



Miami Valley Hospital  
 Good Samaritan Hospital  
 Atrium Medical Center  
 Upper Valley Medical Center  
 Premier Health Partners

# Trauma Alert

Keeping you informed from your partners in trauma care

## Coordinator's Corner

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### Education Dates

#### ACLS PROVIDER—MVH 2010

- January 14-15
- February 11-12
- March 11-12
- April 28-29
- May 25-26
- June 10-11
- September 8-9
- October 6-7
- November 3-4

#### RECERT ACLS—MVH 2010 0800-1200 or 1230-1600

- February 10
- March 10
- April 27
- May 24
- June 9
- July 14
- September 7
- October 5
- November 2

January, 2010

### Cold Weather and the Problems that come with it!

As I write this letter to you, Old Man Winter has made his first appearance in the Miami Valley. On December 8<sup>th</sup> and 9<sup>th</sup> a strong winter storm passed to the north of the Ohio Valley, we got to participate in heavy rain, snow showers, 60 mile per hour winds and wind chill values in the single digits. It seemed fitting that we review the effects of cold weather on our patients and how to manage some of those hurdles in patient care.

First, it doesn't have to be near 32 degrees for someone to suffer from profound hypothermia. Debilitated people, or those inadequately dressed, can have problems with an ambient air temperature in the 60's. Falling into a body of water that is 50 degrees and staying there for one hour will be fatal. Cold water submersion creates an environment of heat loss that is 25-32 times the normal rate, depending on the temperature of the water. There are several contributing factors for someone being at increased risk. I'll walk through a few with you.

**1. Type of clothing** – cotton is not a very good choice of clothing as it retains water and can lead to conduction of body heat away from our core. Heat loss is increased 5 times when in wet clothing. Wool or synthetic fabrics are a much better choice

**2. Alcohol ingestion** – Alcohol is a great vasodilator. That's the reason many get flushed in the face after having a few drinks. The problem is that this mechanism also allows for our blood to give up heat much more quickly. The take home for this is when responding to a person fallen in the snow after leaving their favorite pub. Not only are they at increased risk for head, neck, and back injury, they run a much higher risk of becoming hypothermic.

**3. Extremes of age** – the very old and the very young have a more difficult time keeping their core temperatures appropriate when exposed to the cold. Decreased fat, inability to shiver, decreased vasoconstrictive response, and different body surface area all contribute to an increased risk of hypothermia

**4. Chronic illness** – Those with just about any significant chronic health condition might have trouble in cold weather. There are, however, some illnesses that alter your ability to generate heat normally. Hypoglycemia, hypopituitarism, and hypothyroidism are among the disorders implicated in contributing to hypothermia. Medications to treat depression, anxiety, mental health disorders markedly increase risk

**5. People who are outside** – soldiers, out door sport enthusiasts, and the homeless are at increased risk because they are where the cold is.

People who present with hypothermia, do so with a wide range of signs and symptoms. Below is a brief look at the presentations of mild, moderate, and severe cases.

**RECERT ACLS-MVH 2010  
0800-1200 only**

January 13  
August 11  
December 2

**ACLS AT UVMC**

May 21  
May 28

**ACLS RECERT AT UVMC**

April 16  
October 8

**PALS AT UVMC**

April 23 and 30  
September 10 and 17

**ITLS PROVIDER AT MVH**

May 1-2  
October 2-3  
December 4-5

**RECERT held on Day 2 of Provider  
Course**

**PALS PROVIDER AT MVH**

March 3-4  
June 16-17  
September 29-30  
December 7-8

**RECERT PALS AT MVH**

March 2  
June 15  
September 28  
December 6

**ACLS AT AMC**

January 28 and 29  
March 19 and 22  
May 21 and 24  
July 15 and 16  
September 16 and 17  
November 18 and 19

**PALS AT AMC**

February 18 and 19  
April 20 and 21  
August 5 and 6  
December 15 and 17

**Mild** – The person may be tachycardic, pale, shivering and not be able to perform simple gross motor tasks. *Passive rewarming* (blankets, removal of wet clothing, and warm environment) should be all that is needed to bring this person back to normothermia.

**Moderate** – When the core drops below 89.6 degrees, things start to become more urgent. The tachycardia and tachypnea seen in mild cases will persist. In addition, behavior can become unusual and the person may be confused. To look at them, they may appear alert at this point. The person's ability to shiver remains. *Active external rewarming* (warm water immersion and bear huggers) at the ER will be needed in addition to the passive rewarming EMS providers have initiated.

**Severe** – At 82.4 degrees our bodies lose the fight to generate heat. Apnea, bradycardia, and absent reflexes will set in quickly. Shivering response ceases. Cardiac dysrhythmias, particularly VF, are a risk at this point. The patient may very well appear as though they are dead. At these core temperatures, atropine will not work for bradycardia and defibrillation will most likely not work for VF. *Active core rewarming* may be indicated for these cases. Cardiopulmonary bypass technology is needed to facilitate this therapy.

**Follow your protocols for the treatment of these various stages of hypothermia.**

The cornerstones of passive rewarming for patients who are very cold include:

- moving the patient to a warm environment when able
- very gentle handling to prevent the irritable heart from going into VF
- removal of all wet clothing and application of blankets both above and below the body

*Active external rewarming* in the pre-hospital setting is controversial as it is associated with complications if not monitored closely. Some of this monitoring is virtually impossible in the back of a squad. The patient may become hypotensive when rewarmed, requiring IV fluids which may be easily accomplished. However, monitoring of core temperature would be difficult at best and the potential release of lactic acid from the periphery during active rewarming makes this type of rewarming more than what many medical directors are willing to take on.

Given that this is a trauma newsletter, it's probably best to include something about trauma. When a person hurts themselves, the bleeding is stopped by platelets sticking together forming a clot. As a person cools, platelet function decreases to the point where bleeding is allowed to continue by our bodies. It has no way to stop it. Aspirin has the same effect on our ability to clot. The literature also reflects that the longer a person is allowed to remain cold, the greater the chance of them dying as a result of these injuries. The quicker the patient is warmed, the better their chances of survival.

Take care,  
Mike Jett RN EMT-P  
EMS Coordinator, Atrium Medical Center