
E. Emergency Incident Rehabilitation

Review of Injury/Illness:

DHS/EMS personnel may be assigned to assist with disasters, exercises, and other emergency operations throughout the United States. This protocol describes the roles of EMS providers in the process of rehabilitating of emergency responders. Rehab is designed to prevent, detect, and treat such conditions as heat exhaustion, hyperthermia, and dehydration among the workforce, and to remove operational personnel from duty if they cannot safely rotate back into emergency response efforts.

1. An **Emergency Incident Rehabilitation (EIR)** area:
 - a. Should be designated by the incident commander (IC) or designated sector officer. It should be in a safe location, and upwind and uphill from the hot zone if the incident involves airborne or waterborne threats.
 - b. The specific incident will dictate the type and configuration of the rehab area to be established. For example, if hazardous materials are involved, a decontamination corridor must separate the hot zone from the rehab area.
2. **Responsibilities:**
 - a. **Incident Commander:** The incident commander has discretion as to how to implement formal emergency incident rehabilitation (EIR). The IC should consider the circumstances of each incident, and make adequate provisions early in the incident for the rest and rehabilitation of all members operating at the scene. These provisions may include: physical and mental rest; fluid and food replenishment; relief from extreme climatic conditions and other environmental parameters of the incident; and medical evaluation, treatment, and monitoring.
 - b. **Rehab Officer:** An EMT-B, EMT-P, or other DHS team members such as RNs, APNs, PAs, and physicians, should/may be assigned to the rehab area, and, if appropriate, may be designated by the IC as the Rehab Officer (RO). If available and practical, it is preferable that ALS-level personnel and equipment be present, as indicated in NFFPA 1500. Rehab sector medical personnel and other assets should be dedicated to support of firefighters and other operational emergency responders, and should be assigned no other responsibilities.
 - c. **Rehab Team:** Should include sufficient personnel to perform rehab sector functions for the maximum number of personnel anticipated to be in the Rehab Area at any given time. A ratio of one Rehab Team member for every 10 personnel on scene is recommended. The team should include sufficient EMS personnel to perform medical monitoring tasks, but may include non-EMS personnel also.

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- d. **Supervisors/Company Officers:** All supervisors and company officers should maintain their awareness of the condition of all personnel operating within their span of control, and ensure that adequate steps are taken to provide for each member's safety and health. The ICS structure should be used to request relief and/or reassignment of fatigued crews.
- e. **Personnel:** Any member who believes that fatigue or exposure to heat or cold is approaching a level that could affect his performance or the operation in which he/she is involved should advise his supervisor or company officer. Personnel should also remain aware of the health and safety of other members of the crew.

3. Establishing the Rehabilitation Sector:

- a. The IC should establish a Rehab Sector or Group when conditions indicate that rest and rehabilitation is needed for personnel operating at an incident scene or training exercise. This determination should be made based upon the anticipated duration of the operation, level of physical exertion, and environmental conditions, including temperature, humidity, and windchill. Guidelines to consider include:
- Heat stress index > 90° F
 - Wind chill index < 10° F
 - Personnel have completed (or will complete) exertional work with second 30 minute SCBA cylinder, if fire fighting involved
 - Personnel have used (or will use) SCBA or other protective breathing devices for > 45 minutes of physical exertion
 - It is recommended that an EMS vehicle, not otherwise involved in emergency operations at the scene, be positioned at the Rehab Area. If required, an additional ambulance should be requested to the scene for this purpose. Except under extreme circumstances, this ambulance should not be used for transport of civilian patients.
- b. The location of the Rehab Area will be designated by the IC and/or the RO, and should:
- Be far enough from the scene to allow personnel to safely remove (and leave outside the area) SCBA and/or PPE, and remove personnel from the imminent dangers the scene presents, yet close enough to allow prompt re-entry completion
 - Provide adequate protection from environmental conditions and exhaust fumes
 - Be easily accessible by EMS units
 - Be large enough to accommodate several crews

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- For extreme heat conditions, have shaded areas, misting systems and/or fans, and an area to sit down
 - For extreme cold and/or wet conditions, have dry, protected, heated areas, and dry clothing
 - Be integrated with departmental system for personnel accountability, using a single entry and exit point when feasible. Sites that have been used include a nearby building, garage, or lobby; a school bus or large van; and an open, shaded area

4. Rehab Operations:

- a. Resources: The RO should secure, through the IC or Logistics Officer, all necessary resources to properly supply the sector. These may include oral fluids, foods, medical supplies, paperwork, lighting, heaters, fans, a means of access to toilet facilities, and other assets as appropriate to the incident.
- b. Rotation of Personnel/Accountability: Working units will be assigned to the Rehab Sector by the IC or his designee (e.g., Operations Officer). When possible, the entire unit should be assigned to the Rehab Sector as a group. The crew designation, names of members, times of entry and exit, and appropriate medical information should be documented by the Rehab Officer or designee on a PCR form or similar document. Personnel rotated to the Rehab Sector should not leave until directed by the RO. If any member requires transport to a medical facility, the IC shall be notified immediately.
- c. Hydration: During exertional activity, in both hot and cold weather, personnel should consume at least one quart per hour of water, activity beverage, or combination. Carbonated and caffeinated beverages should be avoided. During a typical 20-minute rehab cycle, 12-32 ounces of fluids are recommended.
- d. Nutrition: Food should be provided whenever operations exceed 3 hours. Fatty and salty foods should be avoided.

5. Medical Evaluation:

- a. Ask members arriving at the Rehab Area if they have any symptoms of dehydration, heat/cold stress, physical exhaustion, cardiopulmonary abnormalities, or emotional/mental stress.
- b. Complete a medical evaluation, and appropriate treatment and/or transport, for all members who report such symptoms.
- c. A medical evaluation, with appropriate treatment and/or transport, should also be completed for any member meeting any of the following criteria:
 - The RO or Rehab Sector EMS staff observes evidence of one of the above conditions displayed by a member.
 - Another member, officer, or supervisor indicates he/she does not appear well.

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- The member had to leave an evolution for reasons of excessive fatigue or symptoms.
 - d. Consider the possibility of toxic exposure in ill or injured responders at fire, hazmat, and certain law enforcement operational scenes.
 - e. Carbon monoxide levels can be determined non-invasively when pulse oximetry with this capability (CO-oximetry) is available.

Management

BLS

1. Evaluate scene safety. **DO NOT** approach patient if scene cannot be rendered safe.
2. Institute appropriate Body Substance Isolation (BSI) measures/Universal Precautions, as outlined in Protocol I.A.
3. Perform patient assessment and initiate routine BLS care, as outlined in Protocol I.B, and as indicated by the patient's condition.
4. Determine need for ALS care and/or transport to hospital for further evaluation and treatment.
5. For personnel with signs or symptoms of dehydration or fatigue, check for toxic exposure, heat-related illness, chest pain, and/or change in mental status. These are medical emergencies; obtain ALS treatment if available and transport to a hospital emergency department.
6. For symptomatic personnel with no evidence of the conditions listed in step 5 and vital signs within the following ranges:
 - a. Systolic BP > 90 and < 200 mm Hg
 - b. Pulse rate > 50 and < 100 bpm
 - c. Respirations > 12 and < 24 per minute
 - d. Temperature < 100.5° F

Then manage them in rehab as follows:

- a. Remove as much clothing as possible and minimize exposure to sun and wind.
- b. Limit as much energy exertion as possible.
- c. Oral hydration may be administered using a carbohydrate/electrolyte drink, diluted 1:4 with water.
- d. Place member in cool place and apply evaporative measures. Avoid shivering as this may raise core temperature. (Apply cool—not cold—water-soaked towels to as much exposed skin as possible.)

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- e. Administer oxygen and apply pulse oximetry, if available.
 - f. Continue supportive care and monitor vital signs until patient is turned over to a higher level of medical care. (Even if the patient is not transported to the hospital, he/she may not return to active duty for the duration of that duty cycle or 24 hours, whichever is longer.)

ALS

1. Confirm the completion of BLS steps 1-6.
2. Initiate 0.9% Normal Saline or LR via IV/IO at 10 ml/kg/hr, up to a maximum of 3 L if the patient is severely dehydrated. If the patient's condition does not improve, or worsens at any time during the trial of rehydration, he/she should be transported to the hospital. Oral hydration may be administered using a carbohydrate/electrolyte drink, diluted 1:4 with water.
3. Continue to monitor vital signs, administer oxygen, and pulse oximetry, if available.
4. Continue cold packs and maintain a cool environment. Avoid shivering, as this may raise body core temperature.
5. Obtain 12-lead ECG to check for myocardial ischemia and monitor cardiac rhythm, as necessary.
6. If elevated carbon monoxide levels are documented or suspected, ensure that the patient is on high flow oxygen via non-rebreathing mask (NRBM) and IV access is established.
7. If cyanide exposure is suspected, administer antidote, if available, and advise on-line medical direction of the situation.
8. Continue supportive care and monitor vital signs until patient is turned over to a higher level of medical care.