIATELY place the ZOFRAN ODT Tablet on top of the tongue where it will dissolve in seconds, then swallow with saliva. Administration with liquid is not necessary.
Bottles: Store between 2°and 30°C (36° and 86°F). Protect from light. Dispense in tight, light-resistant container as defined in the USP.
Unit Dose Packs: Store between 2° and 30°C (36°and 86°F). Protect from light. Store blisters in cartons.

POSTTEST NAME: DATE:

1. Which of the following conditions are *exclusion* criteria for the Abdominal Pain Standing Order?

   a. Pregnancy, abdominal trauma, mixed symptoms, known history of cardiac disease.
   b. Patient with severe abdominal pain on-and-off for 6 months with associated weight loss.
   c. Patient with severe abdominal pain for less than 4 hours associated with vomiting.
   d. 17-year-old female who complains of abdominal cramps.

2. Patients with severe abdominal pathology will typically:

   a. Be moving around, as they cannot get comfortable
   b. Lie as still as possible in the fetal position
   c. Be seated, leaning forward in an attempt to relieve the pain
   d. All of the above

3. Pain with cholecystitis is often acute and located in which abdominal quadrant?

   a. Left lower
   b. Left upper
   c. Right lower
   d. Right upper

4. Pain that occurs when nerve fibers carrying the pain message cross at the spinal cord is called?

   a. Parietal pain
   b. Referred pain
   c. Visceral pain
   d. Reactionary pain

5. The kidneys are protected relatively well against injury due to their location in the?

   a. Chest cavity
   b. Right lower quadrant
   c. Pelvic region
   d. Retroperitoneal space

6. The Abdominal Pain Standing Order pediatric dose for ondansetron is 0.1mg/kg over 2 to 5 minutes up to a maximum dose of 4mg.

   a. True
   b. False

7. The highest priority when treating a patient with abdominal pain is to:

   a. Transport the patient in the most comfortable position
   b. Treat the patient for shock
   c. Maintain the airway, breathing, and circulation
   d. Palpate the abdomen for pulsating mass

8. Your adult male patient presents with abdominal cramps, low-grade fever, pale, moist skin, nausea and vomiting, and tenderness to the lower left side of the abdomen. This patient qualifies for the Abdominal Pain Standing Order.

   a. True
   b. False

9. You are transporting the above patient using the Abdominal Pain Standing Order. You have O_2 at 3 liters (96%), FSBG of 82, cardiac monitor with sinus tachycardia at 128, BP of 88/52, initiated the large bore IV and administered a normal saline bolus. Your next intervention(s) would be to:

   a. Repeat vital signs, listen to lung sounds, and consider repeat fluid bolus.
   b. Reassess FSBG, administer morphine and ondansetron
   c. Redirect to a closer facility
   d. Start a second large bore IV, change the patient to a non-rebreather mask at 15 liters, give 1/2 amp of D-50

10. Your 68 year old female diabetic patient is complaining of abdominal pain that also radiates to her neck. She would be an appropriate candidate for the Abdominal Pain Standing Order.

    a. True
    b. False

11. Which of the following characteristics of visceral pain are true?

    a. Results from irritation to the peritoneal lining
    b. Begins as sharp, turning to dull and intermittent over time
    c. Results from stretching of muscle fibers in organs
    d. Indicates a non-acute abdomen

12. Which of the following acute conditions usually require surgery?

    a. AAA, perforated ulcer, incarcerated hernia
    b. Abdominal trauma, peritonitis, appendicitis
    c. Ruptured ectopic pregnancy, PID, intestinal obstruction
    d. Mesenteric infarction, ascites, hematuria

13. Abdominal emergencies can include the gastrointestional, genitourinary and reproductive systems.

    a. True
    b. False

14. It is important for the prehospital provider to identify the organ system causing the abdominal pain prior to implementing the standing order.

    a. True
    b. False

15. An incarcerated hernia is defined as:

    a. A hernia that needs surgical intervention
    b. A hernia that affects prisoners
    c. A hernia that can be reduced manually
    d. A hernia that spontaneously reduces

REFERENCES

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EVALUATION

Please answer the following questions by marking the appropriate response:

		Lowest Worst Least				Highest Best Most
1.	To what extend did this module meet your needs?	1	2	3	4	5
2.	There was a balance between theoretical and practical information.	1	2	3	4	5
3.	The time required was appropriate to the content.	1	2	3	4	5
4.	The module increased my knowledge and understanding of the topic.	1	2	3	4	5
5.	References or audiovisuals were adequate.	1	2	3	4	5
6.	Overall, this program was worthwhile.	1	2	3	4	5

7. Additional comments:

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