

# **BELIZE INSTITUTE FOR TROPICAL & WILDERNESS MEDICINE**

## **WILDERNESS & INTERNATIONAL MEDICINE ROTATION FOR RESIDENT PHYSICIANS & UPPER LEVEL MEDICAL & ALLIED HEALTH STUDENTS 2004 CURRICULUM**

The Wilderness & International Medicine Rotation will provide the advanced wilderness and international medical skills & knowledge needed to recognize and stabilize life threatening illness and injury, as well as treat a variety of common minor problems. Basic search and rescue skills as well as personal safety and survival skills are integral to providing effective care in wilderness and international settings, and will be practiced extensively in the course, along with basic disaster response and related topics.

The rotation consists of two weeks of self study coupled with practical field instruction in the country of Belize, Central America. The field portion consists of a fourteen-day module with two days off in the middle of the program. The program will be conducted at the Institute's Sibun River Training Base, a modern classroom & housing facility, with field exercises being conducted in the surrounding jungle, caves, and river areas. The field program is unique and very challenging – physically, but even more so mentally and emotionally – you will face challenges unlike those that you have faced before – and emerge a much stronger medical provider and better human being. The difficult challenge this program represents is a consistent theme prior students have commented on – and they have universally praised not only what they have learned about medicine, but what they have learned about themselves.

**Note:** This program is physically demanding - you do *not* need to be a world class athlete - but you do need to be able to walk up and down steep muddy hills with the equivalent of a 20 pound pack in high heat and humidity, function in dark and narrow spaces for brief periods, and be able to swim in water deeper than your height with the aid of a life jacket. All of our students to date have had little problem in meeting these challenges.

Instructors for this program are physicians and Paramedic instructors with extensive real world emergency medicine, wilderness, developing country, and teaching experience who have been teaching in Belize and around the world for many years. They are assisted by Belize National Cave & Wilderness Rescue Team medics who have completed an instructor development program, and others specially qualified staff including selected honor graduates from prior programs.

All specialty gear and equipment will be provided. All students will be issued a rescue helmet, webbing, rope, jungle hammock, and machete for use in the program. Students are responsible for all other personal gear as specified in the individual equipment list provided to you.

Join us for the adventure of a lifetime! A course syllabus follows on the next pages.  
**DAY 0 (SATURDAY) – ARRIVAL EVENING:**

#### LOCAL ORIENTATION

- Transport to Sibun River Training Base
- Intro to instructors, staff, & students
- Facility orientation, rooms, meals
- Class & program schedule, finish registrations, issue gear

#### DINNER

#### SURVIVAL BASICS

- Basic safety rules, insects & insect control, wildlife
- Survival lecture, 10 basics, Rule of 3's, common errors
- Psychological emergencies & stress reactions
- 1 hour

#### COMMON SIMPLE EMERGENCIES

- 20+ common problems and simple solutions
- 1 hour

#### **DAY 1 (SUNDAY) - 24 HOURS:**

#### HEAT INJURY & ILLNESS

- Types, signs, symptoms of heat injury
- Hypolytemia & electrolyte abnormalities
- Oral fluid rehydration, commercial & improvised solutions
- Sunburn prevention & treatment
- 1 hour

#### 24 HOUR JUNGLE SURVIVAL OVERNIGHT TRIP

- Small groups, supervised by rescue team instructors
- Orientation to the jungle environment, plants, animals, Mayan history
- Safe machete use & practice
- Shelter making & jungle hammock use
- Procuring food & water in the jungle – local lunch & dinner
- Intro to knot tying, rope care, seat/chest harness, belay skills

#### **DAY 2 (MONDAY) - 8 HOURS:**

#### RETURN FROM JUNGLE AFTER SUNRISE

- Clean up from jungle
- Debriefing & essay
- ½ hour

## INTRODUCTION TO MEDICAL TRAINING

- Intro to wilderness medicine & rescue
- Medical, wilderness, and village care aspects in Belize
- Concepts vs. Cookbooks & improvisation
- What saves lives & limbs
- ½ hour

## PERSONAL SAFETY, SCENE SAFETY, RISK/BENEFIT

- Threats to your safety, disease, injury, emotional stress
- Vaccinations
- Body Substance Isolation
- Scene evaluation & stabilization
- Risk/benefit analysis and the choices you must make
- 1 hour

## PATIENT ASSESSMENT - INTRODUCTION

- Safety review
- Mechanism of injury, general impression, & triage
- Well-Sick-About To Die & The 60-Second Doctor methodology
- Introduction to the primary survey
- Mental Status & AVPU
- C-spine protection
- ABCDE methodology
- Palpation exercise
- 1 hour

## LUNCH

## PATIENT PACKAGING & BASIC MOVEMENT, PART 1

- Concept of cervical spine injury & immobilization
- Stokes, SKED, & improvised immobilization
- Transporting the patient in spinal immobilization
- Hands on practice & short local movement exercises (Sibun)
- 2 hours

## DINNER

## MEDICAL & SURVIVAL KITS

- What works, what doesn't
- Most & least useful
- Show & tell
- 1 hour

## KNOT REVIEW & PATIENT PACKAGING, PART 2

- Hands on practice & short local night movement exercises (Sibun)
- 1 hour +

## **DAY 3 (TUESDAY) – 8 HOURS:**

### PATIENT ASSESSMENT – ADVANCED AIRWAY & BREATHING

- Assessment of airway & breathing status
- Oxygen administration
- Nasal & oral airways, suction & positioning, pocket mask & BVM
- Advanced airways – Combitube & retrograde intubation
- Cricothyroidotomy, pulse ox & end tidal CO2 use
- Hands on practice (Cric, Airway/intubation, mask/BVM stations) (Sibun)
- 2 hours

### PATIENT ASSESSMENT – CIRCULATION, DISABILITY, 3 E's

- Circulation, pulses, locating major bleeding, CPR
- Control of major bleeding
- Disability & rapid neurologic exam, interventions
- Exposure, when/when not, Environment, Evacuation
- 1 hour

### PATIENT ASSESSMENT – SECONDARY SURVEY & SPECIALTY EXAMS

- Secondary survey, purpose and timing
- Taking pulse, respirations, skin condition & temperature
- SAMPLE history
- Hasty Exam
- Confined Space Exam
- Low Visibility Exam
- Integration of assessment
- Hands on practice (Sibun)
- 1 hours

## LUNCH

### INTRODUCTION TO TRAUMA

- General nature of trauma problems
- Response times
- Contributing factors
- Multiple injuries
- Imperfect & improvised solutions
- Advanced pain management
- 1 hour

FIELD EXERCISE #1 & SKILLS ASSESSMENT – Basic water/river rescue & water operations skills; River/swift-water dynamics & rescue methodology; Throw bag use; Swimming with clothing/boots/gear, improvised flotation, self rescue; Spinal immobilization flotation; 3 hours

DINNER

#### BASIC RESCUE OPERATIONS

- The nature of search & rescue, case studies
- Basic rescue operations organization & leadership
- The medical component of SAR operations
- Rescuer rehabilitation & recovery
- 1 hour

#### PLANNING TIME

- Planning for tomorrow’s field exercise
- Belay practice

### **DAY 4 (WEDNESDAY) - 8 HOURS:**

#### ORTHOPEDIC TRAUMA, PART 1

- General principles of orthopedic care
- Fractures, dislocations, strains, sprains
- Assessment, movement, & “Better/Worse” methodology
- RICES
- Principles of splints, casts, & immobilization for the wilderness
- ½ hour

#### ORTHOPEDIC TRAUMA, PART 2

- Head, chest, & upper extremity fractures, etc.
- Reduction & immobilization
- Reassessment
- Hands on practice (Sibun)
- ½ hour

#### ORTHOPEDIC TRAUMA, PART 3

- Pelvis & lower extremity fractures, etc.
- Reduction & immobilization
- Reassessment
- Hands on practice (Sibun)
- ½ hour

## HEAD & SPINE INJURIES, PART 1

- Anatomy & physiology
- Neurological examination
- Open & closed head injuries
- Triage & evacuation decisions
- C-spine clearance protocol & practice
- Hands on practice (Sibun)
- 1 hour

## CIRCULATION, BLEEDING, & SHOCK

- Pump/Pipe/Fluid model
- Internal/External bleeding
- Types of shock
- Recognizing Early/Late/Dying shock
- Advanced interventions, MAST, pressors, transfusions
- Hands on practice (Sibun)
- 1 hour

## LUNCH

FIELD EXERCISE #2 & SKILLS ASSESSMENT - Cave rescue scenario (Ellen's Cave), field practice making improvised splints & litters, small group practical testing on patient assessment and ABCDE interventions, return in time for late dinner, 6+ hours

## DAY 5 (THURSDAY) – 8 HOURS:

### CHEST & ABDOMINAL TRAUMA

- Anatomy & physiology
- Assessment
- Open/Closed & Blunt/Penetrating injuries
- Pneumo-hemothorax, needle decompression, chest tubes
- Impaled objects
- Triage & evacuation decisions
- Treatment
- Hands on practice (Sibun)
- 1 hour

### SOFT TISSUE INJURIES

- Infection & Tetanus
- Amputations, bites, & impaled objects
- Burns
- Local anesthesia & regional blocks
- Wound cleaning & bandaging
- Closures with tapes, glues, staples, sutures
- Hands on practice (Sibun)
- 1 hour

## FLUID THERAPY

- Why fluid resuscitation
- Routes & methods
- Equipment
- Proctoclysis
- Dermoclysis
- Intravenous therapy
- Hands on practice (Sibun)
- 2 hours

## LUNCH

## DENTAL EMERGENCIES

- Anatomy & physiology
- Assessment tools & dental anesthesia
- Treatment & improvised therapies
- Practice
- 2 hours

## EENT EMERGENCIES

- Anatomy & physiology
- Assessment tools
- Treatment
- 1 hour

## PLANNING TIME

- Planning for tomorrow's field exercise
- Belay practice

## DINNER

## ENVIRONMENTAL EMERGENCIES

- Hypothermia & cold
- Drowning & diving
- Lightning
- 1 hour

## PHOTO SHOW OF COMMON & UNUSUAL INJURIES & SITUATIONS

## **DAY 6 (FRIDAY) – 8+ HOURS**

FIELD EXERCISE #3 – Cave rescue scenarios (Footprint Cave) with moulaged patients, patient assessment, c-spine management, ortho injuries, and moderate carry out - includes skills check off, Mayan artifacts tour, 8 hours +, field lunch, off after clean up & essay

**DAY 7 (SATURDAY) \*\*\*\*\* DAY OFF \*\*\*\*\* Activities Per Student Choice**

**DAY 8 (SUNDAY) \*\*\*\*\* DAY OFF \*\*\*\*\* Activities Per Student Choice**

**DAY 9 (MONDAY) – 8 HOURS:**

**INTRO TO PHARMACOLOGY & MED ADMINISTRATION**

- Basics of medications, safety, storage, dosing
- PO, SL, IM, IV administration
- Hands on practice (Sibun)
- ½ hour

**CARDIAC EMERGENCIES**

- Anatomy & physiology
- Assessment
- Chest pain – angina, infarction, failure
- Congestive failure
- Chest pain protocol & medications Oxygen, ASA, Nitro, evacuation
- 1 hour

**RESPIRATORY EMERGENCIES**

- Anatomy & physiology
- Assessment
- Asthma
- Pneumonia
- Hyperventilation
- Asthma protocol & medications, Oxygen, Albuterol, Epi, evacuation
- 1 hour

**ALLERGIC REACTIONS, ANAPHYLAXIS, BITES, STINGS, & POISONING**

- Allergic reactions, anaphylaxis protocol & medications, Oxygen, Albuterol, Epinephrine, Benedryl, Antivenin, evacuation
- Snakebite & insect bite management
- Contact dermatitis, skin irritations, poisoning
- 2 hours

**LUNCH**

## ABDOMINAL & URO/GENITAL EMERGENCIES

- Anatomy & physiology
- Assessment
- Organ system based problems
- Triage & evacuation decisions
- ½ hour

## NEUROLOGIC EMERGENCIES

- Anatomy & physiology
- Assessment
- Stroke
- Seizures
- Meningitis
- Triage & evacuation
- ½ hour

## METABOLIC EMERGENCIES

- Anatomy & physiology
- Assessment
- Hypoglycemia
- Hyperglycemia
- Thyroid & other disease
- Prevention
- Oral Glucose and Insulin injections
- 1 hour

## PLANNING TIME

- Planning for tonight's field exercise
- Belay practice

## DINNER

FIELD EXERCISE #4 – Night - After dinner jungle rescue scenarios with moulaged patients, patient assessment, c-spine management, ortho injuries, soft tissue injury, IV's, and moderate carry out - includes skills check off – 2+ hours

## **DAY 10 (TUESDAY) – 8 HOURS:**

### VILLAGE HEALTH PROBLEMS & PLANNING

- Common medical problems & treatments
- Managing chronic problems
- Useful equipment
- Referral & resources
- 2 hours

## OBSTETRICS

- Review anatomy & normal delivery
- 1/2/3 Trimester emergencies
- Shoulder dystocia & cord prolapse
- Postpartum emergencies
- 2 hours

## LUNCH

## SIMPLE LAB TESTS FOR WILDERNESS & INTERNATIONAL SETTINGS

- Equipment & methods
- 2 hours

## DINNER

## TROPICAL DERMATOLOGY

- Common tropical skin problems
- Assessment & simple tests
- Treatments
- 1 hour

## DAY 11 (WEDNESDAY)

## TROPICAL INFECTIOUS DISEASES

- Diarrheal disease
- Malaria & Dengue
- Parasites
- Vaccine preventable diseases
- Other viral and bacterial diseases
- 2 hours

## DISASTER RESPONSE & OPERATIONS

- Preplanning & initial response
- Incident command system
- Common problems
- Public health issues
- Practical water purification, sanitation, vector control
- Case studies
- 2 hours

## LUNCH

FIELD EXERCISE #5 – Setting up initial disaster response, ICS, triage areas, treatment areas, support areas, logistics & communications, etc.

PLANNING TIME FOR VILLAGE MISSION

DINNER

ORAL, SKILLS, & KNOT TESTING

PLANNING TIME

**DAY 12 (THURSDAY) – 8 Hours:**

VILLAGE HEALTH MISSION ARMENIA VILLAGE

- Deploy & set up similar to disaster response
- See & treat patients
- Lunch at village

DINNER

ORAL, SKILLS, & KNOT TESTING

PLANNING TIME

**DAY 13 (FRIDAY) – 8+ HOURS:**

FINAL PRACTICAL EXERCISES & SCENARIOS FIELD EXERCISE #6 – Early start, scenarios with moulaged patients, patient assessment, c-spine management, ortho injuries, soft tissue injury, IV's, medical emergencies, and difficult carry out - includes skills check off – 8+ hours, essay after return

GRADUATION DINNER & PARTY!

**DAY 14 (SATURDAY) – DEPARTURE DAY:**

Departure or optional extra days as desired