

Wilderness Medicine





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Conflict of interest.

Advanced Wilderness Life Support Instructor

University of Utah School of Medicine AWLS Curriculum

**“WildMed” Southland Wilderness Medicine Group
Instructor**

(www.wildmed.co.nz)

The Wilderness

Any place that is uncultivated,
uninhabited or inhabited only by wildlife.

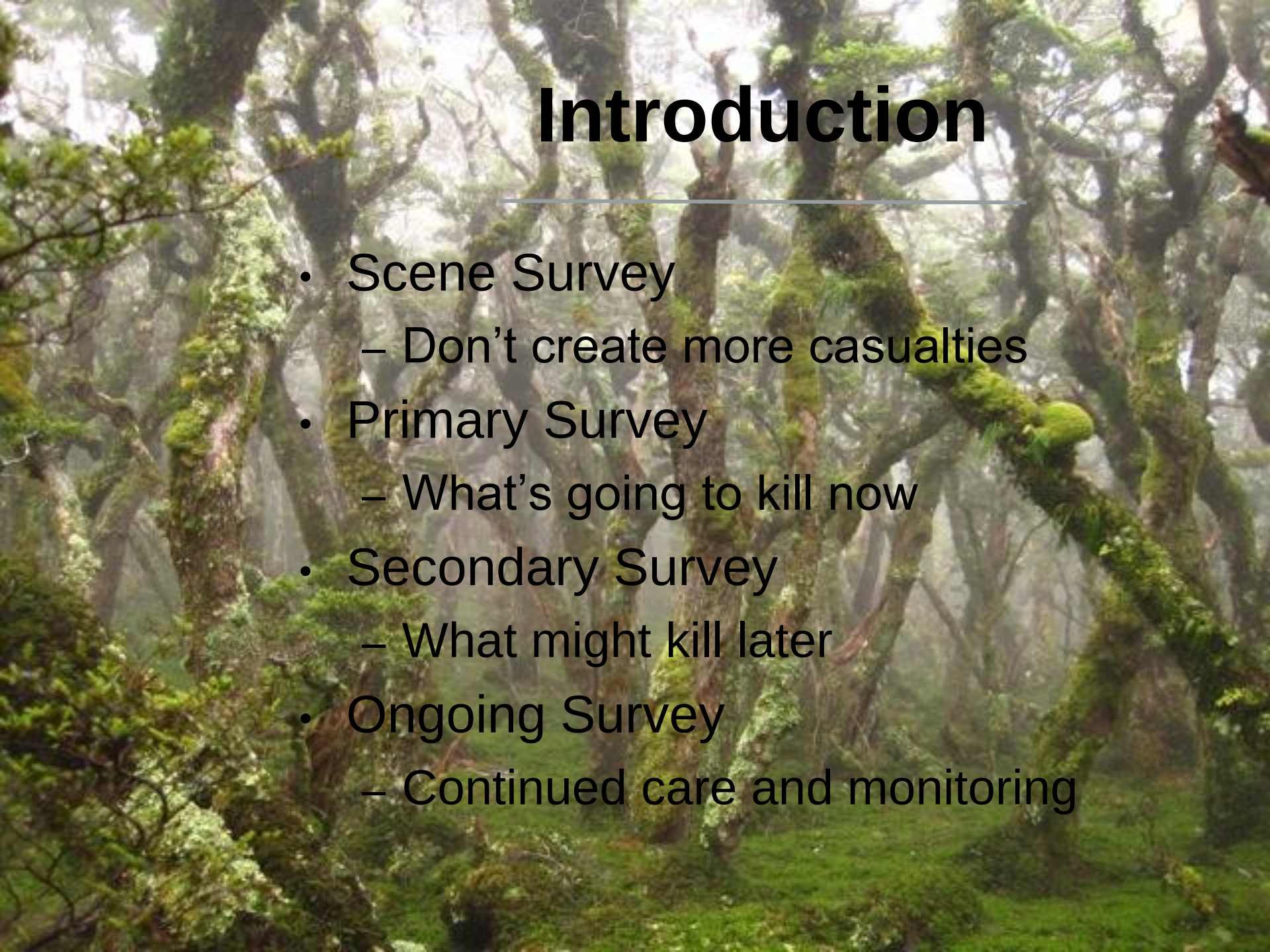


In non-wilderness settings, natural disasters, such as earthquakes, may create situations in which definitive medical care is just as inaccessible as it would be in the wilderness. In such emergencies, wilderness medicine principles, such as fracture stabilizing, first aid improvisation and knowledge of water disinfection techniques are invaluable.



Primary and Secondary Surveys in the Wilderness



A dense forest scene with moss-covered tree trunks and a misty background. The trees are covered in thick green moss, and the background is hazy, creating a sense of depth and atmosphere.

Introduction

- Scene Survey
 - Don't create more casualties
- Primary Survey
 - What's going to kill now
- Secondary Survey
 - What might kill later
- Ongoing Survey
 - Continued care and monitoring

A photograph of a dense forest with many tree trunks covered in bright green moss. The scene is misty, with a soft, ethereal light filtering through the trees. The trunks are of various sizes and are scattered throughout the frame, creating a complex, layered appearance. The moss is thick and vibrant, contrasting with the darker, more muted tones of the bark and the foggy background.

Don't Just Do Something... Stand There!

- There is an overwhelming sense for the “rescuer” to rush to help a patient
- However, the best thing the rescuer can actually do is to stop and THINK

Scene Survey

- Scene Safety
 - Is it safe? Will it stay safe?
- Consent to treat?
- Triage?
- Initial Assessment of Level of Responsiveness
- Determining MOI / NOI
- Other resources?













Wild Animals



Wild Animals



Scene Survey

- 1 - Dangers
 - * Look after yourself
- 2 - Mechanism of Injury
 - * How did this happen?
- 3 - Body substance isolation
 - * Blood and guts!
- 4 - Determine number of patients
 - * Multiple casualties?
- 5 - General impression of patient
 - * Dead / none survivable or alive?
 - Very sick/hurt - rapid assessment/transport
 - Not very sick/seriously hurt - focused hx/exam, then determine need for evacuation

Scene Survey

- Is it safe for you and the patient?
- Barriers to action
 - Physical safety
 - Fear of disease transmission
 - Scene becoming unsafe for rescuers
 - Environment itself
 - Presence of bystanders

Multiple Casualty Triage

•**GREEN**: Minor, walking wounded

•**YELLOW**: Serious but no immediate threat to life

•**RED**: Critical, immediate threat to life

•**BLACK**: Dead

Approaching and Consent

- Approach the patient carefully
- Keep them in view
- Approach from the side rather than the top
- Try to determine the mechanism of injury
- Stabilize their head while beginning assessment

Approaching and Consent

- Do not endanger the patient
- Introduce yourself and level of training
- Ask for the patient's name
- Ask “what happened?”
 - Determines NOI/MOI
 - Determines LOR
 - Helps with primary survey

Assessing Responsiveness

- **A** – Alert and Oriented (up to 4 of 4)
 - **V** – Verbal
 - **P** – Pain
 - **U** – Unresponsive
-
- Determines how much of the primary survey needs to be done

Primary Survey

Find and Treat Life Threatening Problems

- Identify the injuries that could kill in the next few minutes?”

Primary Survey

- **M** - Massive Hemorrhaging
- **A** - Airway and C-Spine
- **R** - Respiration
- **C** - Circulation
- **H** - Hypo/Hyperthermia and Hike vs. Helicopter

M A R C H

- Massive Hemorrhage
 - Look for major bleeding
 - * Venous or Arterial bleeds leading to exsanguination within minutes
 - * Other bleeds can wait
 - Tourniquets are tools
 - * Do not be afraid to use them
 - * Reassess if they are needed

MARCH

- Airway
 - Is it open?
 - * Trauma - Use Jaw Thrust
 - * Atraumatic – Use Head-Tilt Chin-Lift
 - Will the airway stay open?
 - * Structural damage or foreign objects
 - * Recovery position
 - * Artificial airway: OPA / NPA / Intubation
- Cervical Spine management
 - Think about MOI
 - Take steps to limit further injury

MARCH

- Respiration
 - Breathing or not?
 - * If not, reposition the airway
 - * consider CPR or rescue breaths
 - Quality?
 - * Signs of distress
 - * Is it appropriate?

MARCH

- Circulation
 - Pulse check (and quality)
 - * Radial BP >80mmHg
 - * Femoral / Brachial BP >70mmHg
 - * Carotid BP >60mmHg
 - Skin colour
 - Blood Sweep
 - * Looking for non-massive bleeds
 - * Also check for major injuries
 - * Stop and treat major injuries if found



MARCH

- Hypothermia / Hyperthermia
 - Exposure to the elements
 - * More pronounced for the patient
 - * Take steps to limit exposure
 - * Must prevent early, hard to catch up in the wilderness
- Hike vs Helicopter
 - “Stay and Play” vs “Load and Go”
 - Think about the evacuation plan

MARCH

- Mechanism of Injury (MOI) is important for treatment *and* evacuation!
 - Significant MOI should raise concern of a more severe injury even if overt injuries appear minor
 - What are associated concerns?
 - * Falls greater than 5m
 - * Head trauma, concussions
 - * Entrapment greater than 30 minutes



CPR In the Wilderness

- For professional rescuers
 - C-A-B
 - Brief pulse check (5-10sec)
 - Same rate (100/min), ratios (30:2), etc.
 - Use professional judgment if A-B-C is warranted over C-A-B
- For lay rescuers
 - No pulse check
 - Hands-only CPR

CPR in the Wilderness

- No firm guidelines / RCT for wilderness CPR
- Consider the impact of CPR on the rescuers
- Realize CPR's low likelihood of a good outcome
- Consider 15min as a rough cut-off
- Clear exceptions for lightning and hypothermia

Secondary Survey

- Physical Exam
 - Complete head-to-toe
 - Focused Physical Exam
- Abbreviated History
 - SAMPLE
 - COLDERR

SAMPLE History

- **S** – Signs and Symptoms
- **A** – Allergies
- **M** – Medicines/medical alert tag
- **P** – Past Medical history
- **L** – Last ate / drank
- **E** – Events

Physical Exam

- Default: Full head-to-toe exam
 - Check everything
- With a good history: Focused physical exam
 - Focus on area of Chief Complaint
 - Consider other areas to examine based on MOI / NOI
- Palpation for pain and deformity
- Expose findings and inspect
- Compare to opposite side

Potential Areas of Bleeding

- The most common place to look for bleeding is the skin
- There are 4 other places to bleed to death
 - People also bleed into their chest, abdomen-pelvis, thigh, and renal (retroperitoneal) space
 - Assess these areas for life-threatening bleeding

5 Potential Areas of Bleeding

- **C** – Chest
- **A** – Abdomen / Pelvis
- **R** – Renal / Retroperitoneal
- **T** – Thigh
- **S** – Street / Skin

Chest

- A common source of bleeding, particularly in high-energy trauma
- Look for shortness of breath, pain with breathing and haemoptysis
- Palpate for chest tenderness, flail chest, or crepitus over the ribs and sternum (subcutaneous air)

Abdomen - Pelvis

- Assume abdominal-pelvic bleeding until proven otherwise
- Look for bruising over the abdomen and pelvis
- Palpate for abdo-pelvic tenderness
- Examine for pain or movement on compression of the pelvis

Renal

- Bleeding from kidney (renal) injury or other structures in retroperitoneal area
- Look for gross blood in the urine, if you can get a sample
- Palpate for tenderness of the spine and chest at the level of the lowest ribs

A background image of a dense forest with many trees covered in thick green moss. The scene is misty and the lighting is soft, creating a serene and somewhat ethereal atmosphere. The moss is particularly prominent on the tree trunks and branches.

Thigh

- Significant bleeding usually only occurs if there is a proximal or mid-shaft femur fracture
- Look for deformity, swelling and bruising of the thigh
- Palpate for tenderness and crepitus of the thigh



Skin / Street

- Skin is the place that people commonly look for bleeding
- Remove clothing and log roll the patient to look for bleeding
- Remember to survey the area surrounding the patient for a large amount of blood pooling – meaning the “Street”

Ongoing Survey

- Re-assess based upon patient condition
- Monitor vital signs
- Document findings
- Reformulate and revise the assessment and plan
- Go back to the Primary Assessment if anything changes

Altered Mental Status

- **A** – Allergies/Altitude
- **E** – Epilepsy/Environment
- **I** – Infection (sepsis, meningitis)
- **O** – Overdose (drugs, alcohol, medicine)
- **U** – Under dose (medicines)
- **T** – Trauma/Toxins (plant, animal)
- **I** – Insulin (diabetes)
- **P** – Psychological disorders
- **S** – Stroke

Helpful Hints

- Look for medical bracelets, bands, or cards in back packs and wallets
- Use AEIOUTIPS to help you remember medical problems such as diabetes in the patient with altered mental status
- Undress the patient sufficiently but keep them protected from the environment
- Do not wait too long to check for a pulse
- CARTS to examine for sites of bleeding
- Palpate all bones of the body from head to toe