Wilderness Medicine

Location: Kaweah Delta Medical Center/Sierra Nevada Mountains **Revised** 7/10/24

Clerkship Director:
Dr. Sean Oldroyd

EM Faculty:
Dr. Jing Liu

MS COORDINATOR: **PHONE #**
Lizet Hernandez 559-624-2552
E-mail: lreynoso@kaweahhealth.org

PREREQUISITE: Kaweah Delta Clearance

DURATION: 2 weeks

DATES OFFERED:

Winter Dates:	1/27/25-2/7/25

NUMBER OF STUDENTS: Maximum of 12 students

VISITING STUDENTS: Yes

ADDITIONAL INFORMATION: Fee: An additional $190 fee is required to fund excursion-related expenses including meals, equipment, guest lecturers, and venues. Rotating students will receive a list of needed equipment for the rotation.
*Fee is non-refundable and will be due upon acceptance of the rotation.

COURSE OBJECTIVES:
Wilderness medicine encompasses the diagnosis and improvised treatment of patients with routine or exotic illnesses/trauma in an austere environment. Wilderness medicine also encompasses trip preparation, field triage, assessment, treatment, stabilization, and evacuation. Wilderness medicine deals with multiple terrains, environments and seasons. The primary goal of the wilderness medicine rotation is to allow the rotating medical students to effectively identify, evaluate, and manage such emergencies in a resource-limited environment.

SUPERVISION:
Dr. Jing Liu

DESCRIPTION:

BASIC SCHEDULE FORMAT

This rotation is 2 weeks long, starting on Monday and ending on Saturday. Daily schedule runs 8am – 4pm, M-F. The first week will consist primarily of classroom instruction and simulation in the simulation lab. The second week will be spent at a campsite in the Sierra Nevada Mountains. The site and date to be announced by the instructors. The medical students will attend EM conference on Thursday mornings, and will report for simulation during the first week of the rotation. Rotations scheduled during winter months will have an additional focus on cold-weather conditions and snow rescue, snow shelter. Please come prepared with weather appropriate clothing and camping equipment.

Wilderness Medicine Overview

- Understand what Wilderness Medicine does and does not encompass
- Describe the practice of medicine in an austere environment
- Scene awareness and victim assessment and management
- For further learning: Wilderness Medicine Society, Tulare County Search and Rescue, Community Regional Medical Wilderness Medicine journal club, and other venues

Trip Preparation and Planning

- Describe how to prepare for various trips: backpacking, water sports, climbing, snow sports, mountain climbing, and international travel
- Selection of gear and clothing
- Meal planning and preparation
- Build a medical kit – what's important and what's not

Environmental illnesses

Cold and heat injuries

- Identify normal, critically low and high body temperatures
- List common predisposing factors associated with heat and cold disorders
- Describe measures to prevent thermal injuries
- Identify symptoms of hyper and hypothermia and frostbite
- List measures to manage cold and heat injuries

Lightning

- Describe lightning physiology and how it is different from A/C injuries
- Discuss how to avoid lightning exposure
- Discuss immediate life threats of lightning strikes and their treatment
- Sequelae of lightning strike injuries

High Altitude Illnesses

- Describe the signs and symptoms of high-altitude illnesses
- Describe the physiology and treatments for HACE, HAPE, and HAFE
- Recognize when immediate descent is required
- Describe other modalities for prophylaxis, treatment, and management of altitude illnesses (medications and portable hyperbaric chambers)

Traumatic injuries

Triage

- Describe the key elements of disaster triage
- Understand the basic principles of Mass Casualty Triage (START)
- Apply the principles of disaster triage
- Understand the concept of reverse triage

Musculoskeletal

- Distinguish between unstable and stable musculoskeletal injuries
- Describe treatment of both unstable and stable musculoskeletal injuries
- Describe restoring alignment and splinting techniques for deformed injuries as well as sprained extremities
- Assessment of spinal injuries, immobilization, and transport

Head and facial trauma

- Mechanism and assessment of head trauma
- Describe facial and dental injuries and treatments
- Describe eye injuries and treatments

Thorax and abdominal trauma

- Describe injury patterns encountered in the field: blunt and penetrating
- Describe how to treat pneumothorax in the field
- Describe how to manage blunt and penetrating abdominal trauma

Eye

- Describe how to identify and treat solar keratitis
- Describe how to build makeshift glasses

Wounds & Burns

- State the common etiologies and characteristics of different types of wounds and burns
- Describe the treatment of wounds and burns in an austere environment
- Describe the role of debridement (mechanical) in wound management
- Describe and practice the methods of hemorrhage control

Drowning

- Describe water rescues

- Discuss how to manage the drowned patient and immediate life threats

Bites and Stings
- Learn how to assess what wildlife are likely to cause injury in the area that the activity occurs
- Distinguish between a venomous bite versus a nonvenomous bite
- Identify wildlife including snakes, scorpions, animals, insects, marine life, etc.
- Determine when medical assistance is needed for a bite or sting
- List the signs and symptoms of anaphylactic shock
- Describe and demonstrate immediate treatment for bites and stings.
- Demonstrate how to remove a tick

Poisonous Plants
- Identify general clinical signs of plant poisoning
- Identify geographic profiles, toxic characteristics and treatment options for important poisonous plants
- Discuss ways to prevent plant poisoning/ exposures
- Explain when and how to remove oils
- Explain treatment options for contact dermatitis

Orienteering
- Explain how to use a map and compass
- Take a heading without a map
- Take a bearing with and without a compass
- Use of GPS when in the wilderness (backpacking, off-piste skiing, etc.)
- Discuss how to signal for help

Wilderness Food Preparation
- Discuss the importance and the steps involved in pre-trip planning
- Understanding the nutritional needs for a backpacker or camper under different weather conditions
- Describe the various types of cooking stoves and fuels and what conditions they are best suited for
- State how to store food while camping or backpacking
- Describe restrictions to the use of open fires and safety techniques
- Describe the correct ways of trash and waste disposal
- Discuss the various ways to acquire and treat water for safe drinking

Shelter
- Describe the various styles and attributes of tents, tarps, and hammocks
- Explain the importance of and various styles of sleeping pads and bags.
- Describe how to build a shelter from local materials found in the area

Transport, Evacuation and Decision-making
- List injuries or illnesses needing immediate evacuation
- Describe the advantages and disadvantages of different transportation systems
- List the information needed to decide the immediacy and method evacuation necessary
- Describe helicopter rescue

Search and rescue
- Define the different search and rescue incidents and their causes
- Identify the types of search and rescue resources that respond to an incident
- Compare the different levels of response to a search and rescue incident
- Recognize what level of training is needed to safely and effectively perform search and rescue operations

Global Travel
- Identify infectious diseases that are common to certain geographical areas (CDC Yellow Book)
- Describe symptoms and characteristics of those diseases

- Describe how to prepare for foreign travel and what to take
- Know what vaccines are available for particular countries
- Describe treatment of infectious disease
- Describe regional hazards of foreign travel (violence, kidnapping, motor vehicle accidents, water availability and safety, etc.)

In-flight Emergencies

- Be familiar with the contents of the standard medical kit found on airplanes
- Recognize the medical legal consequences of providing emergency medical care on a plane
- Confidently evaluate and manage common in-flight emergencies using the available resources

TEACHING METHODS:

1. Experiential learning: The medical students will learn by performing procedures under appropriate supervision and conditions. New procedures and examination skills from medical students' prior experience will first be observed and reviewed. Guidance and supervision will be provided on subsequent encounters with these skills. This will allow safe learning of new techniques and procedures.
2. Didactics: medical students will continue to attend Emergency medicine conference on Thursdays as well as all scheduled didactics and simulation sessions.
3. Selective reading: Medical students will study materials relevant to wilderness medicine during this block.
4. Simulation and practice: The medical students will take part in patient scenarios during teaching sessions. Also, there will be a 3-4 day period of camping in which the medical students will learn the techniques of planning, camping, and treatment of emergencies in the wilderness.

EVALUATION:

1. Score a 76% on the written end-of-rotation test and practical skills test, and/or presentation on a wilderness topic of the student's choice.

*__**Selective Attendance and Illness Policy**__

In order to insure adequate clinical exposure, no more than 3 days of excused absences, including interview days can be accepted during your rotation. While excused, these days must be made up. This policy does not imply that absences are guaranteed; absences may be excused at the discretion of the faculty. Absence due to illness must be reported to the Coordinator as well as the faculty or his/her designee as soon as possible. In case of extended absence (2 days or more), a note from a physician (who is not a relative) is required and the absence will be reported to the Office of Student Affairs. A physician note may be requested for any absence, at the discretion of the faculty. **__Any planned absence must be registered with the coordinator prior to the first day of the rotation__**. Further attendance requirements may be covered during the first dayorientation.