Basic Disaster First Aid

# Spinal Issues and Patient Movement

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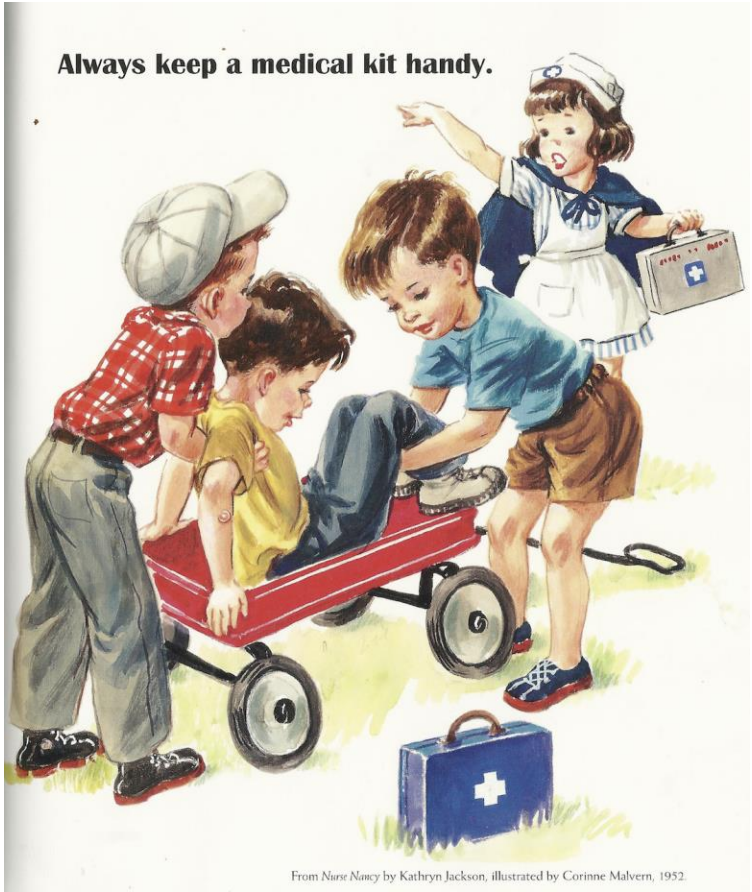
# Spine is strong, but….

- Vertebrae offer robust protection to spinal cord
- Almost all neurological deficits occur from **initial trauma**, not from moving, first aid treatment, or transport of patient
- However, consequences of neurological damage are significant
- Therefore, we are still conservative
- Goal is to minimize spinal movement, not immobilize

# Patient Movement

- Don’t be afraid to move a patient; moving patient is almost always far less stressful than the initial injury
- General goal is to get patient’s head and neck in normal neutral alignment
- Patients need to be examined; they need to be protected from environment; and/or they need treatment
- To do these things patients need to be moved
- When scene safety an issue (unstable building, fire, etc.) immediate movement may trump all else



# Principles of Patient Movement With Trauma

- Moving patient can cause back injury to rescuers; scene safety trumps everything. Lift with legs, not back!
- If no significant trauma, then no worries about spinal issues with patient movement
- If ABCs are compromised, or scene safety is an issue, patient may need to be moved immediately and whatever way necessary to deal with life threatening challenges or safety of scene

# Principles of Patient Movement With Trauma

- If ABCs not issue, think it through first; try to move patient just once
- Ultimately want to get patient supine (on back) so good physical exam (and CPR if necessary) can be administered
- If patient reliable then patient moving her/himself less likely to injure spine than if rescuers move patient (patient can be assisted with hand-held head stabilization)
- **E** of primary assessment means patient needs to be protected from environment; move patient off ground and on to insulation

# Principles of patient movement (cont)

- If found prone (face down), check patient's back first before rolling over
- Generally roll patient towards rescuers for better control
- Remember most of patient's weight is in upper torso to hips; place biggest/ strongest rescuers at heaviest points

# Patient Movement Communication

- No one right system of commands but rescuers need some agreed upon system before movement commences
- Person at head calls moves, no matter the system
- Suggested system (will be used by Colorado SOM classes):
  1. Everyone understand the plan?
  2. Anyone not ready?
  3. We're going to move on three
  4. One, two, three (and movement initiated)
- Anyone not understanding or not ready needs to shout this out
- Anyone can yell "stop" at anytime due to slippage, problems, etc.

# Holding head/neck hand stable


## Head Squeeze

- Place palms over side of head, covering ears, ideally touching shoulder with fingers for reference

# Half Log Roll – Starting on Back

- Used to place something under patient, check patient's back, etc. while keeping spine in alignment
- Generally done with three people, though can be done with just two
- Person at head calls the roll, and those on body follow head person's lead and speed
- People on body overlap arms so they can better coordinate roll
- Sometimes easier to roll up handful of clothing and use it than to grab outside of body

# Group Log Roll – Starting Prone

- Used to roll someone on to their back to get something under patient, to perform physical, etc. while keeping spine in alignment
- Roll patient away from face when possible
- Place arm on face side down, parallel to body; place arm away from face straight up, "superman" style
- Leader at head situates self halfway between where patient starts and where patient will end up, often straddling the arm that straight up (in "superman" position)
- If using head squeeze technique (easier for prone log roll) then leader needs to be sure to have hands situated correctly to prevent awkward motion (best for leader to simulate how hands will be situated when patient is on back place accordingly)
- Everything else is same as log roll from back or supine position
- Follow through with good stability at conclusion of roll; this is often where mistakes made

# Solo Log Roll

- Place patient's arms straight up over head (superman style)
- While one hand stabilizes lumbar spine, move far ankle and place over near ankle to help legs to roll
- Rescuer snakes own arm nearest patient's head under patient's near arm and with palm firmly grasps back of patient's neck
- Rescuer's arm away from patient's head grabs a handful of clothing around near side of patient's hips
- Rescuer then slowly rolls patient over away from self
- Rescuer needs to move with patient on rescuer's knees
- End of roll critical, do not let head roll loosely

# Recovery Position

- Technique used when patient is vomiting multiple times.
- Especially important if a patient with altered mental status is left alone.
- Idea is that any vomit or oral secretions will flow out the mouth, rather than back down the throat.

# The Spine Is Strong
# Only Worry About Spinal Issues If

- Patient is 65 or older
- Fall from height of >**3 feet** or 1 meter
- Fall down the equivalent of 5 steps
- High velocity or high energy collision, collapsed building, etc.

*If none of this is applicable*

*<u>no</u> spinal protection necessary*

# Spine Concerns Start With Primary Survey

- Remember **D** on primary is mainly about **spinal** disability
- If there was a significant enough MOI caregivers should hold head and neck hand stable right from start
- Head stabilization continues uninterrupted until improvised spinal motion reduction is in place or assessment is completed

# Spinal Assessment Overview

- If no significant MOI, no spine assessment needed
- If MOI spine assessment ideally done at conclusion of secondary assessment
- Don't confuse secondary assessment physical exam with spinal assessment; they are two separate procedures
- If short of personnel, spine assessment can be done sooner

# Spinal Assessment
# WMS's Four Questions

1. **Is the patient reliable**?
   - AOx3 or AOx4
   - Sober
   - No major distracting injuries
2. **Is there a normal neurological exam** (full movement & sensation in all 4 extremities – fingers and toes)?
3. **If there is neck pain, is it <7/10 on cervical vertebrae** (can be 8, 9, or 10 on musculature of neck)?
4. **Can the patient move head 30 degrees** up/down and right/left (even if it hurts)?

*If the answer is positive to all of the above, spinal protection <u>not</u> needed*

# Spinal Cord Protection - SCP

- Starts with Primary Assessment and ABC**D**Es – If MOI, then hand stable neck protection initiated as part of primary survey
- Hand stable neck protection should continue uninterrupted until assessment or improvised SCP put in place
- If limited responders, care giver at head can secure with knees or spine assessment done sooner

# Improvised Spinal Cord Protection

- Hands (head or trap squeeze)
- Knees
- Sam splint
- Backpack
- Improvised jacket or towel cervical collar
- Bulky items on sides of head; head can taped to them

# SPINAL CORD PROTECTION – JACKET

1. Lay the fleece on the ground and outstretch the arms on either side.
2. Fold the neck of the fleece and the bottom third of the fleece toward each other.

3. Fold the bottom third up another time to the level of the arms of the jacket to met the folded neck.

4. Fold up a final time so the fleece is all in a row with the outstretched arms.

5. Apply the folded portion of the fleece to the front of the neck, resting just under the

6. Wrap each arm of the fleece around the back of the neck and tuck into the front of

# SPINAL CORD PROTECTION SAM SPLINT

# Spinal Cord Protection: Backpack Method

1. Place backpack on ground with back facing up (towards the sky)
2. Place patient with back of head on hip belt & pack under torso
3. Put puffy “spacers” on either side of head, snug against shoulders
4. Put padding over forehead
5. Tighten hip belt so that it is tight click directly over eyebrows
6. Clip hip belt in place

# SPINAL CORD PROTECTION – USING CAREGIVER'S KNEES

# Spinal Assessment
# Other considerations

- Use judgment, but remember post-trauma neurological deficits very rare and there is cost to C-collars and/or backboards
- Unreliable patient can be reassessed at later time and may be found to be now reliable
- Penetrating neck injuries almost never need spinal precautions

# PATIENT MOVEMENT SUMMARY

- Don't be afraid to move patients – they need to be moved to assess, protect from the environment, and/or to treat and movement unlikely to cause additional harm
- If scene is not safe or ABCs are compromised, then immediate patient movement, anyway possible, may be best
- That said, if possible move patients minimally, gently, and carefully to protect both them and rescuers (mainly backs)
- There is less spine motion when a reliable patient moves self, rather than rescuers moving patient
- A good plan, communication, and leadership (from person at head) important for safe movement

# SPINAL ISSUES SUMMARY

- Spines remarkable robust and neurological damage by rescuers very rare
- Worry about spines only if fall from >3 feet up or high velocity collision
- Spinal assessment normally done after secondary assessment completed
- 4 questions to assess spine: reliable patient, normal neuro exam, pain <7 on c-spine, ability to move head 30 degrees in all directions
- Goal for suspected spine injury is cord protection by restricing motion, not immobilization
- Spinal cord protection can be done with hands, knees, SAM splint, jacket, backpack, etc.

# RESEARCH & RESOURCES - SPINE AND PATIENT MOVEMNT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