Patient & Casualty Carrying Techniques Toolkit

Module 7 - Manual Casualty Transport, Lift Commands, Improvised Stretchers & EMS Handover



Preparedness is a practice.

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MAP — Toolkit Map & System Architecture



■ Pre-Transport Safety & Ergonomic Posture

Enforce spinal assessment, 30-second hazard check, and proper squat lifting mechanics to protect rescuers.

■ Synchronized Commands & Stretcher Techniques

Master single-rescuer drags, two-person carries, and field-improvised blanket/pole stretcher assembly.

■ Risk Mitigation & EMS Handover Protocol

Execute MIST/SBAR structured handover, monitor vital signs, and prevent secondary spinal injuries.

GATE1 — Safety Gate & Pre-Movement Rule



■ RULE 01: SPINAL CAUTION (Suspected Cervical Spine Injury)

Do not move casualty unless immediate life threat exists (fire, toxic plume). Maintain manual inline stabilization at all times.

■ RULE 02: 30-SEC HAZARD CHECK (Environmental Assessment)

Verify ceiling stability, toxic gas levels, and fire spread before committing response team to manual casualty transport.

■ RULE 03: RESCUER CAPACITY (Weight & Distance Allocation)

Assess casualty body weight vs available team members. Assign minimum 2 rescuers for casualties over 70kg across distance.

POSTURE1 — Ergonomic Lifting Posture



🏋 Step 1: Wide Stable Stance

Position feet shoulder-width apart with one foot slightly forward for optimal center-of-gravity balance.

🏋 Step 2: Deep Knee Bend (Power Squat)

Bend knees and hips while keeping spine neutral and chest upright. Do not bend at the waist!

🏋 Step 3: Firm Full-Palm Power Grip

Establish a full-palm power grip under casualty torso or stretcher handles before initiating lift.

🏋 Step 4: Drive With Leg Muscles

Push up using powerful quadriceps muscles, keeping the load as close to the body core as possible.

COMMAND1 — Team Captain Lift Commands



🗣️ COMMAND 1: PREPARE TO LIFT

Verbal Call: 'Rescuers ready to lift?'

Action: Rescuers take power grip positions and confirm readiness aloud ('Ready!').

🗣️ COMMAND 2: LIFT ON THREE

Verbal Call: 'Lifting on three: One... Two... THREE!'

Action: All team members drive upward simultaneously with leg muscles in single fluid motion.

🗣️ COMMAND 3: FORWARD MARCH / HALT

Verbal Call: 'Step off on left foot... MARCH!' / 'Team... HALT!'

Action: Synchronized walking pace to prevent swaying or dropping the stretcher.

DRAG1 — Single-Rescuer Drag Techniques



🏂 TECHNIQUE A: BLANKET DRAG

Application: Rapid evacuation across smooth floor when blanket is available.

Execution: Roll casualty onto heavy blanket, wrap securely, drag by head end keeping spine straight.

🏂 TECHNIQUE B: CLOTHING DRAG

Application: Immediate emergency move when no equipment is present.

Execution: Grasp jacket collar under casualty's head, support head with forearms, pull backward along floor.

STRETCH1 — Improvised Stretcher Construction



🛠 Step 1: Sturdy Pole Selection

Obtain two rigid 2-meter poles (wood or metal pipes) capable of supporting 100kg load.

🛠 Step 2: Jacket / Blanket Overlap

Button two heavy jackets inside-out over poles, or fold heavy blanket in 3-layer overlap.

🛠 Step 3: Weight Testing Before Lift

Place 50kg test weight or press firmly with knee before placing casualty onto improvised stretcher.

CARRY1 — Multi-Rescuer Carry Techniques



🤝 TWO-HANDED SEAT CARRY (2 Rescuers)

Suitable for conscious casualties with leg injuries.

Execution: Rescuers lock wrists to form seat, casualty places arms over rescuers' shoulders.

🤝 FORE-AND-AFT CARRY (2 Rescuers)

Suitable for narrow corridors and stairwell descent.

Execution: One rescuer supports casualty under arms, second rescuer supports behind knees.

🤝 THREE-PERSON LIFT & CARRY (3 Rescuers)

Suitable for unconscious casualties needing full body support.

Execution: Rescuers kneel on one side, slide arms under head/torso/legs, lift in unison to chest level.

TOOL1 — Transport Tool Selection Matrix



🚑 LONG SPINE BOARD (Backboard)

Indication: Suspected spinal trauma or fractures.

Features: Rigid immobilizing surface with head blocks and spider straps.

🚑 BASKET STRETCHER (Stokes Litter)

Indication: Rough terrain, vertical rescue, or helicopter hoist.

Features: Full-body protective shell securing patient during technical transport.

🚑 CANVAS FOLDING LITTER

Indication: Rapid field transport across flat ground.

Features: Lightweight, collapsible, easily carried by 2 or 4 responders.

RISK1 — Hazard Mitigation & Spinal Caution



⚠ **HAZARD: Jerking or twisting spine during lift**	✔ **MITIGATION: Maintain manual cervical collar stabilization & lift on captain count.**
⚠ **HAZARD: Rescuer back injury from bent waist lift**	✔ **MITIGATION: Enforce deep knee squat posture with straight back core drive.**
⚠ **HAZARD: Dropping stretcher on stairs**	✔ **MITIGATION: Assign rear spotter and maintain synchronized step commands.**

HAND1 — Patient Handover Protocol & EMS Transfer



M - Mechanism of Injury

Describe exact event: e.g., 2-meter fall in youth facility, smoke exposure, impact point.

I - Injuries Identified

State findings: e.g., suspected left forearm fracture, minor lacerations, airway clear.

S - Signs & Vital Status

Report vitals: e.g., conscious, pulse 88 bpm, breathing regular, GCS score 15.

T - Treatment Administered

Detail actions: e.g., manual C-spine stabilization, blanket drag, oxygen administered.

SIM1 — Smoke Corridor: Casualty Movement Cascade

Exercise scenario: a youth facility has smoke spreading from a nearby storage area and a ceiling section is at risk of collapse. One casualty is on the floor and cannot self-evacuate. The team must decide, plan, move, and hand over without adding unnecessary injury. The scenario is exercise content built from the module's transport rules.

Fixed simulation rule: Keep the same five rounds and event facts. Change only timing and discussion prompts.

Simulation video

Open the linked file in your browser or media player.



[OPEN VIDEO — CLICK TO PLAY]

OBS1 — Casualty Transport Observation Sheet



◎ Pre-Movement Check

STATUS: PASS [100%]

Observation: Manual cervical stabilization executed before casualty repositioning.

◎ Lift Command Coordination

STATUS: PASS [100%]

Observation: Captain issued clear verbal commands; 3-person lift executed in perfect unison.

◎ Stretcher Transport Pace

STATUS: PASS [100%]

Observation: Smooth march step maintained through narrow corridor; zero sagging.

AUDIT1 — Transport Quality Audit



PATIENT SAFETY SCORE **4 / 4 [EXCELLENT]**	Benchmark: Zero added injury or spinal displacement during transport. Observed: Head immobilizer & chest straps secured correctly.
RESCUER ERGONOMICS SCORE **4 / 4 [EXCELLENT]**	Benchmark: All team members lift with knee drive and straight spine. Observed: Perfect power squat posture maintained throughout drill.
EMS HANDOVER TIMING SCORE **3 / 4 [SATISFACTORY]**	Benchmark: Complete MIST report delivered in < 60 seconds to paramedics. Observed: Clear MIST report delivered in 45 seconds at ambulance bay.

FAC & References — Facilitator Guide & Citation Sources



- ITLS (2020). International Trauma Life Support for Emergency Care Providers. 9th Edition.
- PHTLS (2019). Prehospital Trauma Life Support. National Association of Emergency Medical Technicians (NAEMT).
- OSHA (2018). Ergonomics and Patient Handling in Emergency Response. U.S. Dept. of Labor.
- IFRC (2021). First Aid and Casualty Transport Guidelines. International Federation of Red Cross Societies.

Digital adaptation note: Each casualty carrying worksheet, lift command card, improvised stretcher checklist, and MIST handover rubric can be published as an independent web component under WP3. SIM1 is suitable for timed online scenario updates and team reflection.

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