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Rural MCI #2 with Special Patient Populations




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Rural MCI: Case 2 Special Populations

- July 2024, weekday morning. 7:15 AM
- A wheelchair bus was transporting 6 adults from their group homes to day programs. Bus was staffed with an aid.
- The driver suffered a syncopal event and drove off the road, striking a fence and a house at approximately 55 mph. Vehicle partially into house.



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Responder thoughts...



Did they really say 8 patients?!?

Can my agency get a crew?

I hope I'm not Triage Officer!

Wheelchair bus? What is the baseline of the patients?

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Responding Agencies

| | | |
|------------------------|----------------------------------|-----------------------|
| Volunteer Fire Company | 2 volunteer fire ambulances, BLS | 1 paid fire ambulance |
| Paid BLS | 2 Paid ALS | Police |
| Medic fly car (triage) | One paid ALS on standby | |



The final ambulance arrived on scene at 8AM

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Wheelchair Transportation

- Strapped to floor at 4 points, connected to the **frame** of wheelchair.
- forward facing
- Additional 3 point seatbelt with shoulder harness.

Style of wheelchair will dictate where the seatbelt hits the body and the anchor points.






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MOI Considerations and Injury Patterns

- Speed, intrusion, extrication...
- Wheelchair:
 - Headrest?
 - Lap belt only? Shoulder harness?
 - Customized ?
 - Forward facing?
 - Remain latched?

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Seat Belt Sign

- When properly worn, seat belts reduce death and serious injury.
- There are injury patterns associated with seatbelts, especially when **improperly** worn/positioned.
- Does the wheelchair cause the improper positioning of the seat belt?



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Lower Belt Injuries

- Contusions and abrasions
- Bowel and mesentery injuries
- Organ injuries
- Chance fractures
- Bladder rupture



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Shoulder Harness Injuries

- Carotid Dissection
- Clavicle fracture (watch for pneumo)
- Rib Fractures
- Contusions and abrasions



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Triage/ Assessment Challenges

- Various communication abilities or methods
- Various levels of understanding
- Different levels of physical ability
- Unknown medical hx and advance directives
- Staff not present, no "Info Binder"
 - Request a staff member from Day Hab or group homes

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National Guideline for the Field Triage of Injured Patients

RED CRITERIA
High Risk for Serious Injury

| Injury Patterns | Mental Status & Vital Signs |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure | <p>All Patients</p> <ul style="list-style-type: none"> • Unable to follow commands (motor GCS < 6) • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room-air pulse oximetry < 90% <p>Age 0-9 years</p> <ul style="list-style-type: none"> • SBP < 70mm Hg + (2 x age in years) <p>Age 10-64 years</p> <ul style="list-style-type: none"> • SBP < 90 mmHg or • HR > SBP <p>Age ≥ 65 years</p> <ul style="list-style-type: none"> • SBP < 110 mmHg or • HR > SBP |

Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system

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YELLOW CRITERIA

Moderate Risk for Serious Injury

| Mechanism of Injury | EMS Judgment |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> High-Risk Auto Crash <ul style="list-style-type: none"> Partial or complete ejection Significant intrusion (including roof) <ul style="list-style-type: none"> >12 inches occupant side OR >18 inches any side OR Need for extrication for entrapped patient Death in passenger compartment Child (Age 0-9 years) unrestrained or in unsecured child safety seat <ul style="list-style-type: none"> Vehicle telemetry data consistent with severe injury Rider separated from transport vehicle with significant impact (eg, motorcycle, ATV, horse, etc.) Pedestrian/bicycle rider thrown, run over, or with significant impact Fall from height > 10 feet (all ages) | <p>Consider risk factors, including:</p> <ul style="list-style-type: none"> Low-level falls in young children (age < 5 years) or older adults (age ≥ 65 years) with significant head impact Anticoagulant use Suspicion of child abuse Special, high-resource healthcare needs Pregnancy > 20 weeks Burns in conjunction with trauma Children should be triaged preferentially to pediatric capable centers <p>If concerned, take to a trauma center</p> |

Patients meeting any one of the YELLOW CRITERIA WHO DO NOT MEET RED CRITERIA should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center)


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| Patient | EMS Assessment | 1st Hospital | Arrive at Rural Hospital | Arrive at Trauma Center | Level of care scene to hospital | Comments |
|--------------|---------------------------------------------------------------------|--------------|--------------------------|-------------------------|---------------------------------|---------------------------------------------------------------------------------------------|
| 42 yo Female | abd/flank bruising and abrasions | Trauma | n/a | 8:53 | EMT-P | seat of wheelchair broken, wheels snapped off. Pt nonverbal |
| 43 Female | back pain | Rural | 8:07:00 AM via paid amb | 15:54 | BLS | rear of bus, in WC secured to floor. Intellectual disabilities. Unable to provide name/age. |
| 64 yo Female | abd pain w/ palp | Rural | unk time via vol fire | 18:20 | BLS | |
| 84 yo Female | head lac, eye swelling, N/V | Rural | 8:31:00 AM via paid | 16:07 | BLS | unbelted bus aid found on floor between seats |
| 59 yo Female | belt sign, shin abr., "brown substance in mouth" (hot cocoa per pt) | Rural | 8:23:00 AM via paid fire | 15:36 | BLS | ambulatory, answers questions |
| 22 yo Male | ? | Rural | unk | 15:49 | ? | Down's Syndrome. Uncooperative. Verbal but does not understand. |
| 62 yo Male | ? | Rural | unk | 17:34 | ? | belted driver, syncope following chest pain |
| 40 yo male | no injuries | Rural | AM via paid | n/a | BLS | Belted in bus seat only answers yes and no |

Where **should** they go? Should you spread patients out? Are resources stressed x1 or x2?

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| Patient | EMS Assessment | Injuries final | LOS | Dispo | Comments |
|--------------|---------------------------------------------------------------------|--------------------------------------------------------|---------|-------------------|---------------------------------------------------------------------------------|
| 42 yo Female | abd/flank bruising and abrasions | abd contusions | 0 | d/c from ED | 48 min drive time |
| 43 Female | back pain | L1-2 chance fx, sm bowel inj | 28 days | Rehab | Radology missed QAPI issue at rural hosp. Multi complications. No VS on the PCR |
| 64 yo Female | abd pain w/ palp | L rib fx 7-10 | 20 days | expired | PCR times messed up. Aspiration Pneumonia, status seizures, withdrawal of care |
| 84 yo Female | head lac, eye swelling, N/V | orbit fx, rib fx x2, ankle fx, scalp lac, zygomatic fx | 11 days | sub acute rehab | unbelted bus aid found on floor between seats |
| 59 yo Female | belt sign, shin abr., "brown substance in mouth" (hot cocoa per pt) | pelvic wall hematoma | 29 days | group home | HR = SBP |
| 22 yo Male | | Bladder Rupture | 34 days | home w/ services | Need PCR HR > SBP on transfer PCR |
| 62 yo Male | | SDH, syncope, orbit fx, multi status fx, facial lac | 2 days | home | Need PCR |
| 40 yo male | none | unk | 0 | d/c from Rural ED | belted in a bus seat only answers yes and no |

Identified injuries and hospital length of stay.

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| Patient | 1st Hospital | Arrive at Rural Hospital | Arrive at Trauma Center | Level of care sent to hospital | EMS Assessment | Injuries-final | LOS | Dispo | Comments |
|--------------|--------------|--------------------------|-------------------------|--------------------------------|---------------------------------------------------------------------|--------------------------------------------------------|---------|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| 62 yo Female | Trauma | n/a | 8:53 | EMT-P | abd/flank bruising and abrasions | abd contusions | 0 | d/c from ED | 48 min drive time |
| 63 Female | Rural | 8:07:00 AM via paid amb | 15:54 | BLS | back pain | L1-2 chance fx, sm bowel inj | 28 days | Rehab | Multi complications: No VS on the PCR PCR times messed up. Aspiration Pneumonia, status seizures, withdrawal of care |
| 64 yo Female | Rural | unk time via vol fire | 18:20 | BLS | abd pain w/ palp | L rib fx 7-10 | 29 days | expired | |
| 64 yo Female | Rural | 8:31:00 AM via paid | 16:07 | BLS | head lac, eye swelling, N/V | orbit fx, rib fx x2, ankle fx, scalp lac, zygomatic fx | 11 days | sub acute rehab | unbelted bus aid found on floor between seats |
| 69 yo Female | Rural | 8:23:00 AM via paid fire | 15:36 | BLS | belt sign, shin abr., "brown substance in mouth" (hot cocoa per pt) | pelvic wall hematoma | 29 days | group home | HR = 58P ambulatory, answers questions |
| 72 yo Male | Rural | unk | 15:49 | | | Bladder Rupture | 34 days | home w/ services | Need PCR HR > 58P on transfer PCR Down's Syndrome. Uncooperative. Verbal but does not understand |
| 82 yo Male | Rural | unk | 17:34 | | | SDH, syncope, orbit fx, mult sinus fx, facial lac | 2 days | home | Need PCR belted driver, syncope following chest pain |
| 80 yo male | Rural | 8:20:00 AM via paid | n/a | BLS | none | unk | 0 | d/c from Rural ED | belted in a bus seat only answers yes and no |

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