

Firefighter Rehabilitation Guideline



MABAS DIVISION 5 STANDARD OPERATING GUIDELINE

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| TITLE: Firefighter Rehabilitation Guidelines | SECTION/TOPIC: Operations |
| NUMBER: Revision 1 | ISSUE DATE: December 16, 2009 |
| | REVISED DATE: April 19, 2017 |

These SOGs are based on FEMA guidelines FA-197

1.0 POLICY REFERENCE

| | |
|------|------------------------------------------------------------------------------------------------------------------|
| NFPA | NFPA 1584: Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises |
|------|------------------------------------------------------------------------------------------------------------------|

2.0 PURPOSE

To ensure that the physical and mental condition of members operating at the scene of an emergency, training exercise, or other fire district activity does not deteriorate to a level that affects the safety or well-being of each member or that jeopardizes the safety and integrity of the operation.

3.0 SCOPE

This guideline shall apply to all activities of MABAS Division 5, including, but not limited to, fire ground operations, EMS operations, training exercises and drills where strenuous mental and physical activities or exposure to heat or cold exist.

4.0 DEFINITIONS

Company Level Rehab: A rest and rehab period following moderate exertion that typically involves the wearing of some level of PPE. Rehab is implemented with fluids and food products carried on response apparatus and handed out at the scene. Personnel are tasked with the responsibility of monitoring each others overall physical condition without providing formalized rehab that involves core body cooling and medical monitoring.

Formalized/Full Rehab: Establishment of a specified division of operation referenced as Rehab. This division provides an area conducive for firefighter rest and recovery, hydration, nourishment, cooling (including core body when applicable), medical monitoring and accountability/documentation. Each

firefighter assigned to the rehab division typically spends between 10-30 minutes in a physiologic recovering mode while assigned to this division. Release from the division and return to work is based on a detailed medical exam criteria.

5.0 GUIDELINES & INFORMATION

5.1 Establishment of Rehab

5.1.1 Incident Commander – The Incident Commander shall establish a Rehab Group when conditions indicate that rest and rehabilitation is needed for personnel working at an incident scene or training exercise. The Incident Commander (IC) shall have the responsibility and authority to implement and monitor all provisions of this operational guideline. These provisions are to include: medical evaluation, treatment and monitoring; food and fluid replenishment; physical and mental rest; relief from extreme climatic conditions; relief from other extreme environmental factors caused by the incident. The rehabilitation shall include provisions for Emergency Medical Services (EMS) preferably at the Advanced Life Support (ALS) level. The IC shall assign a chief officer as the Rehab Group Supervisor. The Rehab Group Supervisor should then act within the ICS and report to the Medical Branch Officer or Logistics Chief if assigned. If no Medical Branch Officer or Logistics Chief is designated, the Rehab Group Supervisor is to report to the Operations Section. If the Operations Section has not been established the Rehab Group Supervisor should report to the IC.

5.1.2 Division/Group Supervisors and Company Officers - Division/Group Supervisors and Company Officers (CO) shall maintain an awareness of each member operating within his/her span of control and ensure adequate steps are taken to provide for each member's health and safety. The Incident Command System (ICS) shall be utilized to request relief and/or reassignment of working crews.

5.1.3 Line Personnel - Each member is responsible for his/her preparedness prior to an incident, including pre-hydration during hot days, proper dress during cold days and ensuring that protective clothing and equipment is present and in good working order. During any emergency incident or training activity, all members are to advise their supervisor when they believe that their level of fatigue or exposure to heat or cold is approaching a level that could affect themselves, their crew, or the operation in which they are involved. Members shall remain aware of the health and safety of other members of their working crew.

5.1.4 The Incident Commander may establish a Rehab Group Supervisor during any other fire department activities at his/her discretion; climatic and environmental factors need not be the sole criteria or justification for establishing rehabilitation

5.1.5 Rehabilitation should consider the scope of the incident, including the following:

- Time. Extended use of turnout gear; extended exposure to weather conditions.
- Complexity. Crime scenes, standoffs, search operations, mass gathering/public events, hazardous materials incidents and so on.
- Intensity. Mental and/or physical stress on members such as major extrications, actual fire attack, or interior search and rescue.
- Climatic conditions such as hot or cold weather.

5.2 Location

5.2.1 The Incident Commander will normally designate the location for the Rehab Division. If a specific location has not been designated, the Rehab Group Supervisor shall select an appropriate location based on the site characteristics listed below.

5.2.2 Multiple Rehab locations may be necessary if the incident is large or divided. In the event there is more than one Rehab location, they shall be designated Rehab 1 and Rehab 2, etc. Each Rehab will have its own Rehab Group Supervisor who shall report within the established incident command system.

5.3 Site Characteristics of a Satisfactory Rehab Area.

When selecting a site for rehab the following items should be considered:

5.3.1 It shall be in a location that will provide physical rest by allowing the personnel to recuperate from the demands and hazards of the emergency operation or training evolution.

5.3.2 It shall be far enough away from the scene that personnel may safely remove their turnout gear and SCBA and be afforded mental rest from the stress and pressure of the emergency operation or training evolution. Area must provide secure area from anyone who may pose a threat to crews.

5.3.3 It shall provide suitable protection from the prevailing environmental conditions. During hot weather, it should be in a cool, shaded area. During cold weather, it should be in a warm, dry area.

5.3.4 It shall enable personnel to be free of exhaust fumes from apparatus, vehicles, or equipment (including those used in the Rehab Division).

5.3.5 It shall be large enough to accommodate several crews, based upon the incident size.

5.3.6 It shall be easily accessible by EMS vehicles.

5.3.7 It shall allow prompt re-entry to the incident.

5.4 Site Options:

5.4.1 MABAS Tents/Shelters

5.4.2 Ambulance(s) not available for transporting patients, Buses

5.4.3 Nearby buildings, stores or other structures.

5.4.4 An open area where tarps, fans, heaters, etc can be set up.

5.5 Resources:

5.5.1 At least one ALS Support Ambulance.

5.5.2 At Least one Licensed EMT-Paramedic and/or McHenry County EMS Medical Corp member for every 10 people undergoing rehabilitation.

5.5.3 Sufficient potable water, oral electrolyte solution, ice and food as may be necessary.

5.5.4 Outside resources such as the Salvation Army Mobile Canteen, MESS Canteen or American Red Cross Mobile Canteen should be notified early into an incident to allow for deployment and travel time.

5.5.5 Tarps, lights, fans, blankets, towels, traffic cones, fire-line tape, etc.

6.0 General Operational Principles

6.1 Establishment

6.1.1 Moderate to heavy workload while donned in PPE will result in a physiological impact on the cardiovascular system that needs to be addressed through rehab. Rehab should be at a minimum available at the Company Level for all personnel operating at an emergency incident. Formalized/Full Rehab shall be established for all personnel who have been involved in a heavy workload typically realized through structural attack, overhaul, search and rescue, vertical and horizontal ventilation.

6.1.2 Climatic or environmental conditions with a heat stress index above 90 degrees Fahrenheit or wind-chill index below 10 degrees Fahrenheit shall require a mandatory formalized/full rehab for all personnel.

6.2 Hydration

6.2.1 During heat stress, each personnel should rehydrate at least 16 ounces of water per hour. Plain water should be used for the first hour of the operations and then supplemented with a commercially prepared beverage such as Gatorade™. Hot beverages such as coffee, tea and hot chocolate should be consumed sparingly.

6.3 Nourishment

6.3.1 Food should meet the digestive and exertion level needs of the firefighters on the scene.

6.3.2 If food is required or provided, it shall be soups, low fat meats, peanut butter and jelly, fruits (bananas, apples, oranges) or other easily digested foods. Fast food sandwiches, fatty or salty foods should be avoided.

6.4 Rest

6.4.1 Rest shall be provided after the “two-bottle rule” or one 45 or 60 minute bottle.

6.4.2 Personnel should re-hydrate at least 16 ounces during SCBA bottle change (using the two-bottle rule). Personnel operating in 45-minute (or 60 minute where applicable) should rehydrate and rehab during each bottle change.

6.4.3 Rest shall be no less than 10 minutes and may in some cases extend to 30 minutes as determined by the Rehab Group Supervisor. Personnel requiring rest periods of greater than 30 minutes should be closely monitored for medical conditions. Those who exhibit problems with their baseline medical assessment after 30 minutes should be treated under EMS protocol and transported to a medical facility.

6.4.4 Personnel requiring more than one hour of rest should be released from duty and transported to a medical facility.

6.4.5 Personnel released by the Rehab Group Supervisor are to report to the Staging Area, Planning and/or Operations as determined.

6.5 Medical Evaluation

6.5.1 Rehab shall be staffed with 1 Paramedic and/or McHenry County EMS Medical Corp member for every 10 firefighters.

6.5.2 Rehab medical evaluation shall consist of a minimum of a 1) visual exam 2) pulse 3) mental status. Blood pressure may be obtained, but caution should be exercised in making physiologic condition assessments based on blood pressure alone.

6.5.3 Any member who exhibits a consistent pulse rate of >110 bpm, should not be permitted to wear full protective clothing, including SCBA and should require additional rehabilitation.

6.5.4 Any member(s) who receives any treatment(s) other than fluid, food, and/or rest shall be treated and documented as an injury to personnel. As an example, ice for sprains or strains shall be considered injuries rather than rehabilitation.

6.5.5 All Rehab evaluations shall be documented on the MABAS 5 Rehab Form and submitted to the IC at the conclusion of the incident.

6.5.6 All injury reports shall remain part of the employee's protected medical file and treated as other confidential medical records.

6.5.7 Any/all Rehab evaluations involving Mutual or Auto Aid personnel shall be made available to their respective departments.

7 Decontamination

7.1 Firefighters undergoing either company level or formalized rehab shall utilize sanitary cleansing wipes to clean and decontaminate skin areas potentially exposed to products of combustion. Areas of focus should be face, neck and hands.

8 Accountability

8.1 Personnel assigned to Rehab shall enter and exit the Rehabilitation Area as a crew. The crew designation, number of crew personnel, and the times of entry/exit shall be documented by the Rehab Group Supervisor, or his/her designee on the MABAS Rehab Division 5 Form.

8.2 Crews shall not leave the Rehabilitation Area unless authorized to do so by the Rehab Group Supervisor.

8.3 Any personnel who refuses to go through Rehab, shall be released from the scene and allowed to return to their quarters, including all members of their company. This will be immediately reported to the IC, and a subsequent report will be made to their Chief regarding their failure to comply with the Division guideline.

APPENDIX

CHART 1

MEDICAL ASSESSMENT CRITERIA

MENTAL STATUS:

- Alert and oriented on arrival at rehab

If any alteration in mental status – Provide Immediate Transport

HEART RATE:

- < 110 BPM = Within normal limits
- > 110 BPM = Close monitoring required by medical personnel

Normal = < 100 BPM five minutes after arrival in Rehab

SKIN CONDITION:

- May be somewhat flushed on arrival. Should be improved five minutes after arrival in Rehab.
- If skin remains flushed or is unusually dry, monitor patient for signs of heat stress/stroke.

BLOOD PRESSURE:

- Systolic Pressure < 150 and Diastolic Pressure < 100
- Systolic Pressure > 150 and Diastolic Pressure \geq 100 = Close monitoring by medical personnel

Blood Pressure will fluctuate greatly as the body attempts to return to a normal state of homeostasis. Assessment should be based on a total and inclusive picture of all criteria and not simply one element such blood pressure.

RESPIRATIONS:

- < 26 = Within normal limits
- < 20 = Five minutes after arrival in Rehab

Abnormal: \geq 26 after 5 minutes in Rehab

CHART 2

| | | <u>HEAT STRESS INDEX</u> | | | | | | | | |
|---|-----|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | Relative Humidity | | | | | | | | |
| | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| T | | | | | | | | | | |
| E | 104 | 98 | 104 | 110 | 120 | 132 | | | | |
| M | 102 | 97 | 101 | 108 | 117 | 125 | | | | |
| P | 100 | 95 | 99 | 105 | 110 | 120 | 132 | | | |
| E | 98 | 93 | 97 | 101 | 106 | 110 | 125 | | | |
| R | 96 | 91 | 95 | 98 | 104 | 108 | 120 | 128 | | |
| A | 94 | 89 | 93 | 95 | 100 | 105 | 111 | 122 | | |
| T | 92 | 87 | 90 | 92 | 96 | 100 | 106 | 115 | 122 | |
| U | 90 | 85 | 88 | 90 | 92 | 96 | 100 | 106 | 114 | 122 |
| R | 88 | 82 | 86 | 87 | 89 | 93 | 95 | 100 | 106 | 115 |
| E | 86 | 80 | 84 | 85 | 87 | 90 | 92 | 96 | 100 | 109 |
| | 84 | 78 | 81 | 83 | 85 | 86 | 89 | 91 | 95 | 99 |
| F | 82 | 77 | 79 | 80 | 81 | 84 | 86 | 89 | 91 | 95 |
| | 80 | 75 | 77 | 78 | 79 | 81 | 83 | 85 | 86 | 89 |
| | 78 | 72 | 75 | 77 | 78 | 79 | 80 | 81 | 83 | 85 |
| | 76 | 70 | 72 | 75 | 76 | 77 | 77 | 77 | 78 | 79 |
| | 74 | 68 | 70 | 73 | 74 | 75 | 75 | 75 | 76 | 77 |

Note: Add 10F when protective clothing is worn and add 10F when in direct sunlight.

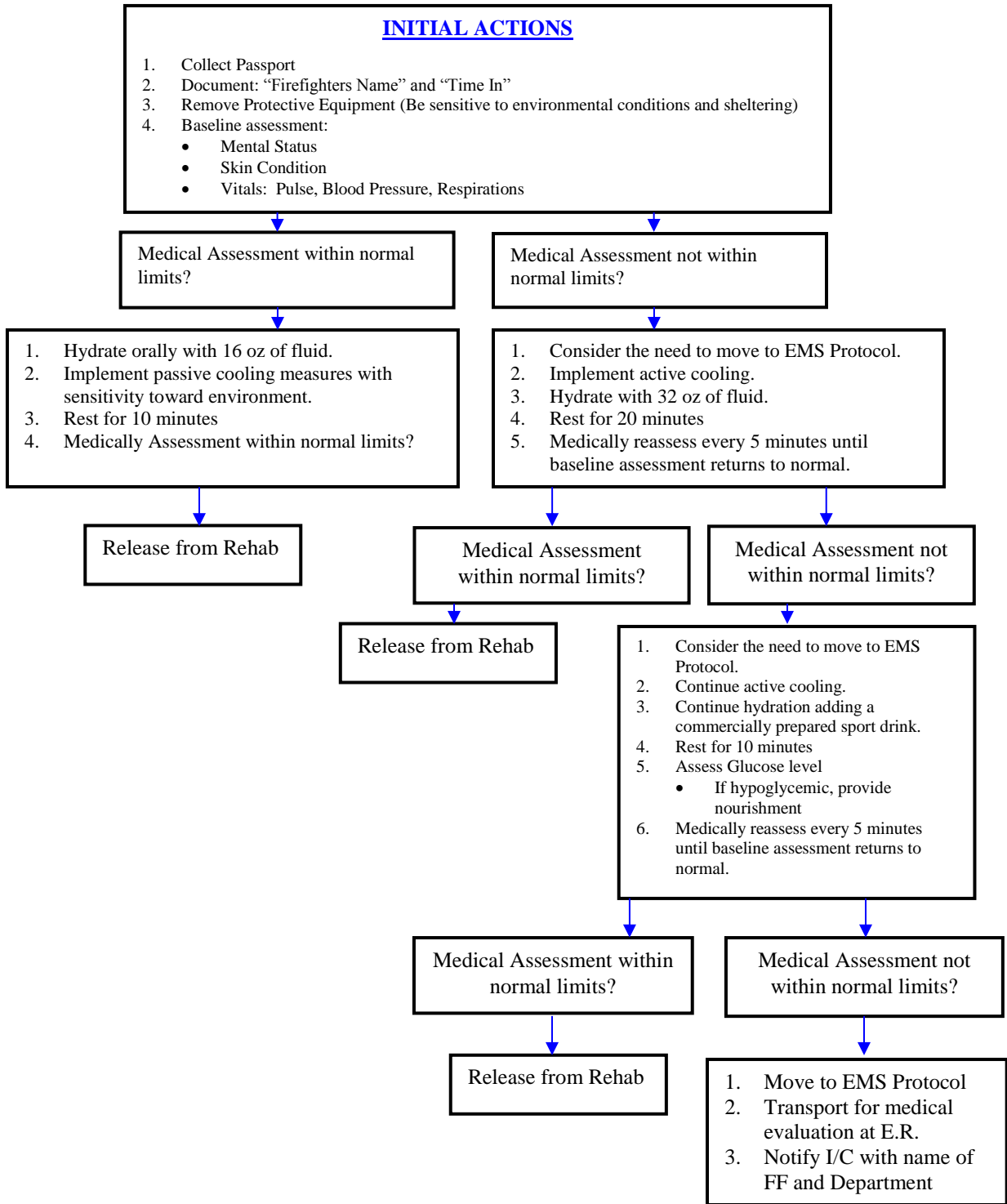
| Humidity Index F | Danger Category | Injury or Threat |
|------------------|-----------------|----------------------------------------------------------------------------------------------------------------|
| Below 60 F | None | Little or no danger under normal circumstances |
| 80 – 90 F | Caution | Fatigue possible if exposure is prolonged and there is physical activity |
| 90 – 105 F | Extreme Caution | Heat cramps and heat exhaustion possible if exposure is prolonged and there is physical activity |
| 105 – 130 F | Danger | Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity |
| Above 130 F | Extreme Danger | Heat Stroke Imminent!! |

CHART 3

| | | <u>WIND CHILL INDEX</u> | | | | | | | | | | | | | |
|------------|----|--------------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | Temperature Degrees Fahrenheit | | | | | | | | | | | | | |
| | | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 0 | -5 | -10 | -15 | |
| WIND SPEED | 5 | 43 | 37 | 32 | 27 | 22 | 16 | 11 | 6 | 0 | -5 | -10 | -15 | -21 | |
| | 10 | 34 | 28 | 22 | 16 | 10 | 3 | -3 | -9 | -15 | -22 | -27 | -34 | -40 | |
| | 15 | 29 | 23 | 16 | 9 | 2 | -5 | -11 | -18 | -25 | -31 | -38 | -45 | -51 | |
| | 20 | 26 | 19 | 12 | 4 | -3 | -10 | -17 | -24 | -31 | -39 | -46 | -53 | -60 | |
| | 25 | 23 | 16 | 8 | 1 | -7 | -15 | -22 | -29 | -36 | -44 | -51 | -59 | -66 | |
| | 30 | 21 | 13 | 6 | -2 | -10 | -18 | -25 | -33 | -41 | -49 | -56 | -64 | -71 | |
| | 35 | 20 | 12 | 4 | -4 | -12 | -20 | -27 | -35 | -43 | -52 | -58 | -67 | -75 | |
| | 40 | 19 | 11 | 3 | -5 | -13 | -21 | -29 | -37 | -45 | -53 | -60 | -69 | -76 | |
| 45 | 18 | 10 | 2 | -6 | -14 | -22 | -30 | -38 | -46 | -54 | -62 | -70 | -78 | | |

| | Wind Chill Temperature °F | Danger |
|---|---------------------------|----------------------------------------------|
| A | Above -25 F | Little danger for properly clothed personnel |
| B | -25F / -75F | Danger, flesh may freeze |
| C | Below -75F | Flesh may freeze in 30 seconds |

CHART 4 REHAB FLOW CHART



Firefighters returning for second round of rehab should be hydrated with sports drink and provided nourishment.

MABAS DIVISION 5

REHAB FORMS



- THESE DOCUMENTS MUST BE TURNED OVER TO THE LOCAL AUTHORITY HAVING JURISDICTION / INCIDENT COMMANDER.
- THESE DOCUMENTS ARE TO BE CONSIDERED CONFIDENTIAL MEDICAL RECORDS AND **SHOULD NOT** BE FILED WITH THE FINAL INCIDENT REPORT.
- FIREFIGHTERS RETURNING FOR A SECOND ROUND OF REHAB SHOULD BE HYDRATED WITH SPORTS DRINKS AND PROVIDED NOURISHMENT

MABAS DIVISION 5

Incident Rehab

Company Level Check In/Out Document

Incident Location _____ Incident Date _____

Rehab Group Supervisor _____

| Dept | Unit Type | Crew Size | Time In | Time Out | | Dept | Unit Type | Crew Size | Time In | Time Out |
|------|-----------|-----------|---------|----------|--|------|-----------|-----------|---------|----------|
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New Form

MABAS DIV. 5

Incident Rehab - Individual Rehabilitation Report

Incident Location _____ Date _____ Time _____ Rehab Officer _____

| Name Department Age/Height/Weight | Time In/Out | # SCBA Cylinders | Exam Period | Blood Pressure | Pulse | Resp. | SpO ₂ | SPCO (If Available) | Skin Parameters | COOLING/ HEATING | HYDRATION / NOURISHMENT | MEDICAL COMPLAINTS | Transport Y / N |
|-----------------------------------------|------------------------|---------------------|----------------|-------------------|-------|-------|------------------|------------------------|--------------------|---------------------|----------------------------|-----------------------|--------------------|
| | | | INITIAL | | | | | | | | | | |
| | | | 10 Min. | | | | | | | | | | |
| | | | 20 Min. | | | | | | | | | (Glucose _____) | |
| | | | 30 Min. | | | | | | | | | (Glucose _____) | |
| | Prior Activity: | | | | | | | | | | | | |
| | | | INITIAL | | | | | | | | | | |
| | | | 10 Min. | | | | | | | | | | |
| | | | 20 Min. | | | | | | | | | (Glucose _____) | |
| | | | 30 Min. | | | | | | | | | (Glucose _____) | |
| | Prior Activity: | | | | | | | | | | | | |
| | | | INITIAL | | | | | | | | | | |
| | | | 10 Min. | | | | | | | | | | |
| | | | 20 Min. | | | | | | | | | (Glucose _____) | |
| | | | 30 Min. | | | | | | | | | (Glucose _____) | |
| | Prior Activity: | | | | | | | | | | | | |
| | | | INITIAL | | | | | | | | | | |
| | | | 10 Min. | | | | | | | | | | |
| | | | 20 Min. | | | | | | | | | (Glucose _____) | |
| | | | 30 Min. | | | | | | | | | (Glucose _____) | |
| | Prior Activity: | | | | | | | | | | | | |