

Appendix D: Guidance for Consideration of AED Units in Remote Areas

Guidance for Consideration of Automated External Defibrillator (AED) Units in Remote Areas

The "Chain of Survival" is a concept that outlines the critical steps that need to be taken to increase the chances of survival in cases of cardiac arrest. It emphasizes the importance of timely intervention at each stage.

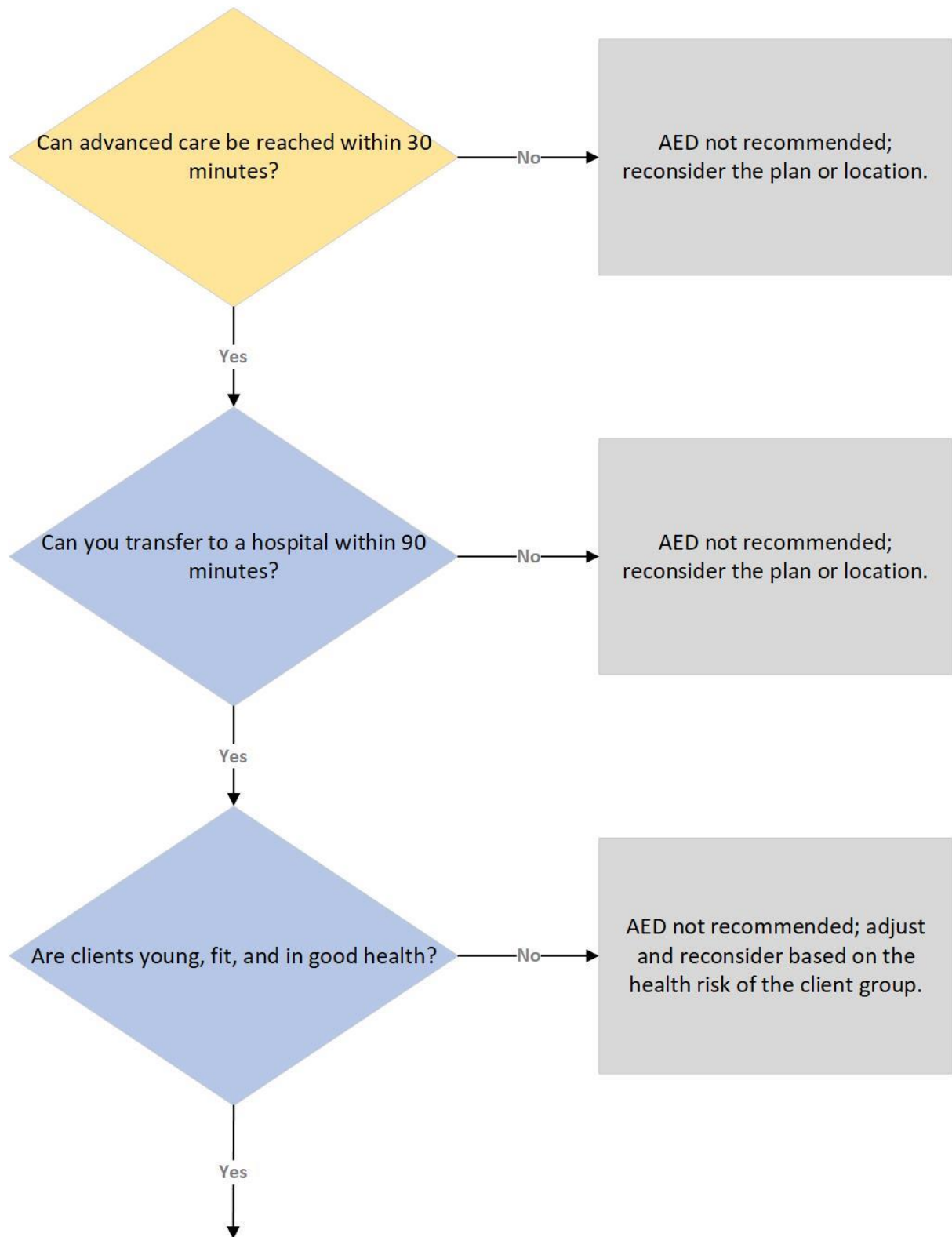
The typical components of the Chain of Survival include:

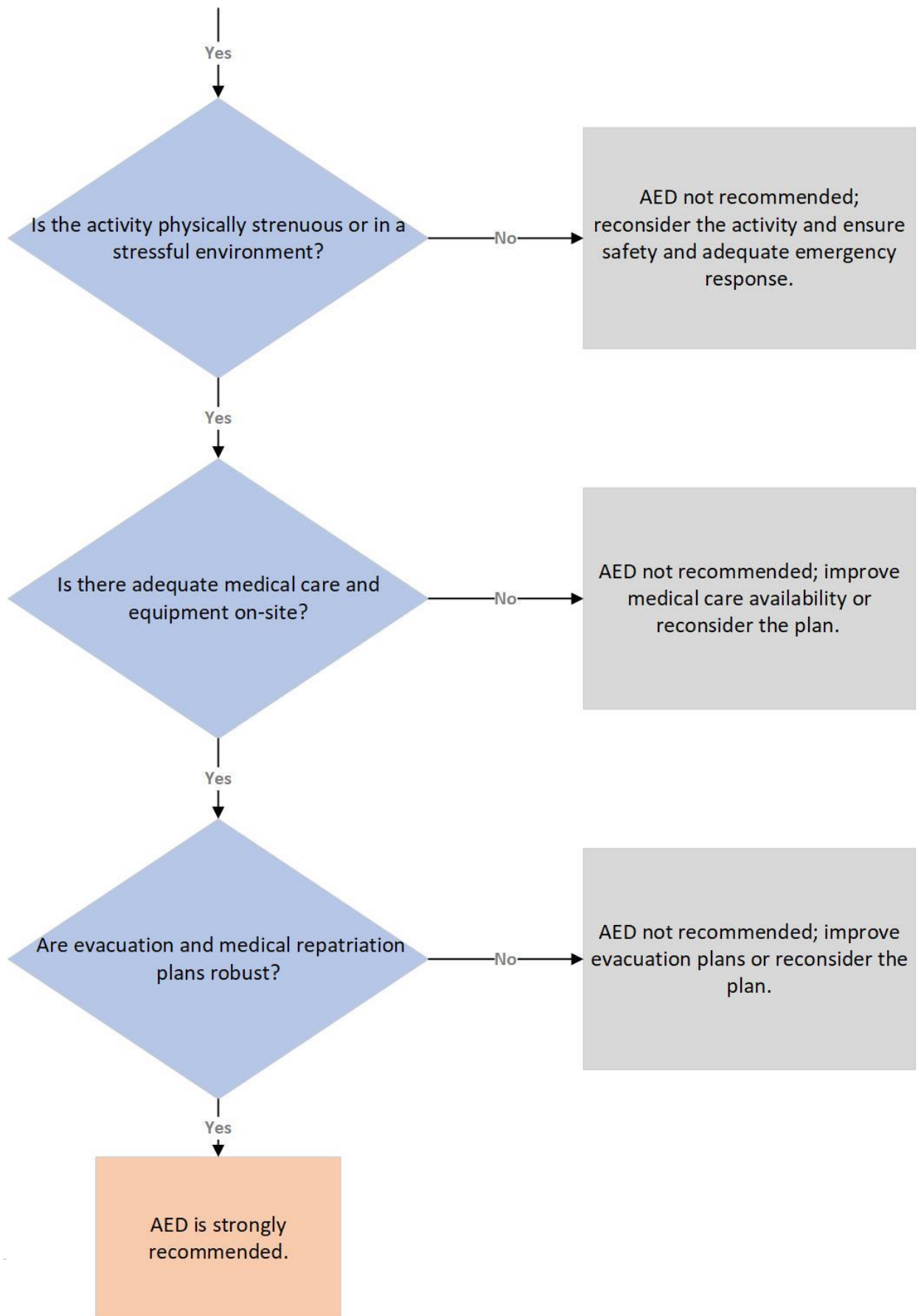
1. **Early Recognition and Activation of Emergency Services:** Quickly recognizing the signs of a cardiac emergency and calling for help (such as dialing 911) is crucial.
2. **Early CPR:** Initiating cardiopulmonary resuscitation (CPR) as soon as possible can help maintain blood flow to vital organs until professional help arrives. High-quality chest compressions are vital during this stage.
3. **Early Defibrillation:** Using an automated external defibrillator (AED) as soon as it is available can restore a normal heart rhythm in cases of ventricular fibrillation. The chances of survival decrease significantly with each passing minute without defibrillation.
4. **Advanced Care:** Once emergency medical services arrive, advanced medical interventions can be provided, including advanced airway management, medications, and more intensive monitoring.
5. **Post-Cardiac Arrest Care:** After initial resuscitation, appropriate care in a hospital setting is essential to address the underlying cause of the cardiac arrest and to manage any complications.

Each link in the Chain of Survival is critical, and improving any one of them can significantly enhance the likelihood of survival and positive outcomes after a cardiac arrest.

- **Consideration of AED units in Remote Areas:** Evaluate the necessity of having an Automated External Defibrillator (AED) as part of your emergency procedures. AEDs are crucial for responding to cardiac emergencies and can be life-saving in remote locations where medical help is delayed.
- **Advanced Care and Transport:** Successful resuscitation requires pre-hospital advanced care and hospital transport, which might not be available in remote areas. **Ventricular Fibrillation Timing:** The heart can stay in Ventricular Fibrillation for 10-12 minutes, longer with effective CPR. Quick defibrillation is crucial but not guaranteed without follow-up care.

Use the following flowchart to determine if an AED is required:





Summary

If all steps are satisfied (proximity to care, client health, activity type, emergency plan, and evacuation), carry an AED.

If any critical steps are not satisfied, reconsider the location, activity, or client group to ensure safety and adequacy of emergency.

Defibrillation is simply one link of the chain: Even if the casualty is successfully resuscitated by the lay rescuer, they will still require pre-hospital Advanced Care as well as transport to definitive care in a hospital which cannot be guaranteed in a remote environment. The heart may remain in Ventricular Fibrillation for 10-12 minutes from collapse, a few minutes more if preceded by effective CPR. With an AED close to hand, we may be able to defibrillate well within this timeframe, however, successful recovery is still dependent on Advanced Life Support within 30 minutes and transfer to definitive care within 90 minutes. While timely defibrillation can increase the chance of survival for some casualties, a defibrillator cannot guarantee successful resuscitation—a defibrillator cannot shock all heart rhythms and not all causes of Cardiac Arrest can be resolved by defibrillation.

After revising plans or locations based on the AED flowchart review, please follow the outlined process for borrowing an AED for your activities:

AED Loan Borrowing Process Requirements

For this part of the program, each remote location equipped with an Automated External Defibrillator (AED) unit must appoint a Primary or Secondary Field Team Leader who will be responsible for the upkeep of the AED and performing monthly checks. While any trained individual can operate and deploy the AED, the designated Primary or Secondary Field Leader must assume responsibility of the AED unit to ensure consistent maintenance and readiness.

D.1 AED Loaner Components

This plan aims to equip researchers working in remote areas, where emergency services are more than thirty minutes away, with Automated External Defibrillator (AED) units. It adheres to the guidelines for AED deployment in remote locations. Researchers must fill out the AED Loaner Request Form completely to borrow an AED. This form includes a chart of accounts (COA) to track and manage any mishandling or misuse of the unit, such as false activations or unnecessary use of supplies. The form will specify the duration of the loan. It should be noted that no damage report is required for normal wear and tear.

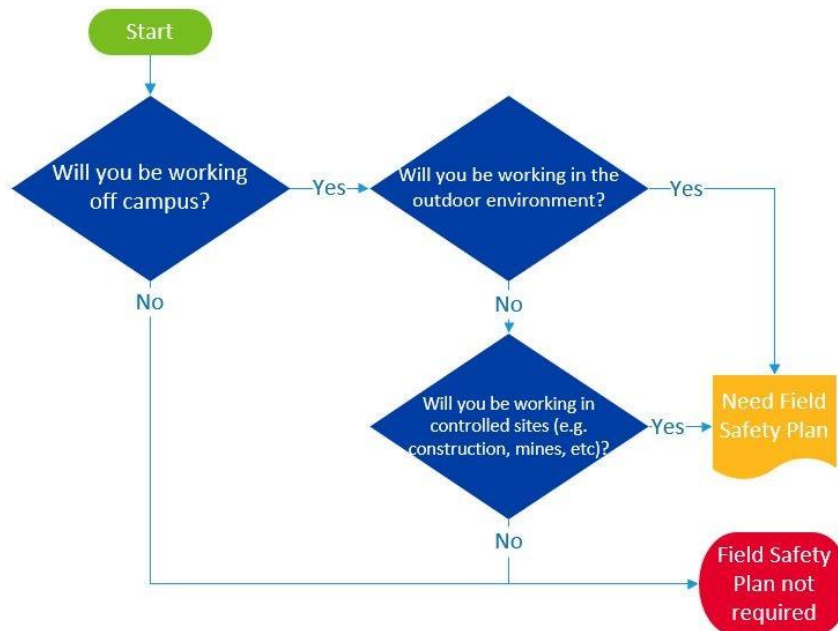
Additionally, it is essential to designate the Primary Field Leader and Secondary Field Team Leaders. These leaders will meet with the EHSRM AED coordinator to review the requirements and procedures for deploying an AED and to learn how to properly check and ensure the equipment is functioning correctly.

D.2 AED Borrowing Requirements

To initiate the loan process for an AED, a comprehensive field safety plan must first be established and approved. As part of this plan, it is essential to identify and train Primary and Secondary Field Leaders according to the safety requirements stipulated. This plan is vital for the safe and efficient management of field courses and research expeditions. It offers detailed guidelines on planning, training, incident response, risk assessment, communication protocols, campus resources, and the identification of standard field hazards.

Principal Investigators (PIs) and supervisors are responsible for ensuring that all personnel, including employees and students, are thoroughly trained and equipped to safely conduct their activities. For additional information or inquiries about safety, please contact Pamela See at EHSRM at (951) 827-5528.

If you are traveling more than 100 miles from your home campus or office, you must register with UC Away to obtain travel insurance documentation, access 24/7 assistance, and receive a customized “Trip Brief”. [UC Away Travel Registration](#).



During the planning phase, it is essential to reference Appendix D: Guidance for Consideration of Automated External Defibrillator Units in Remote Areas to assess the necessity of an AED unit. If the evaluation indicates that an AED unit is warranted, you may proceed to complete the AED Loaner Form and ensure that a Chart of Accounts (COA) is provided. This procedure will guarantee adequate coverage for the AED unit and related supplies in the event of damage or improper use. Additionally, if the AED unit is deployed, we will use the specified account to replace any items that were used. This ensures that the unit is fully stocked and ready for the next user.

D.3 Training

While Automated External Defibrillator (AED) units do not require users to be trained, individuals may need First Aid Training depending on their destination. Specifically, when university personnel are stationed in remote locations such as research field stations, field trips, or diving expeditions where municipal emergency medical services are unavailable, it is essential for on-site personnel to be trained in advanced first aid. This training requirement is in accordance with the guidelines set forth in the UC Field Operations/Field Safety Plan.

Additionally, Cal/OSHA's First Aid Training requirement (§3400(b)) mandates that in workplaces lacking a nearby infirmary, clinic, or hospital for treating all injured employees, the employer must ensure that one or more persons are adequately trained to render first aid. The training provided should be equivalent to that offered by the American Red Cross or the Mine Safety and Health Administration. This stipulation underscores the importance of having trained first aid responders available in locations distant from medical facilities

First Aid Training Courses

First Aid training courses are offered both on-campus and across Riverside County, providing certification upon completion:

- Standard First Aid with CPR/AED Adult/Pediatric
 - Location: University of California Riverside, Recreation
- CPR, First Aid, and AED Certification
 - Location: University of California Riverside, Extension
- Palm Desert Resuscitation Education
 - Location: UCR Campus (Materials Science & Engineering Building, MSE 113 on the first floor)
- American Red Cross Training Services
 - Location: Riverside Countywide

Wilderness First Aid (WFA) is tailored for those engaged in fieldwork or activities in remote areas. This training covers more complex scenarios than standard courses, equipping participants to manage emergencies in wilderness settings, including severe bleeding and basic life support techniques. WFA courses usually cover the theoretical use of AEDs, although practical training might not always be included due to the improbability of AED access in remote areas. More comprehensive courses, like Wilderness First Responder (WFR), often include extensive training on AED usage. Departments should verify specific training components with provider to ensure they meet their requirements.

D.4 Choosing a Training Provider for Outdoor Locations

When selecting a training provider for outdoor activities, consider established organizations such as the National Outdoor Leadership School (NOLS), which offers specialized programs like the 2-day WFA course and the 10-day WFR program. Other reputable providers include Sierra Rescue and Wilderness Medicine Associates.

Basic First Aid and CPR training is available through the UC Riverside Student Recreation Center. This blended learning course of Adults and Pediatrics features an online self-paced module and an in-person skills session. The online component provides foundational knowledge on First Aid, CPR, and AED usage, which participants will apply during the practical in-person session. Completion of the online module is required before attending the skills session.

D.5 Information Collection

If an AED unit is used and deployed in the field, the following can occur:

If pads and shocks are applied as emergency treatment, the unit must be collected and EH&S AED Program Coordinator notified. The AED unit will be sent to CPR1, and a loaner will be sent in its place, if the unit is still required for the timeframe that it is borrowed. The Primary or Secondary Team Leader must fill out the [Appendix F: AED Post Use Form](#) and submit it to the EHSRM AED Program Coordinator within 24 hours.

If pads or any other supplies are open and no shocks have been applied as part of the care treatment, the Primary or Secondary Team Leader is responsible for replacing them. In this case, the AED unit does not need to be collected for submission to CPR1, the AED post-used form does not need to be submitted to EHSRM AED Program Coordinator within 24 hours. Spare pads and first responder kits, if opened, must be ordered from CPR1. The cost for replacement pads will be charged to the COA on file, starting at \$75.65, and the cost for the first responder kit will start at \$20.40. The AED unit itself has a starting cost of \$1,600.00

D.6 AED Loaner Request Form

The Department/Administrative Unit and the Primary or Secondary Team Leader agree to the responsibilities below. If it is determined that an AED unit is needed, departments can request a loaner AED unit by filling out the following form below. Still, it is with the understanding that those who ask for the use of an AED unit will be responsible for the replacement of the following items if they are damaged while in use and will be charged to the department Chart of Accounts (COA) account if the damages are found to: the AED unit itself, unit battery, misuse of AED unit resulting in medical services called and both spare pads/unit pads if the pads are opened or tampered in any way.

Equipment Replacement Costs

Product	Unit Price
AED Unit	\$1,326.75
Battery	\$174.25
First Responder Kit	\$20.40
Spare Pads	\$75.65

Automated External Defibrillator (AED) Loan Request Form

Date of Request (MM/DD/YYYY):	
Primary Field Team Leader:	
Secondary Field Team Leader:	
Primary Field Team Leader Phone Number:	
Secondary Field Team Leader Phone Number:	
Primary Field Team Leader Email Address:	
Secondary Field Team Leader Email Address:	
Research/Field Group Department Name:	
PI/Supervisor Name:	
Requested Check-Out Date (MM/DD/YYYY):	
Requested Return Date (MM/DD/YYYY):	
Department Chart of Accounts (COA):	
Primary Research/Field Group Location:	
Approval of Field Safety Plan to Include AED Unit?	☐ Yes ☐ No
Have you completed First Aid CPR training?	☐ Yes ☐ No
Have you completed Wilderness Training?	☐ Yes ☐ No

The Primary Field Team Leader or Secondary Field Team Leader agrees to the above responsibilities.

Signature: _____ Date: ____/____/____

For any inquires or to submit this form, please get in touch with the EHSRM Occupational Health Coordinator at ehsocchealth@ucr.edu