WHO YA’ GONNA CALL?

TRANSFER OF THE PATIENT FROM PRIMARY TO EMERGENCY CARE

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FACULTY DISCLAIMER

• The speaker has no financial or other conflicts to disclose.

OBJECTIVES (TRADITIONAL)

1. Identify which patients will require transport to the ED or specialty center using ambulance or specialized transport.
2. Define the levels of care offered by:
   • Basic life support (BLS)
   • Advanced life support (ALS)
   • Critical care transport (CCT)
   • Specialty teams
   • Air medical transport
3. Discuss the situations where CCT, specialty team, or air medical transport should be considered.
4. Review safety considerations when operating around ground and air ambulances.

OBJECTIVES (PRACTICAL)

• Who needs to be transferred?
• When do you transfer?
• How do you decide?
• What method of transport?
• The answer is......

CASE STUDY

• Family Practice office
• 68-year-old caucasian female
• C/C of headache and elevated BP
• Seen once for a “get acquainted” visit last week
• Presents after going to bingo this morning
• VS:
  • T: 97.8°F (36.6°C)  • RR: 15/min.
  • BP: 146/87  • SPO2: 95% (RA)
  • HR: 76/min.

CASE STUDY

• PMH
  • Hypertension
  • Hyperlipidemia
  • Bladder spasms
  • Insomnia
  • Migraine headaches
  • Left breast CA w/ lumpectomy and radiation therapy
  • Neck injury from MVC
  • Denies history of respiratory disease, cardiac disease, hepatic/biliary disease, or GERD.
  • Last ECG was ~15 years ago, last CXR unknown
  • No old records available
**CASE STUDY**

**HPI:**
- Awoke this morning with an occipital headache, 8/10 in severity, does not feel like her regular migraines
- Home BP reading of 185/105
- Reports she ran out of her metoprolol 1-2 weeks ago
- No fever, chills, neck pain/stiffness, nausea, or dizziness
- She denies chest pain, but she reports “heartburn” in her epigastric area “off and on” since awakening

**Medications:**
- Amlodipine
- Atorvastatin
- Chlorzoxazone
- Cholcalciferol
- Citalopram
- Clonidine
- Fiorinal
- Gabapentin
- Hydrochlorothiazide
- Isosorbide mononitrate ER
- Losartan
- Metoprolol succinate ER
- Naproxen
- Refissa
- Vesicare
- Zolpidem

**Allergies:** ACE inhibitors

**Physical exam**
- Skin: Pale, warm, dry
- CV: Regular rate & rhythm; Gr III/V, pan-systolic murmur
- Resp: Lungs clear all fields, good air exchange
- Neuro: A&O X 4, anxious, PERRLA, no focal deficits
- PV: Pulses 3+/3+, no edema or calf pain, Homan’s sign negative
- Abd: Soft, non-tender, Murphy’s Sx negative

**What now?**
- ECG?
- CXR?
- Labs?

**So, now what?**
- Treatment?
- To the Emergency Department?
- How?
CASE STUDY - RESOLUTION

• New LBBB in the presence of chest pain is suspicious for STEMI and needs further investigation
• Plan:
  • Request ALS ambulance
  • Oxygen at 2LPM via NC
  • IV access
  • Aspirin 324 mg chew and swallow
  • NTG 0.4 mg SL X 3
  • ALS transfer to local ED
  • Telephone report to ED provider

PATIENT TRANSFERS

• Office/clinic to local emergency department (ED)
• Rural/community hospital to specialty/tertiary care
  • ED to ED
  • ED to specialty care
  • Inpatient to specialty care
• Extended care facility to ED
• Office/clinic direct to tertiary care
• Repatriation back to patient’s home community

IDENTIFYING THE PATIENT REQUIRING TRANSFER

• Some types of patients who may require transfer:
  • Chest pain
  • Respiratory distress
  • Stroke symptoms
  • Trauma
  • Pediatrics
  • OB/labor
  • Anything you don’t have the resources to handle

IDENTIFYING THE PATIENT REQUIRING TRANSFER

• General considerations:
  • Is this an acute emergency?
  • Does the patient need immediate evaluation and treatment, or simply ongoing care at a more appropriate facility in a reasonable time-frame?
  • What resources do you have available on-site and/or on-call?
  • Can you safely manage the situation?

PERSPECTIVES

• What is the background of the provider making the decision?
• How comfortable are you managing the patient with the resources available?
• Do you have what you need if problems arise?
• How far away is help?
• Do you do a work-up and then transfer, or transfer right away?
**DESTINATION DECISIONS**

- What services does the patient need?
- What services are available locally?
  - Regionally?
- Specialty services
- Transfer centers
- Transfer agreements/algorithms
- Insurance considerations

**URBAN/SUBURBAN LOCATIONS**

- Distance to destination?
- Closest facility or specialty center?
- Transport resources available
- Weather, roads, traffic, etc
- Know the available resources in your area

**RURAL OR REMOTE LOCATIONS**

- Limited local resources
- Distance to closest ED
- Response times
  - Ambulance
  - Helicopter
- Capabilities of transport personnel
- Available EMS resources

**DETERMINING APPROPRIATE LEVEL OF CARE DURING TRANSPORT**

- Private automobile
- Ambulance
  - Wheelchair/gurney van
  - Basic life support
  - Advanced life support
  - Critical care transport
- Specialty transport teams
- Air medical transport
  - Helicopter/Fixed-wing

**PRIVATE AUTOMOBILE**

- No medical care required during transport
- Ensure safe driver, seatbelts, etc.
- Other options
  - Taxi
  - Shuttles
  - Wheelchair?
  - Bus from rural spots?
  - Private plane?

**WHEELCHAIR/GURNEY VAN**

- EMT-Basic (typically driver only)
- No medical care during transport
- Useful for transporting non-ambulatory patients who require assistance, but do not need medical care
- Least expensive option

(Images: The National Association of State EMS Officials, 2010)
**BASIC LIFE SUPPORT (BLS) AMBULANCE**
- EMT-Basic
- Can provide patient care during transport
- Monitor basic IVs (NS, D5W, etc.)
- Apply/monitor splints, dressings, etc.
- Oxygen therapy
- BLS CPR

**ADVANCED LIFE SUPPORT (ALS) AMBULANCE**
- Paramedic or Advanced EMT staffed
- Advanced airway management
- ECG interpretation, defibrillation
- Establish IV/IO access
- Medications (within local scope)
- This is who responds to 911 calls

**CRITICAL CARE TRANSPORT (CCT) AMBULANCE**
- CCT RN, CCT Paramedic, and/or EMT-B
  - May include other team members as needed (RT, etc.)
- ICU level care
  - Ventilator management
  - Invasive monitoring catheters
  - Titrated infusions
  - Chest tubes
  - Advanced airway management (ETT, RSI)
  - Some teams can manage balloon pumps, etc.

**SPECIALTY TRANSPORT TEAMS**
- Typically affiliated with a tertiary care center
- Pediatric, Neonatal, High-risk OB, other specialties
- Specialty Critical Care RNs, NPs, RTs, &/or physicians
- May utilize ground or air transport
- Highest level of care for these populations
- May have long ETAs

**ROTOR-WING (HELICOPTER) AIR AMBULANCE**
- Flight Nurse/Flight Paramedic
- CCT or higher level of care
- Usually rapid response to pick-up location
- Short out-of-hospital time
- Weather can be a limiting factor
- Requires safety training for ground personnel

**FIXED-WING (AIRPLANE) AIR AMBULANCE**
- Flight Nurse/Flight Paramedic
- CCT or higher level of care
- Best for long distances
- Need an adequate airport to land
- Weather less of a limiting factor
- Can carry more passengers
ADVANTAGES AND LIMITATIONS

<table>
<thead>
<tr>
<th>Service</th>
<th>Advantages</th>
<th>Limitations/Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheelchair/</td>
<td>• Least expensive</td>
<td>• No medical care during transport</td>
</tr>
<tr>
<td>Gurney Van</td>
<td>• Useful for non-ambulatory patients</td>
<td></td>
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<tr>
<td>BLS</td>
<td>• Less expensive</td>
<td>• Basic level of care</td>
</tr>
<tr>
<td></td>
<td>• Usually available quickly</td>
<td></td>
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<tr>
<td>ALS</td>
<td>• Paramedic or Advanced EMT level care</td>
<td>• Cannot manage patients outside Paramedic</td>
</tr>
<tr>
<td></td>
<td>• Usually available quickly</td>
<td>or AEMT scope of practice</td>
</tr>
<tr>
<td></td>
<td>• Basic level of care</td>
<td>• May be limited availability in some areas</td>
</tr>
<tr>
<td>CCT</td>
<td>• Critical Care RN staffed</td>
<td>• More expensive ($$)</td>
</tr>
<tr>
<td></td>
<td>• Advanced (ICU) level care</td>
<td>• Limited availability</td>
</tr>
<tr>
<td></td>
<td>• Ventilator, drips, etc.</td>
<td>• Usually have longer ETAs</td>
</tr>
<tr>
<td>Specialty Teams</td>
<td>• Specialty RN, NP, RT, B/or physician staffed</td>
<td>• May have to come from a long distance</td>
</tr>
<tr>
<td></td>
<td>• Usually affiliated with tertiary care</td>
<td>(long ETA)</td>
</tr>
<tr>
<td></td>
<td>• receiving hospital</td>
<td>• Limited availability</td>
</tr>
<tr>
<td></td>
<td>• Usually available quickly</td>
<td>• May be expensive ($$$)</td>
</tr>
<tr>
<td>Helicopter</td>
<td>• Rapid response</td>
<td></td>
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<tr>
<td></td>
<td>• CCT or higher level care</td>
<td>• More expensive ($$$)</td>
</tr>
<tr>
<td></td>
<td>• Short transport times</td>
<td>• May be limited by weather</td>
</tr>
<tr>
<td>Fixed Wing</td>
<td>• Faster for long distances</td>
<td>• Requires extra resources</td>
</tr>
<tr>
<td></td>
<td>• CCT or higher level care</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pressurized cabin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fewer weather restrictions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• More expensive ($$$)</td>
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<tr>
<td></td>
<td>• Need to land at local airport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Variable availability</td>
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APPROPRIATE RESOURCE UTILIZATION

- Patient needs
  - Advanced level of care?
  - Rapid transport?
  - A safe ride to a warm bed?
- Available resources
  - Rural vs. urban settings
- Costs
- Safety considerations

CASE STUDY

- 79-year-old female, presents at triage at a rural ED
- PMH - Denies any significant history
- No medications, no allergies
- HPI - 48-hour history of a global headache
  - Sudden in onset, severe
  - Accompanied by neck pain and stiffness, nausea, and a few episodes of vomiting
  - Denies dyspnea, chest pain, or abdominal pain
- No history of injury

CASE STUDY

- Physical Exam
  - VS: BP-132/52 | HR-92 | T-36.6 °C | RR-20 | SpO2-95%
  - General: Awake, alert, no acute distress.
  - Skin: No rash. Warm and dry, color nl for ethnicity.
  - Respiratory: Normal respiratory effort, CTA bilaterally.
  - Cardiac: Regular rate and rhythm, no murmurs, normal peripheral perfusion, monitor - NSR.

CASE STUDY

- PE, cont.
  - Neck: Supple with no tenderness or deformities.
  - Neuro:
    - A&Ox3
    - Face symmetrical, no glossal deviation, PERRLA, EOMI.
    - Vision and hearing intact, normal speech.
    - No pronator drift, equal grip strength, ambulatory with a steady gait.
    - NIHSS = 0
  - GI: Abdomen soft, nontender.
CASE STUDY

What now?
Labs?
CT?
Treatment?

CASE STUDY

- CT Brain -
  - Extensive acute subarachnoid hemorrhage, predominantly right-sided distribution
  - Ruptured aneurysm is suspected
  - Mild ventricular enlargement … could represent mild acute hydrocephalus
- Labs unremarkable
- BP gradually increased to 171/85
- No neurosurgery coverage

CASE STUDY - RESOLUTION

- Calls to three different transfer centers
- Accepted by regional tertiary care center
  - Requested nicardapine infusion for BP control
- Patient remained stable
- Transferred by helicopter air ambulance

GROUND OR AIR TRANSPORT - HOW DO YOU DECIDE?

- Is time a critical factor?
  - Response times
  - Time to destination
    - Distance to closest hospital
    - Time to closest hospital
  - Time outside a medical facility
- Patient care needs during transport
- Helipad/ELS availability

WHEN DO YOU CONSIDER GOING ALONG WITH THE PATIENT?

- Should be a rare occurrence
- Patient requires higher level of care than is available on the transport vehicle
- No other alternative exists
  - Waiting for more advanced care
  - Sending nursing or allied health staff
- There are not other patients who you will be abandoning

LOCATING APPROPRIATE RESOURCES

- Ground ambulance
  - 911/emergency response
    - May be public or private service
  - BLS ambulance services
- Regional and specialty services
- Agency/hospital contracts
- Local EMS agencies
LOCATING APPROPRIATE RESOURCES

- Air ambulance
- Local providers
- Call centers
- Helicopter landing zones
- On-site helipad
- Emergency landing site (ELS)
- Local Fire Department

PATIENT PREPARATION FOR TRANSPORT

- Clinic or medical office transfers generally do not require any special paperwork
- Hospitals should follow EMTALA protocols
- Obtain patient/family consent
- Provide a detailed report to the receiving provider

PATIENT PREPARATION FOR TRANSPORT

- Stabilize the patient to the extent of your capabilities
  - Airway management
  - IV access/fluids
  - Address abnormal labs
  - Spinal immobilization, splint fractures, control bleeding, etc.

PATIENT PREPARATION FOR TRANSPORT

- Send copies of chart & X-rays
  - Paper, film, or electronic
  - Request x-ray copies early
  - Obtain fax numbers to send pending lab reports, etc.

PATIENT PREPARATION FOR TRANSPORT

- Medications
  - Pain control
  - Antiemetics
  - Sedation
  - Aspirin
  - Antibiotics

  - CCT teams may ask you to sign transport standing orders

PATIENT HAND-OFF

- Patient hand-off has been identified as an error-prone process, and one of the highest risk components of any patient encounter (Murphy, 2007)
  - Missed or delayed diagnoses
  - Loss of key information
  - Medication errors
  - Unnecessary duplication of tests

  - The sicker the patient, the higher the risk, and the more complex the hand-off becomes
**PATIENT HAND-OFF**

- Transfers typically involve several hand-offs between the sending and receiving providers
  - Sending provider to accepting/receiving provider
  - Sending provider to transport team
  - Transport team to receiving facility staff
  - Accepting provider to receiving provider
- Clear, accurate, and thorough communication is the best way to avoid hand-off errors

**PATIENT HAND-OFF**

- The receiving facility and provider, as well as the transport team, must get:
  - A complete and accurate picture of the patient’s history and current condition (what is known)
  - Differential diagnoses and uncertainties about the diagnosis or plan of care (what is not known)
  - What interventions have been performed
  - The on-going plan of care

**PATIENT HAND-OFF**

- Strategies to improve hand-off communications:
  - Standardize the hand-off process as much as possible
  - Utilize EHR systems to ensure consistency
  - Timely and accurate charting
  - Do not rely on transport teams, or patients and family members, to relay important information
  - Make sure copies of all tests and chart documents accompany the patient (paper or electronic)

**PATIENT HAND-OFF**

- Make sure that everyone involved is clear on the situation and plan
- Under EMTALA the patient remains the responsibility of the transferring provider until arrival at the receiving facility (NHTSA, 2006)

**PASSENGER REQUESTS**

- If there is a request from a family member to accompany the patient:
  - Clearly communicate this request to the ambulance or transport program communications center (even if the receiving facility is arranging the transport)
  - Be prepared to provide the passenger’s weight and relationship to the patient
  - Final approval of passengers is up to the Transport Team &/or Pilot

**PRE-PLANNING AND PREPARATION**

- Transfer agreements
- Transfer protocols
- Transfer centers
- Training with (and getting to know) your local ambulance, FD, and air ambulance services
OTHER CONSIDERATIONS

• Prehospital destination protocols
• Financial burden
• Patient/family resources (transportation, etc.)
  • How will the patient get home again?
• POLST/Advance Directives and appropriate level of aggressiveness
• When you are the receiving provider

TRANSPORT SAFETY

• Any time the transfer of a patient is being considered, safety must be the primary factor
• Can the transfer be performed safely?
• Do the benefits outweigh the risks?
• Are there any special factors that need to be considered?
  • Considerations may vary based on mode of transport

SAFETY CONSIDERATIONS - GROUND AMBULANCES

• Weather, traffic, distance, etc.
• Are there seatbelts for all passengers (crew, staff, family, etc.)?
• Is any specialized equipment required?
  • Pediatric immobilization devices
  • Transport isolette
  • Balloon pumps
• Can this equipment be transported safely?

SAFETY CONSIDERATIONS - HELICOPTER AIR AMBULANCES

• Helicopters are a valuable tool, but their inherent safety hazards must be respected at all times
• Pre-planning and training are vital if using helicopters for patient transfers is anticipated
• Arrange training and familiarization with your local program

HELICOPTER LANDING

• Hospital/Clinic helipad
  • Ensure the Helipad is secure
  • At night, turn off any lights which may shine in the pilot’s eyes
• Emergency landing site (ELS)
  • Should be managed by trained personnel (typically FD or EMS)
• Do not approach the aircraft until directed to do so by the Flight Crew

“HELICOPTER SHOPPING”

• The all-too-common practice of placing requests to multiple EMS helicopter programs to find one that will accept a mission that others have declined
• Flight programs or crews should never be pressured to accept a mission that they believe cannot be accomplished safely

(Fioccare et al, 2013; Wojdyla, 2011; Worley, 2009)
In general, asking a second program to accept a previously declined flight should be discouraged in all situations except those where the reason for declining affects only the first service contacted.

Alternate means of transport should be explored (Floccare et al, 2013; Wojdyla, 2011; Worley, 2009).

**CONCLUSIONS**

- Get to know your local resources
  - Receiving facilities and specialty services
  - Transfer centers
  - Ambulance service
  - Fire Department
  - Air ambulance

**SAFETY CONSIDERATIONS - FIXED-WIND AIR AMBULANCES**

- Patients and transport team will typically be transported to and from the airport by a local ambulance
- Remain in the ambulance or terminal until directed to approach the aircraft by a crew member or pilot
- Follow Flight Crew instructions
- Flight Crew will provide a safety briefing for all passengers

**CONCLUSIONS**

- Think safety in all transfer situations
- Pre-planning
  - Transfer agreements
  - Transfer protocols
  - Training drills with transport agencies
- Communicate clearly

**REFERENCES**

5. Scope of practice of Paramedic, California Code of Regulations, Title 22, Division 9, Chapter 4, § 100146. (2014b). Available at http://www.emsa.ca.gov/Legislation_Regulation

**QUESTIONS?**

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