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Medical Team Guidebook

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Medical Team Guidebook

*2016 Dick's Sporting Goods City of Pittsburgh
Marathon*

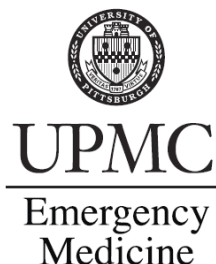
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Welcome and Thanks

From the Medical Advisory Committee



Dear Medical Team Volunteer,

We would like to take this opportunity to thank you for volunteering to help provide medical care for the thousands of participants and spectators at the Dicks Sporting Goods, City of Pittsburgh Marathon. For those of you who have volunteered with us before, welcome back! For the many first time volunteers, get ready to apply your medical skills in the unique marathon environment.

While the marathon is a sport for individuals, medical care at the marathon is definitely a team effort. Each medical aid station along the course will be staffed with a variety of individuals (MDs, RNs, Pre-hospital care providers, equipment managers, etc.) who will work together to ensure the health and safety of the runners.

Please make sure that you review the medical guidelines contained in this booklet and **review our updated volunteer orientation video**. The link can be found on the marathon website. They will serve as valuable resource as to the latest recommendations for the care of the injured/ill marathon runner.

Please have fun at the marathon and don't forget to encourage the runners as they pass by your station.

Thanks again and welcome to our medical team.

Sincerely,

Ron Roth, MD FACEP

Medical Director,
Dick's Sporting Goods, Pittsburgh
Marathon
Professor of Emergency Medicine
University of Pittsburgh, School of
Medicine

Kathleen Nachazel, ATC

Medical Operations Director,
Dick's Sporting Goods, Pittsburgh Marathon
Assistant Director, UPMC Sports Medicine
Adjunct Clinical Instructor, Duquesne University School of
Health Sciences
Certified Athletic Trainer Pittsburgh Ballet Theater

Aaron Mares, MD

Associate Medical Director
Dick's Sporting Goods, Pittsburgh
Marathon
Assistant Professor of Orthopedics

Vince Mosesso, MD FACEP

Medical Director, Finish Line Medical Tent
Dick's Sporting Goods, Pittsburgh Marathon
Professor of Emergency Medicine
University of Pittsburgh

Code of Ethics

For Medical Volunteers

1. The Marathon Medical Team is a multidisciplinary group of individuals who have volunteered their time and expertise to provide medical care during the marathon.
2. All services rendered by the Marathon Medical Team are provided free of charge to the runners. Volunteers are not permitted to accept payment or solicit business for their private practices.
3. Medical Team members are required to wear their official marathon T-shirts and identification tags while staffing aid stations.
4. Medical Team members are not permitted to speak to the press about the medical care provided to an individual runner. This is a violation of patient confidentiality. All inquiries should be referred the Race Director or Race Medical Director via your Aid Station Manager or Amateur Radio Operator.
5. Medical personnel must be licensed/certified and experienced in providing the medical skills used while providing medical care during the marathon event. For example, physicians should be licensed to practice medicine in the State of Pennsylvania or currently enrolled in a residency training program. Paramedics must have current State of Pennsylvania certification and command authorization. Students must be supervised by an appropriate experienced medical provider.

Social Media Guideline

Simply put, we urge you to share your Marathon volunteer experience on Social Media...but please don't share anything about patients, injured runners, spectators or news events unfolding around the race.

You are at the race as a volunteer. Feel free to show fellow volunteers, your aid station, and even photographs of runners/spectators embracing or interacting with volunteers – so long as the runners/spectators know you are photographing them and consent to it.

Treat runners/spectators on Social Media as if they are patients in a health setting – their privacy comes first. As stated above, if they consent or understand that you intend to post their photo/name on Social Media, go ahead.

On Race Day

Last Minute Advice



In Case of an Emergency on the Course

Call 911

If you are at an Aid station – Call 911

KEY POINT! ->

1. Report to your assigned station on time. **Remember there will be road closures and delays on race day.** Plan your route ahead of time. Please go to the marathon website for the most up-to-date information on road closures and times. <http://www.pittsburghmarathon.com>
2. If you cannot keep your assigned duties, please contact your Station Manager.
3. Bring food and drink for personal use. Medical practitioners should bring a stethoscope and pen.
4. You must wear the assigned Medical Volunteer T-Shirt and identification badge/vest.
5. When you arrive at your station, find the station manager and sign the attendance sheet. Introduce yourself to the other members of your team.
6. **Assist the aid station manager in locating the POD storage unit. The storage unit contains all your medical supplies for the aid station. Assist with transporting the medical equipment to your designated aid station.**
7. Based on the experience of previous marathons, there is enough equipment at your station. Do not spike IVs or prepare medications in anticipation of patients (they will probably go to waste.)
8. Care at the Medical Aid Stations should focus on the care of minor issues (blisters, bruises, cramps, etc.) and the prompt triage and transport of serious medical conditions (chest pain, altered level of consciousness, shortness of breath.) The Aid Stations should not be used for ongoing care or rehabilitation.



This is a change in procedure from previous years.

Calling 911 directly shortens the EMS response times and limits errors in communications.

9. Some of the Aid Stations will have ambulances assigned to their location at various times during the race. The EMTs/Paramedics are there to assist you. Most often the ambulance at your station will NOT transport patients. If ambulance transport of a patient is required, **dial 911**. Clearly identify that you are part of the marathon, give your exact location, state that you need an ambulance for transport. Provide a brief sentence about the runner's condition.

Example:

This is Mary Smith, I am the Aid Station Manager at the Pittsburgh Marathon Aid Station 22.9 located at Liberty Ave and 40th Street. I need an ambulance to transport runner 2245 to the hospital. The runner is a 25 year old male who fainted he is now awake and talking. We have medical personnel on scene caring for the patient.

As a backup, you may request that the ambulance on scene, contact 911 on EMS Dispatch 1 to request an ambulance. The Amateur Radio Operators will serve as the ultimate backup.

10. Due to traffic restrictions and limited resources on race day, patients will be transported to the closest appropriate hospital. **Please do not recommend transport to a hospital across town even if the patient receives his or her care at that facility.**
11. Medical care forms MUST be completed for EVERY runner treated at the aid station. This is how we document the care provided and track resource utilization. You do not have to complete a form if simply hand a runner a BAND-AID® or Vaseline®. Make sure that all sections on the form are completed. Also, **confirm runner's names**. Runners occasionally switch bibs and we have trouble tracking runners by only their number.
12. If you have questions about the care or disposition of a runner, please contact the race medical director, Dr. Roth via race communications, by cell or your amateur radio operator.
13. Be careful not to interfere with runners on the course during the race. You may touch a runner only if it a necessary part of your medical treatment. You may encourage struggling runners to seek assistance (medical aid, sweep bus, etc.) Do not actively pull runners from the race unless an altered mental status makes them incapable of making a rational decision (jog a short distance alongside of the runner to make this assessment.)
14. Do not administer medications (even over the counter medicines such as ibuprofen or aspirin) that are not part of the aid station or ambulance stock.
15. Water and oral electrolyte solutions should be obtained from the closest water station. Ice should be placed in individual small baggies as part of your station set up.

16. Do not leave your station until the station is officially closed by the race coordinators. You will be notified via amateur radio operator or Aid Station Manager.
17. Perform only those skills in which you have proficiency (i.e., starting IVs) and are licensed / certified to perform. If you have not started an IV for many years, do not attempt that skill on the day of the marathon. Please ask for assistance from a fellow team member.
18. At the conclusion of the race assist the Aid Station Manager in loading all medical equipment into the Rubbermaid® medical equipment container and package all the cots that you will be returning to the POD storage unit. Please see information on Bio hazardous waste in the Infection Control section. **(PLEASE MAKE SURE ALL ITEMS ARE RETURNED TO THE POD STORAGE UNIT).**

The Flag System

Race Day Weather

Weather

Historically, the weather on race day has ranged from the mid-thirties and snow to sunny with temperatures in the mid-eighties. Runner injury rates and subsequent hospital transports increase as the race day temperature increases.

Temperature is not the only factor producing heat stress on race day. Direct radiant energy from the sun, wind velocity and humidity are important factors. The Wet Bulb Globe Temperature (WBGT) index is typically used as a measure of environmental heat stress. THE WBGT consists of three thermometers:

Dry bulb - measures air temperature;

Wet bulb - measures relative humidity;

Black bulb – measures radiant energy from the Sun.

The Wet Bulb Globe Temperature index (WBGT) = (0.7 x Wet Bulb) + (0.1 x Dry bulb) + (0.2 x Black bulb.) Note the importance of relative humidity based on the contribution of 70% of the wet bulb temperature.

At the start of the marathon and during the marathon, runners and medical care providers will be made aware of the current flag color. The race medical director will set the flag color at the start of the race and will modify the flag color as needed during the event.

For our event, a red flag would require runners to slow their pace and to carefully monitor their fluid intake. A black flag would be used to designate an emergency on the course and that runners should clear the course.

	Risk	WBGT
BLACK FLAG	Extreme Risk	>28°C (82°F)
RED FLAG	High Risk	23-28°C (73-82°F)
YELLOW FLAG	Moderate Risk	18-23°C (65-73°F).
GREEN FLAG	Low Risk	< 18°C (65°F)
WHITE FLAG	Risk for hypothermia	< 10°C (50°F)

FYI

Medical Treatment Guidelines

An Overview

PLEASE REVIEW THESE MEDICAL TREATMENT GUIDELINES PRIOR TO THE MARATHON

There are significant changes in our treatment protocols based on the latest research and suggestions from the International Marathon Medical Directors Association. You must be familiar with these new treatment guidelines!

Introduction

We have an opportunity to practice medicine in a unique setting with a diverse group of medical personnel. It is important that staff at the aid stations work as a team to provide care to injured/ill runners or spectators. Get to know your other team members and learn their strengths and expertise. A Station Manager at each station will have guidelines for medical personnel including infectious disease precautions that will help ensure flow of patients through the station.

Station Managers and Amateur Radio Operators (wearing fluorescent colored hats) at each station will provide contact with the marathon wide communication system. Request ambulance transports by dialing 911. (The Amateur Radio Operators will serve as a backup in case of communications problems.) The ambulance at your station is assigned to the station and may not be used for transportation.

The ambulances on the course are able to consult with Emergency Physicians via radio to provide medical command and treatment orders.

ALL RUNNERS LOOK BAD! Some runners look "badder." Your goals are triage, treatment of life threatening problems and transport. Overall, be conservative in your treatment unless the situation demands otherwise, since most patients are basically healthy people who are into a little self-abuse. Most runners will get better with observation. Your job is to identify the runners with acute problems such as hypoglycemia, hypothermia, heat stroke, cardiac chest pain, etc., that must be treated immediately.

Remember to dress for the occasion and enjoy yourself. Should you have questions or concerns about patient treatment you can reach the Race Medical Director via your Station Managers.

Equipment

Each aid station will have an adequate supply of intravenous fluids, 50% Dextrose, and comfort supplies for the runners expected at that stage of the race. Ambulances staged at the Aid Stations can supply oxygen as needed. There will

be a tent at each station for shade and to protect personnel and equipment in the event of precipitation. Each station will have a Station Manager in charge of keeping track of supplies and unpacking/packing up with everyone's help. The distribution of medical equipment and supplies at each aid station has been carefully reviewed by the Medical Advisory Committee. **There are adequate supplies at each station.** We ask that you utilize your experience and judgment to help decrease the number of perceived shortages in other workers' minds who may be less experienced or unclear as to the actual needs that day.

To conserve supplies, IV solutions **should not** be set up beforehand and 50% dextrose (D₅₀) should be administered only after verification of hypoglycemia (blood glucose is less than 80 mg/dl) in someone who is unable to take oral glucose. Oral fluids for hydration -- ice, blankets, etc. are encouraged and obviously unrestricted.

Triage

The physicians at the stations are responsible for evaluating patients and assigning one of three triage categories based on their overall appearance, vital signs, core temperature and mental status. The examples provided below are guidelines and not strict rules for triage. Triage categories will be color coded for uniformity to facilitate everyone's understanding and communication. Recorders will be responsible for collecting triage cards, ensuring adequate documentation, and reporting any dropouts to lost runner.

GREEN	YELLOW	RED
Example: Localized musculoskeletal complaints such as mild cramps, blisters, sprains, bruises	Example: Generalized weakness, nausea, vomiting, lightheadedness, normal level of consciousness	Example: Severe generalized weakness, altered consciousness, chest pain, shortness of breath, multiple injuries
Temperature 36- 38.5C (97 - 102F)		Temperature >38.5C (102F) or <36C (97F) *Rectal
Heart Rate 50 - 120bpm		Heart Rate <50 or >120bpm
Systolic BP 90 - 180		Systolic BP <90 or >180
Respiratory Rate <30		Respiratory rate >30
Mental Status: NORMAL		Mental Status: ABNORMAL

GREEN: Patients can be managed at the field station and allowed to continue the race if desired. Dropouts should be encouraged to use the sweep bus or may return to their families on their own. The majority of patients will fall in this category.

YELLOW: Patients can also be managed at the field aid station. However, **These patients require repeated evaluation to determine any change in their status.** If improvement in condition occurs, the patients may take the sweep bus or rejoin their families. They should be discouraged from continuing in the race. Any deterioration in the clinical status necessitates a change to a **RED** color triage. Arrange for hospital transport if the patient's condition fails to improve or deteriorates during treatment.

If an IV is initiated, the patient may NOT continue running and should be transported to the hospital. These patients are at risk for hyponatremia (low sodium). This is a potentially life threatening medical problem.

Do not give > 1 liter of IV fluids at the aid stations along the course.

Serum electrolytes are required to guide treatment. This should be done in the hospital.

If a runner is triaged yellow at a field aid station, at least one **RED slash** and possibly two (depending on the runner's condition) should be placed on the runner's number with a magic marker.

RED: Patients should be assessed at the field aid station and the initial resuscitation begun. Arrangements for early transportation to a local hospital via the medics should be initiated once the patient has been triaged **RED**. Do not transport these patients to the Finish Line. These patients generally require continued evaluation as they may require further evaluation of organ (liver and kidney) function. The City EMS system should be alerted, by dialing 911 at the earliest possible time of any transports. IV access (but not necessarily IV fluids) is strongly suggested for all **RED** patients.

Removing Runners from the Race

In all cases, the physician has the authority to remove a runner from the race if he/she feels that by continuing the race the individual would be at substantial risk of sustaining severe physical damage (heat stroke for example). Caution should be exercised, because many runners look on the verge of collapse but have a tremendous desire to continue. The **key** here is to assess the runner's mental status, for example, by running alongside and talking to him/her and checking the person's response. If the mental status is clear and the runner can rationally make the decision to continue, then he/she should be allowed to do so. If the mental status is altered to the extent that the runner may not be able to know the risks being taken, the individual should be pulled from the race and assessed at the aid station.

For the purposes of scoring, be careful not to provide physical assistance to the runners. Anything that might be construed as unfair assistance to the runner could result in immediate disqualification from the race. Runners will not be disqualified for receiving assistance at a medical aid station as long as the contact consists of personnel fulfilling medical duties. As long as you are clearly identified as medical personnel, you may run alongside and touch the runner but only as part of your examination of the runner.

Any runner who receives an IV should be removed from the race. Any runner triaged **RED** will be removed from the race. As mentioned above, if a runner is triaged yellow at a field aid station, at least one **RED slash** and possibly two (depending on the runner's condition) should be placed on the runner's number with a magic marker. If at subsequent aid stations a runner receives a total of three slashes, he/she is to be removed from the race (three slashes and you're out).



Any runner receiving acetaminophen (Tylenol) at an Aid Station should have a **Red T with a circle around** it placed on their bib. This will decrease the chance of a runner receiving excessive medication.

The Finish Line Aid Station

The Finish Line Medical tent will be divided in three areas (Critical Care, General Medical, Musculo-skeletal.) Staffed by our Emergency Medicine physicians, the Critical care area at the finish line will be for runners triaged as red. The area will be stocked with all the necessary advanced life support equipment. There will be a general medical area and a Sports Medicine area staffed by Sports Medicine physicians, orthopedists, podiatrists, physical therapists and athletic trainers for management of a variety of musculoskeletal conditions.

Specific Medical Issues

Note that this section provides a general overview of potential medical problems that can occur in marathon runners. These are guidelines for patient care during the marathon. Care for individual patients may vary. You are strongly encouraged to immediately discuss deviations from these guidelines with the race Medical Director should they occur. These guidelines are not intended to be comprehensive or the definitive treatment plan for all runners. The Medical Director can be reached via cell phone or the amateur radio operators at every aid station.

Altered Mental Status

The differential diagnosis for altered mental status is very broad. Many of the conditions listed below can cause altered mental status. Assume the worst (cardiac arrest, hypo/hyperthermia, hypoglycemia, hypoxia, hyponatremia) and then work through the differential diagnosis. Your initial evaluation must include vital signs **and a temperature**. Do not skip the temperature! A focused history and physical exam should include a neurological evaluation. Urgently transfer runners to the hospital with altered mental status that does not resolve quickly.

Exercise Associated Collapse

Exercise Associated Collapse (EAC) occurs primarily at the finish line or the end of a relay stage. EAC is a very common entity in marathon runners. The collapse tends to occur when runners stop running. Collapse during exercise is a different entity and may be the result of a serious abnormality. A cause other than EAC should be sought i.e., hypo/hyperthermia, cardiac, hypoglycemia, etc.

KEY POINT! ->

In the past, we felt that EAC was secondary to hyperthermia and dehydration and therefore large volumes of fluids were administered. **This conclusion was incorrect!**

Recent studies suggest that EAC is the result of fluid redistribution to the veins of the lower extremities. With the cessation of exercise, the pumping action of the legs decreases, resulting in decreased venous return to the heart. This postural hypotension is usually not secondary to dehydration. Therefore, fluids are not the primary treatment for this disorder. In fact, excess fluids may lead to hyponatremia. (See below).

The incidence of this disorder can be decreased by encouraging runners to keep moving (walking) at the end of the race. This will help the body fluids redistribute. Have someone walk with the runner to keep the blood moving from the muscles back to the heart and brain.

Runners who are unable to walk, should be placed supine with their legs and pelvis slightly elevated above the heart (about 6 inches). Encourage runners to drink fluids with electrolytes (sports drinks). IV access and judicious fluid administration should be initiated in patients with hemodynamic instability who fail oral hydration and leg elevation. Failure to respond to conservative measures or profound circulatory collapse suggests an alternate diagnosis, (i.e., dehydration, hyperthermia, hyponatremia, or myocardial dysfunction)

Hyponatremia (Low Sodium)

Exercise associated hyponatremia (EAH) has been documented in athletes participating in prolonged physical activity including the marathon in Pittsburgh and other long distance races. Hyponatremia is defined as a sodium level below 135 mmol/L. The use of NSAIDs (Motrin like drugs), female gender, and unusually hot conditions may also contribute to the problem.

Until recently, many believed EAH was directly caused by salt lost in sweat. Recent studies, however, have shown this to be false. The exact cause is still unclear but likely related to fluid/electrolyte redistribution in the body during and after the race. Excess fluid intake during prolonged athletic activity may contribute to developing EAH. Care for these individuals should be dynamic and individualized based on the scenario.

Tips for decreasing the incidence of EAH involve encouraging the ingestion of fluids during and after the race using thirst as a guide. In addition, runners are strongly discouraged from using NSAIDs drugs (i.e., ibuprofen) on race day.

Runners typically lose 1-2 kg during a race. Runners that gain weight (or failure to lose 0.75kg) increase risk for EAH. Obviously, without measuring serum electrolytes we cannot make the diagnosis of hyponatremia along the racecourse. However, we can do the following:

- **Recognize hyponatremia** – persistent altered mental status / ill feeling / altered vital signs / nausea / vomiting/ headache / seizures in patients with normal blood sugars. Runners may have swelling/edema in extremities (hands, fingers, etc.)
- **Avoid excess fluids** – if the runner is able to tolerate oral rehydration avoid plain water. Encourage runners to drink fluids with electrolytes and replenish sodium with salty snacks. Administer IV fluids only in patients who cannot (or should not) take PO fluids AND appear dehydrated (dry mucus membranes, poor skin turgor, etc.)
- **Avoid the urge to administer large volumes of isotonic IV fluids.** if EAH is suspected. If a patient is not suspected to have EAH, but it is felt that fluid resuscitation is necessary, please proceed with a heightened awareness. Any patient requiring more than 1 liter of fluid should be transported to the hospital. Aid stations should administer IVF in 500 ml doses. Past practices of administering 2 or more liters of fluid should be avoided.

At the finish line we are able to measure serum electrolytes. Patients with mild symptoms suspicious for EAH should also be encouraged to consume salty foods (pretzels, potato chips.) Oral and IV fluids should be limited until the patient begins to produce urine. Patients with severe symptoms such as seizures, altered mental status, coma and documented hyponatremia may require hypertonic (3%) saline. Hypertonic saline will only be available at the finish line tent and the physician in charge of the finish line medical tent must approve its use. A recommended dosing regime is 100mL of 3% saline IV over 10 minutes. Remember that we are not trying to return the serum sodium back to normal, just provide symptomatic improvement.

Thermal Illness

We have seen hypothermia (low body temperature) and hyperthermia (elevated body temperature) in marathon runners in Pittsburgh. It is difficult if not impossible to tell the degree of thermal illness without the aid of a rectal temperature. **Therefore, rectal temperatures are mandatory on all acutely ill runners.** *

*Please accept the fact that ill runners will require rectal temperatures! Attempt to maintain a sense of privacy and dignity (for you and the runner) by covering the runner with a sheet during the procedure.

Mild hypothermia (rectal temperature 94-97⁰ F or 34 - 36⁰C) may be treated with passive rewarming (blankets) and warm oral fluids if the runner is awake/alert and otherwise stable. Remove wet clothes and dry the patient. Patients with more extreme hypothermia or abnormal vital signs should be transported to the hospital as soon as possible.

Hyperthermia (heat stroke) is a life threatening emergency. Heat stroke occurs when there is a failure in the body's thermoregulatory system. This can result in organ failure and death. Temperatures exceeding 104⁰F (40⁰ C) and altered mental status can occur. **Immediate cooling measures should be administered at the aid station** including ice to the groin and axillary regions. Ice water towels to the trunk, forearms, groin, head, and neck have also

been recommended. Cold water immersion therapy will be available at the finish line. Avoid inducing shivering, as this will increase the body temperature. IV access and judicious fluid administration should be initiated. Cold Saline infusion*, (limited to 1 liter wide open) is an option for patients with documented extremely high temperatures greater than 104°F (40°C). Cooling measures should be initiated at the aid station and continued during transport. Hospital transport is required for all runners with suspected heat stroke.

***Place a bag of saline on ice prior to the start of the race. Ambulances often carry cold saline.**

Multi-organ failure is a potential complication of hyperthermia. Therefore, it is very important to diagnose hyperthermia and initiate treatment and transport. A rectal temperature is best way of diagnosing hyperthermia. Oral and tympanic temperatures are inadequate.

Patient with mild heat illness, mild temperature elevation and normal mental status can be cooled with ice and cold towels as above. Avoid inducing shivering. Encourage runners to drink fluids with electrolytes (sports drinks).

Muscle Cramps

Exercise induced muscle cramps are a difficult problem. Once thought to be secondary to electrolyte abnormalities, studies suggest that they are a result of fatigue induced neuromuscular changes. Rest and maintaining the muscle in a lengthened position are felt to be helpful. We traditionally use rest, passive stretching and light massage, not deep massage, as a therapy.

Muscle cramps are often associated with mild/early heat illness and possibly dehydration. If clinically indicated, begin cooling (axilla, groin) and oral hydration

For severe muscle spasms, intravenous diazepam can be used. Runners who receive IV medications may not continue running. (Note that large volumes of intravenous fluids are NOT indicated. The runner should be encouraged to drink fluids with electrolytes.)

Cardiac Emergencies

A variety of cardiac emergencies can occur during the marathon. These include arrhythmias, chest pain and cardiac arrest.

All of the aid stations have an AED and or an EMS unit with a defibrillator. Make sure you know how to use the device. Apply the AED/Defibrillator promptly if you suspect a runner is in cardiac arrest. With respect to cardiac arrest, remember that these patients may be acidotic and catecholamine depleted at the time of their cardiac arrest. Think about using epinephrine and bicarbonate early on. (There is no scientific evidence to support or refute these suggestions; it is just a best guess.)

Other Medical Problems

Hypoglycemia may occur in marathon runners. Check serum glucoses before administering glucose (D₅₀). If the runner is awake and able to drink fluids, provide oral glucose.

Injuries will occur during the marathon. These should be treated in the usual fashion. Major injuries, suspected fractures, head injuries, large lacerations, etc., should be transported to the hospital. NSAID should be avoided for a minimum of 6 hours after the race. Acetaminophen is a safe alternative.

Fluids

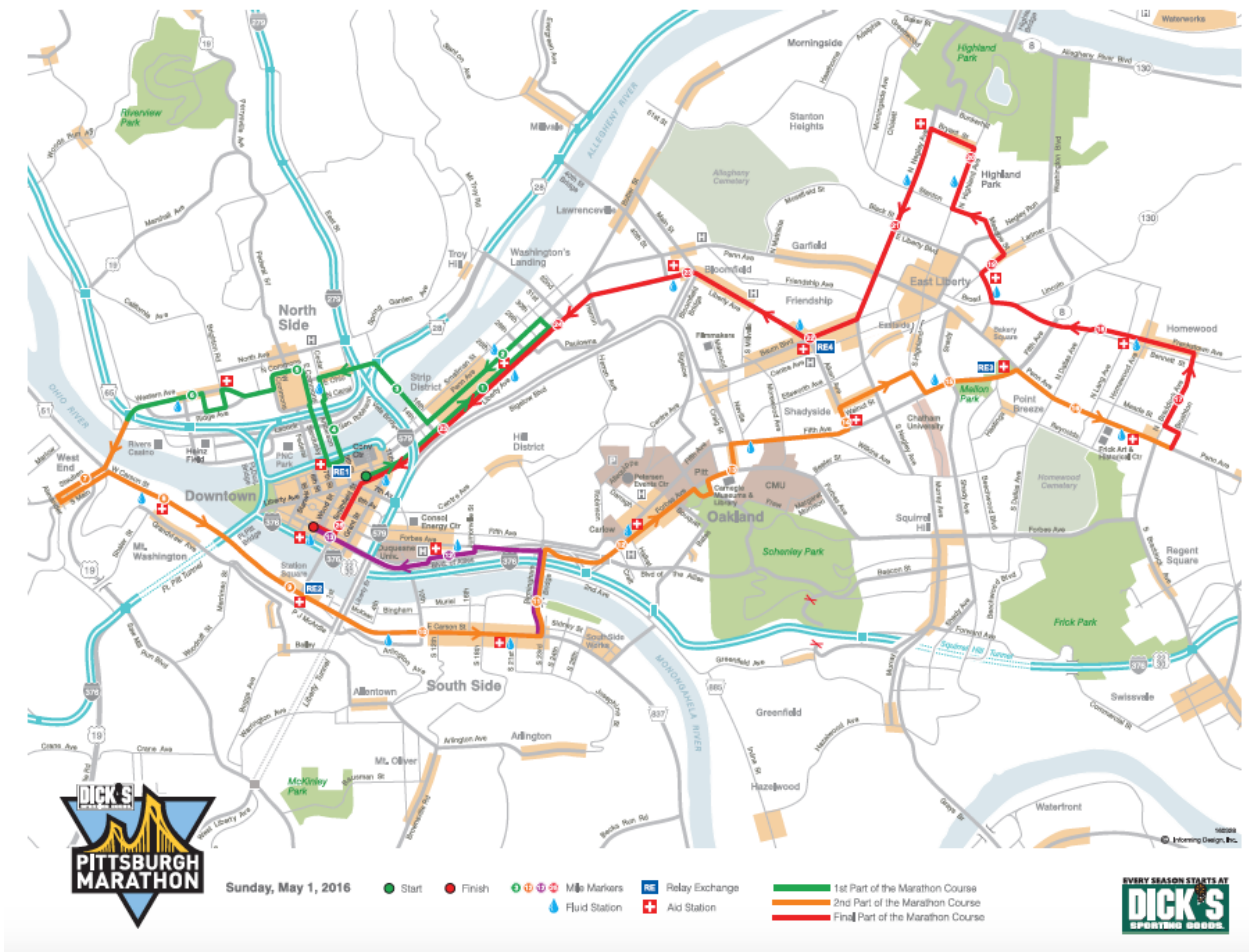
Current recommendations

Drinking too much or not enough fluid can cause problems. Unfortunately, the right amount of fluid will vary by runner, conditioning, weather, and the racecourse. In general, runners should drink the type of fluids and the amount of fluids that they have consumed on their long training runs.

Some dedicated runners will calculate their fluid replacement based on weight loss/gain during a race. This involves recording a nude weight before and after a run and calculating the difference. The exact method of doing this calculation can be found on the Web.

We ask runners to drink based on thirst. Runners should not drink fluids just because they are passing a water station. The water stations will have water and full strength sports drinks.

Course Maps/Aid Station Locations



Medical Aid Stations

Runner Start Times*	
Wheel chair	6:50 AM
Marathon, Half and Relay	7:00 AM

*subject to change

APPROXIMATE AID STATION MILE MARK #	LOCATION OF AID STATION	SHIFT TIME
2.1	CORNER OF 26TH STREET & PENN AVE.UPMC MOBILE STATION ON 26TH ST.	5:00AM-2:00PM
4.2 RELAY	FIRST RELAY EXCHANGE FT DUQUESNE AT 7TH STREET BRIDGE	5:30AM-10:30AM
5.6	CORNER OF BRIGHTON RD AND WESTERN AVE(WEST OHIO ST)	5:30AM-10:30AM
8	1401 WEST CARSON STREET PARKING LOT OF COMPUCON	5:30AM-11:30AM
9.1 RELAY	SECOND RELAY EXCHANGE CARSON STREET PAST SMITHFIELD ST. BEFORE INTERSECTION OF CARSON ST. & ARLINGTON AVE.	5:30AM-11:30AM
10.5	EAST CARSON ST. BETWEEN 19TH & 20TH STREETS AT CITY PARKING LOT	5:30AM-11:30AM
12H	BLVD OF ALLIES NEAR UPMC MERCY	6:00AM-12:00PM
12.4	AT INTERSECTION OF FORBES & MCKEE PLACE,IN FRONT OF EUREKA BANK	6:00AM-12:00PM
14	CORNER OF FIFTH AVE. & AIKEN AVE.	6:00AM-12:00PM
15.5 RELAY	THIRD RELAY EXCHANGE FIFTH AVE. AT MELLON PARK NEAR PENN AVE.	6:00AM-12:30PM
16.3	PENN AVE & CARNEGIE PLACE, PAST EVERGREEN BAR.	6:00AM-12:30PM
17.6	PAST HOMEWOOD SENIOR CITIZENS HOUSE FRANKSTOWN AVE & N. LANG AVE.	6:30AM-1:30PM
18.8	EAST LIBERTY BLVD. AT DIX ALLEY BEFORE LARIMER AVE.	6:30AM-1:30PM
20.1	CORNER OF NORTH NEGLEY & BRYANT ST.	6:30AM-1:30PM
21.9 RELAY	FINAL RELAY EXCHANGE, BAUM BLVD BETWEEN AIKEN AVE AND LIBERTY AVE	6:30AM-1:30PM
22.9	CORNER OF LIBERTY AVE. & 40TH ST. ON 40TH BESIDE BP STATION .	7:00AM-2:00PM
24.2	CORNER OF 26TH STREET & LIBERTY AVE.UPMC MOBILE STATION ON 26TH ST.	5:00AM-2:00PM

Infectious Disease Control

Prevention

Procedure

1. All medical personnel shall routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when contact with blood or other body fluid of any patient is anticipated.
2. Gloves shall be worn when touching blood and body fluids, mucous membranes, or non-intact skin of all patients, for handling items or surfaces soiled with blood or body fluids, and for performing venipuncture and other vascular access or invasive procedures such as endotracheal intubation.
3. Gloves shall be changed after contact with each patient.
4. Masks and protective eyewear or face shields shall be worn during procedures that are likely to generate droplets of blood or other body fluids, which could splash the mucous membranes of the eyes, nose or mouth.
5. Gloves shall be worn during procedures that are likely to generate gross soiling with blood or other body fluids.
6. All personnel shall follow the precautions listed in the policy on Handling Needles and Sharps to prevent injuries caused by needles, scalpels and other sharp instruments or devices.
7. To minimize the need for emergency mouth-to-mouth resuscitation, resuscitation bags, or other ventilation devices shall be available for use in areas in which the need for resuscitation is predictable.
8. Personnel who have exudative lesions or weeping dermatitis shall refrain from all direct patient care, and from handling patient care equipment until the condition resolves.
9. Personnel with breaks in their own skin (i.e., cuts, abrasions, non-draining sores) should wear gloves for any patient contact.
10. All personnel shall follow proper procedure after each patient contact or contact with blood or other body fluids.

Infectious Disease Control

Accidental Exposures

Procedure

1. Whenever possible, mucous membranes should be flushed with copious amounts of water or saline and wounds of the skin should be cleaned with an appropriate disinfectant such as alcohol or iodine.
2. Report immediately, any injury or accident resulting in either the percutaneous (e.g., needle stick) or mucous membrane (of the eyes, nose, or mouth) exposure to blood or other body fluids to your personnel manager.
3. Station Manager shall immediately contact the Infectious Disease Control Coordinator, David Reed via cell or through the Amateur Radio Operator at the Station. Please provide the following information:
 - a) Name of individual that was exposed
 - b) Number of the marathon participant for whom the potentially infectious material originated from;
 - c) Was the exposure related to a needle stick or mucous membrane exposure, or an exposure to non-intact skin;
 - d) Aid Station where the event occurred.
4. The Infectious Disease Control Coordinator will evaluate the exposure and if required will make recommendations for evaluation and/or treatment.
5. Injured person will be provided with appropriate incident reporting paperwork.
6. Incident follow-up will be conducted by Infectious Disease Control coordinator.
7. All volunteers will be responsible for all hospital costs associated with the treatment of injuries that occur during their time volunteering at the Marathon.

Infectious Disease Control

Biohazardous Waste

Procedure

1. Medical personnel shall place all used disposable needles, syringes, intravenous catheters, scalpel blades and other sharp instruments or devices into a prominently labeled, puncture-resistant container, designated specifically for sharps disposal, as directed by the procedure for handling needles and sharps.
2. Personnel shall place all used disposable materials such as paper sheets, gloves, dressings, Kleenex, IV bags, etc, which have become contaminated with blood, body secretions or excretions, into prominently labeled leak-proof bags, designated specifically for biohazardous waste disposal.
3. Other non-hazardous waste, particularly metal cans, should be placed in routine waste receptacles.
4. When bags become approximately $\frac{1}{2}$ to $\frac{3}{4}$ full, seal bag securely with twist ties or other suitable means.
5. If a bag becomes torn or otherwise loses its integrity, place the entire bag inside a second biohazardous waste bag and secure it as described above.
6. When a biohazardous sharps container becomes approximately $\frac{3}{4}$ full, seal it as described on the outside of the container.
7. Station Managers for each site along the route shall collect their biohazardous waste containers (secured red bags and sharps container) and personally release them to the Infectious Disease Control Coordinator who will be operating the sweep vehicle, collecting this material following the close of the event. Biohazardous waste should never be left unattended.

Infectious Disease Control

Sharps

Procedure

1. Care must be taken to prevent injuries from used needles, broken glass, scalpels, or other sharp instruments.
2. Used needles must never be recapped, bent, broken, or otherwise manipulated by hand.
3. Place all disposable needles, syringes, scalpel blades, and other sharp instruments or devices into a prominently labeled, puncture-resistant container, designated specifically for sharps disposal.
4. Used containers will be collected and disposed of according to the Biohazardous Waste Management policy.
5. Immediately report any injury or accident with a sharp instrument, (i.e. needle stick), or the splashing of blood or other body fluids onto the mucous membranes of the eyes, nose or mouth to the appropriate supervisory personnel and follow Infectious Disease Control Accidental Exposures Policy.

Infectious Disease Control

Indwelling IV Catheter Placement

Procedure

1. Only personnel qualified and familiar with intravenous insertion procedures should start IV lines.
2. Prepare the site with a povidone iodine swab or alcohol swab, starting at the center and wiping in an ever widening circular motion.
3. If desired, remove excess iodine with an alcohol swab.
4. Insert catheter. Attach a cap if a running IV will not be initiated. Flush the cap with a saline flush.
5. Dispose of all needles in appropriate sharps containers.
6. Inspect the tissue around the puncture site for infiltration. If noted, discontinue IV infusion at once.
7. Secure a 2 x 2 gauze pad with a piece of adhesive tape over the puncture site.
8. Secure catheter and IV tubing with adhesive tape.
9. Be sure pressure is applied to area when IV catheter is withdrawn after treatment, and no further bleeding is noted.
10. Soiled areas and blood spills shall be cleaned with appropriate disinfectant wipes available at Aid Station.
11. All personnel shall follow the procedure on Biohazardous Waste Management for proper disposal of biohazardous waste material.

In Case of Disaster

1. Potential disasters on race day could include weather issues, (lightning, excessive heat, tornados, etc.) problems on the course, (structure fire, traffic accident, etc.) or mass casualty event. All of these scenarios are very unlikely, HOWEVER, your safety and the safety of the runners and spectators is our primary concern.
2. In the case of an emergency, please follow the directions of the station manager. They will receive information via the amateur radio operators. The amateur radio operator at your station will be your official source of information. Information about potential problems on the course should be relayed via the amateur radio operator to the race command.
3. If you must leave your station, if possible, secure the equipment and seek shelter.
4. The amateur radio operator will receive updates as they are available.

Weather Emergencies

1. You are our eyes and ears on the course during the event. If you are concerned about a weather emergency during the race immediately notify the race director/race medical director via an amateur radio operator or cell phone. Seek shelter as needed.
2. You will be instructed by the race director or designate on how to proceed. Possible requests may include:
 - a. Setting the aid station flag to black.
 - b. Instructing runners to leave the course.
 - c. Designated shelters have been established on the course. The station manager will be aware of these locations. If known, direct runners and spectators to an appropriate shelter.
 - d. Collect the Aid Station AED and tablet and take it with you.
3. Examples of weather emergencies may include the following, tornados, nearby lightning, and extreme temperatures.
4. The principle lightning safety guide is the 30-30 rule as described in the NOAA "Facts about lightning" factsheet. If the time between the when you see the flash and hear the thunder is 30 seconds or less, the lightning may be close enough to harm you.
5. If a lightning emergency is declared, you should seek shelter.
 - a. Avoid open areas and stay away from isolated tall trees, towers, or utility poles.
 - b. A fully enclosed building is the safest place during a lightning storm. At the start line, the Convention center, the Grant Transportation Center and the Sports Rock are good options. Along the race course, look for an open business or one of the many churches/synagogues on or near the course

- c. Hard topped metal vehicles such as cars and buses are reasonable alternatives.
- 6. Announcements will be made by public safety personnel (Police/EMS) via PA systems in their vehicles and via social media.
- 7. The race director has several options if the race is stopped for an emergency:
 - a. Cancelling the race
 - b. Altering the course (i.e., diverting runners to the half marathon)
 - c. Resuming the race after an appropriate delay.
- 8. Additional information about the status of the race will be available from the following sources:
 - a. Amateur radio operators
 - b. Twitter
 - c. Race web site
 - d. Race phone number (recording)

Potential Acts of Terrorism, Explosions, etc.

1. Your safety is our number one priority. Remember, there is always a potential for secondary events/explosions.
2. Please follow the directions of the on scene public safety personnel.
3. Victims should be rapidly extricated from the site. Aid Stations may be used as casualty collection points for victims. Prepare your Aid Station to receive victims. Critically injured patients will be transported directly from the scene or from the aid station as soon as possible.
4. Care for victims of explosions
 - a. Triage:
 - i. Walking wounded should be directed away from the scene to a designated area. Note that blast victims may have suffered eardrum injuries and might have difficulty hearing your instructions.
 - ii. Prioritize care to victims with uncontrolled bleeding or trouble breathing
 - b. Bleeding should be controlled with direct pressure. If that fails, bleeding from the extremities should be controlled with either a commercial or improvised tourniquet. **The tourniquet should be placed high up on the injured arm (near the axilla) or high on the injured leg (groin.)****
 - c. Monitor the victim's airway, keeping it clear of blood and debris.
 - d. Occult injuries can occur. Encourage all victims to be evaluated by medical personnel.

Emergency Notification Plan

1. Running a marathon is not without risks. In the unfortunate circumstance that a runner suffers a critical injury or illness, it is important that notification of family and friends occurs in a dignified and respectful manner. This task has been designated to specific individuals on the marathon medical and administration staffs.
2. **No one other than the designated individuals should attempt to notify family members or talk to the press.**
3. As medical professionals, I am confident that you understand the importance of maintaining the privacy of potentially confidential personal medical information.

Medical Form


Guidelines for the completion of the triage form

1. Do not use marking pens, they tend to become illegible once they get wet. **Please use ink pens only and print clearly.**
2. The Recorder is responsible for the completion of all items on the top half of the card (Number, Mile Marker, Sex, Time In/Out, Arrival & Departure mode, Triage Level, and Destination). It is important that these items are completed on every runner treated.

Note that runners may swap bibs and the runners name may not match the name registered with the bib. Confirm the runners name!

3. The recorder should also verify that the diagnosis and treatment has been completed accurately by medical personnel. If information is missing, the Recorder should obtain it from the person who treated the runner.
4. Make sure both sides of the form are completed.
5. Many runners make brief stops for stretching, band-aids, petroleum jelly, fluids and immediately return to the race. If they are stopping as a precautionary measure and not treating an injury, there is no need to complete a card.
6. Be sure to document **all** medical complaints, interventions and treatment (especially IV's) and, most importantly, the destination (return to race, drop-out, **ambulance to what medical facility** or other).
7. The completed forms should NOT leave the aid station. The healthcare provider treating the injured/ill runner should provide a verbal report to EMS providers transporting any runner to the hospital.
8. At the end of the marathon, the station manager should collect all of the completed forms. The forms should be placed with the equipment that will be returned.

The Form

	Triage: <input type="checkbox"/> Acute / Red <input type="checkbox"/> General / Yellow <input type="checkbox"/> MSK / Green <input type="checkbox"/> Control / Blue (Research)				
Name: _____ Time In: _____					
Gender: <input type="checkbox"/> M <input type="checkbox"/> F Bib #: _____					
Race: <input type="checkbox"/> Half <input type="checkbox"/> Relay <input type="checkbox"/> Marathon <input type="checkbox"/> Non-runner					
Location: <input type="checkbox"/> Aid Station # _____ <input type="checkbox"/> Finish Line Finish Time-> _____					
Arrival Mode: <input type="checkbox"/> Self <input type="checkbox"/> Assisted <input type="checkbox"/> EMS Finish line POD # _____					
Emergency Contact Name/Phone: _____					
Medical History: <input type="checkbox"/> Asthma <input type="checkbox"/> Cardiac <input type="checkbox"/> Diabetes Other: _____					
Medications: _____					
Allergies: _____					
Chief Complaint (check all that apply)					
General Complaints					
<input type="checkbox"/> Weakness/fatigue <input type="checkbox"/> Dermatologic <input type="checkbox"/> Neurologic <input type="checkbox"/> GI <input type="checkbox"/> Cardiac <input type="checkbox"/> Other: _____ <input type="checkbox"/> Respiratory <input type="checkbox"/> Musculoskeletal					
<input checked="" type="checkbox"/> Head/Neck <input type="checkbox"/> Upper Extremity <input checked="" type="checkbox"/> Thorax <input type="checkbox"/> Lower Extremity <input checked="" type="checkbox"/> Abdomen <input type="checkbox"/> Other: _____ <input checked="" type="checkbox"/> Spine					
Physical Exam					
Weight: Pre Race _____ Post Race _____					
Time	HR	BP	Resp	O2%	Temp
General: <input type="checkbox"/> WNL Neuro: <input type="checkbox"/> WNL Mental Status: MSK: <input type="checkbox"/> WNL <input type="checkbox"/> Normal (A&O x3) <input type="checkbox"/> Altered: Skin: <input type="checkbox"/> WNL <input type="checkbox"/> Warm <input type="checkbox"/> Cool CV: <input type="checkbox"/> WNL <input type="checkbox"/> Moist <input type="checkbox"/> Dry Pulm: <input type="checkbox"/> WNL Other: _____					

Labs	
Time: _____	Time: _____
Other: _____	Other: _____
Interventions (check all that apply)	
<input type="checkbox"/> Compression wrap/tape <input type="checkbox"/> Oxygen <input type="checkbox"/> Splint/immobilization <input type="checkbox"/> EKG monitor <input type="checkbox"/> Ice bag <input type="checkbox"/> Medications: <input type="checkbox"/> Blankets <input type="checkbox"/> D50 <input type="checkbox"/> Massage <input type="checkbox"/> Albuterol <input type="checkbox"/> Blister/chafing care <input type="checkbox"/> Other: _____ <input type="checkbox"/> Wound care: _____	
<input type="checkbox"/> Ice water immersion <input type="checkbox"/> PO fluids → Total volume /Type _____ <input type="checkbox"/> IV fluids → Total volume /Type _____ <input type="checkbox"/> Other _____	
Final Diagnosis (Check all that apply)	
<input type="checkbox"/> Altered Mental Status <input type="checkbox"/> Dehydration <input type="checkbox"/> Seizure <input type="checkbox"/> Cramps <input type="checkbox"/> Syncope/EAC <input type="checkbox"/> Hypoglycemia <input type="checkbox"/> Headache <input type="checkbox"/> Hyponatremia <input type="checkbox"/> Cardiac <input type="checkbox"/> Heat Illness <input type="checkbox"/> Respiratory/SOB <input type="checkbox"/> Hypothermia <input type="checkbox"/> GI (nausea/vomiting) <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Musculoskeletal Injury:	
Questions <input type="checkbox"/> Unable to obtain	
Did runner calculate their sweat rate? <input type="checkbox"/> Yes <input type="checkbox"/> No Did runner read the medical information handout provided by the medical committee? <input type="checkbox"/> Yes <input type="checkbox"/> No Did runner attend any pre-race seminar? <input type="checkbox"/> Yes <input type="checkbox"/> No How many prior endurance events have they run? Did the runner use NSAID (i.e., Motrin) within 24hrs of the race? <input type="checkbox"/> Yes <input type="checkbox"/> No What types and how much fluid did the runner drink during the race? (Check all that apply) <input type="checkbox"/> Water _____ oz <input type="checkbox"/> Electrolyte Drink _____ oz	
Disposition	
<input type="checkbox"/> Returned to race <input type="checkbox"/> Discharged home/Dropped out (stable) <input type="checkbox"/> Transfer to hospital via: <input type="checkbox"/> EMS <input type="checkbox"/> Private Vehicle Hospital Name: _____ <input type="checkbox"/> Refused care/transport <input type="checkbox"/> Follow-up call:	
Time Out: _____	
_____ Attending Physician Signature	

Aid Station Inventory

Inventory will vary by station location

Remember that you are a First Aid Station not a full service hospital. Use your equipment sparingly. Not all stations will have every item listed! Do not open equipment unless you are going to use it. Unused medical equipment should be returned.

Not all stations will have all of the equipment listed!

Boxes	IV admin tubing (Reg.)
Mylar blankets	IV caths (18G)
Sharps (Small Container)	IV caths (20G)
Garbage Liner	Normal Saline (500 ml)
Seal/Duct tape	Sterile Saline Bottles (250 ml) for irrigation
Rectal Digital Thermometers	D50 Injection (25 gm / 50 mL)
Tissues (large box)	Sharpies (Red)
Ace - 4"	Pens (12/Bx)
Betadine liquid (4 oz.)	Injury cards
Adhesive tape (1 1/2 in rolls)	Biohazard Bags (Small bags 17" x 18")
Prewrap	Plastic safety glass.
Tuf-Skin Spray	Pocket masks
Petroleum jelly	Needle stick packs
Tampons (Small Boxes 10 ct.)	Saline Flush
Sanitary pads (Travel Size Box)	IV Needle Locks
Gauze pads (4x4) - Bx. Of 50	Zofran (4 mg vial)
Kling (roll)	5 cc. Syringes
Icy hot	21g Needles for injection
Ziploc Plastic Bags (gallon)	Clorox Wipes
70% Isopropyl alcohol (16 oz. bottle)	BP Cuff/Stethoscope
Alcohol Wipes (Bx.of 200)	Paper Towel Rolls
Sterile Lancets (100/bx)	Hand Sanitizer
Tongue depressors	Towels
Bandage Scissors	Table Paper Rolls
Spenco Blister pads	EZ wrap
Band-aids (1 x 3) 100/bx	Tourniquets for starting IVs
Latex Free Gloves - (Lg.)	
Latex Free Gloves - (Med.)	

Aid Station Manager

Roles and Responsibilities

The Aid Station Manager is the team captain and responsible for management and supervision of the assigned aid station and its personnel

Before The Race

1. Contact personnel assigned to station during the week prior to the race.

Notify Kathleen Nachazel at Medicalvolunteer@upmc.edu by the Thursday prior to the race., if any persons who are unable to participate.

We have initiated an electronic tracking system. Data will be entered on a tablet device. Aid station managers will updated on this process at the aid station managers orientation meeting.

2. Arrive at designated aid station early on race day approximately 10-15 minutes prior to the assigned reporting time (see enclosed schedule reporting time).
3. Upon arriving at your aid station, find and introduce yourself to the following: Amateur Radio Operator at your aid station and the Mile Captain at adjacent water station.
4. **Locate the POD storage unit which contains all your medical supplies for the aid station. You will need to transport the medical equipment from the POD to your designated aid station.**
5. Check in personnel making sure each person has appropriate credentials and distribute T-shirts which will be found in the Rubbermaid medical equipment container.
6. Supervise the setup of the aid station. **DO NOT PUT OUT MORE THAN NEEDED!** You are limited and **will not** have re-supply available.
7. Only set up as many cots as you think will be needed to start. Mark the boxes of the cots that were used when closing the station.
8. Do not set up IVs unless they are going to be used.
9. Report all EMS transports to Race Communications. This can occur via cell (number to be provided.) The Amateur Radio operators will be available in case of a communications issue.



10. Review guidelines with personnel. Emphasize the specifics related to Infection Control and biohazardous Waste disposal.
11. Make sure all biohazardous waste is properly labeled and securely packaged for collection by specifically designated personnel.
12. All collected biohazardous waste will then be taken by designated personnel for final disposition in a manner consistent with Federal, State and County regulations.
13. Stay in touch with Amateur Radio Operator every 30 minutes on weather for posting flags. Only the medical Director may order a change in the Flag color. (See The Flag System)
14. Check closing time list and announce closing time approximately one-half hour before scheduled time. DO NOT CLOSE UNTIL INSTRUCTED BY NET COMMAND.
15. While closing and cleaning up, please inventory supplies being returned.
16. Place injury cards and inventory sheets in the Rubbermaid medical equipment container with the items you are returning for closing inventory.
17. Load all medical equipment into the Rubbermaid medical equipment container and package all the cots that you will be returning to the POD storage unit. **(PLEASE MAKE SURE ALL ITEMS ARE RETURNED TO THE POD STORAGE UNIT).**
18. Return the AED to David Reed, **IN THE BIOHAZARDOUS TRUCK THAT WILL BE FOLLOWING THE SWEEP VEHICLES**
19. Make sure al biohazardous waste is put in the appropriate red bags. Make sure all sharps are placed in the sharps containers. **DO NOT LEAVE THE AID STATION UNTIL YOU HAVE DEPOSITED THE RED BAGS AND SHARPS CONTAINERS IN THE BIOHAZARDOUS TRUCK THAT WILL BE FOLLOWING THE SWEEP VEHICLES.**
20. Provide written evaluation to Kathleen Nachazel at Medicalvolunteer@upmc.edu.

THANK YOU!!!

HOPE TO SEE YOU NEXT YEAR!

Quality Improvement Form

Feedback for improvement

You may complete this optional form and return it with the medical forms and unused equipment. You may also email your comments to Kathleen Nachazel at Medicalvolunteer@upmc.edu.

* Optional

*Your Name _____

Station Location _____

1. Did you have adequate staff at your location? If not, what type of personnel should be added next year?
2. Did you have adequate equipment? What addition equipment would have been helpful?
3. What information should be added or removed from this medical guide?
4. Were communications adequate via your Amateur Radio Operator?
5. Any additional thoughts on how we can make your experience (and the runners) better next year?

Thank you very much!

Appendix – Discharge Instructions

UPMC Sports Medicine

You were treated for the below medical issues at a medical aid station. Please follow the associated instructions. If you have any questions, please contact your primary care provider or UPMC Sports Medicine for follow-up.

- Dehydration/Cramps**
 - Drink a salt-replacement sports drink and eat salty snacks
 - **Do not take NSAID's** (Ibuprofen, Naproxen, Advil[®], Aleve[®], etc.) until at least 6 hours after you have finished the race
 - Eat a well-balanced meal for dinner
- Muscle sprain/strain**
 - **RICE: Rest, Ice, Compression with ACE wrap bandage, Elevation**
 - **Do not take NSAID's** (ibuprofen, naproxen, Advil[®], Aleve[®], etc.) until at least 6 hours after you have finished the race, you may take acetaminophen (Tylenol[®]) if needed for pain or soreness
 - If pain persists or worsens, please seek medical attention for further evaluation
- Exercise associated collapse**
 - During the race, blood has pooled in your legs
 - This may cause you to become dizzy, light headed and/or pass out after the race
 - Continue moving after the race; walk slowly for 10-20 minutes
 - Drink plenty of fluids (24 ounces for every pound lost)
- Heat illness**
 - Take a cool shower and rest at home
 - Avoid taking supplements such as stimulants, which can increase risk of heat illness
 - Apply ice packs to neck, armpits or groin if feeling warm after being cooled
 - Continue to hydrate with sports drinks and water
- Hypothermia**
 - Take lukewarm shower and rest at home
 - Stay warm with blankets
 - Continue to hydrate with sports drinks and water
- Blisters**
 - Keep the blister clean, dry, and either covered or padded
 - Avoid “popping” the blister
 - If you need to “pop” the blister, use sterile implements, puncture it at the base and drain the fluid
 - Do not peel the skin off
 - Cover the exposed blister with a thin layer of antibiotic ointment and dry sterile gauze

3200 S. Water St.
Pittsburgh, PA 15203
1-855-93-SPORT