

Chapter 10, Patient Assessment

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1. Introduction to Patient Assessment

The patient assessment process is crucial in emergency care [6]. It provides a structured approach to evaluating patients [2]. This process is divided into five main parts [7].

- The five main parts are:
 - **scene size-up** [7]
 - **primary assessment** [7]
 - **history taking** [7]
 - **secondary assessment** [7]
 - **reassessment** [7]
- The order of these steps can vary depending on the patient's condition and environment [8].
- Rarely does a single sign or symptom reveal the patient's full status or underlying problem [10].
- A symptom is what the patient feels and tells you (subjective) [11].
- A sign is what you can observe or measure (objective) [11].

Part	Description
Scene Size-Up	Evaluating the operating conditions [7]

Primary Assessment	Identifying and treating immediate life threats [7]
History Taking	Gathering details about the chief complaint and patient history [7]
Secondary Assessment	Performing a systematic physical exam [7]
Reassessment	Identifying and treating changes in the patient's condition [7]

2. Scene Size-Up

scene size-up is evaluating the conditions for operation [13]. **situational awareness** is vital throughout the call [14]. Dispatch provides initial information [15].

- scene size-up combines information and observations for safe operations [16].
- Ensuring **scene safety** is critical [17].
- Pre-hospital settings can present minor or major dangers [18].
- If a scene is unsafe, make it safe or call for additional resources [19].
- Consider traffic safety and environmental conditions [20].
- Protect bystanders from becoming patients [22].
- Hazards can include environmental, physical, chemical, electrical, water, fire, explosions, and physical violence [23].
- Be aware of potential violence from patients, family, bystanders, gangs, or crowds [24].
- Emergency scenes are dynamic environments [25].
- Determine the **mechanism of injury (moi)** or **nature of illness (NOI)** [26].
 - Calls can be medical, trauma, or both [27].
 - Traumatic injuries result from physical force [27].
 - MOI terms include blunt trauma and penetrating trauma [29].
 - For medical patients, determine the NOI [30].
 - Gather information from the patient, family, or bystanders [31].
 - Use your senses for clues [31].
- Be aware of multiple patients with similar symptoms (e.g., carbon monoxide) [32]. This may indicate an unsafe scene [32].

- MOI or NOI is valuable for preparing patient care [33].
- Take **standard precautions** [34].
 - Adapt PPE to the pre-hospital task [35].
 - standard precautions are CDC-recommended measures for dealing with blood, body fluids, non-intact skin, and mucous membranes [36].
 - Assume all these pose an infection risk [37].
 - Initiate standard precautions before patient contact [38].
 - At minimum, wear gloves before contact [39].
 - Consider glasses and a mask [40].
- Determine the **number of patients** [41].
 - Accurately identify the total number of patients [41].
 - Use the incident command system with multiple patients [42].
 - Begin **triage** with multiple patients [42].
- **triage** sorts patients based on condition severity [43].
- Consider **additional resources** [44].
 - This could include more ambulances, police, helicopters, or fire trucks [44].
 - Advanced life support or air medical may be needed [45].
 - Fire departments handle hazmat, technical rescue, extrication, or water rescue [46].
 - Law enforcement may be required [47].
- Questions for determining additional resources:
 - Does the scene threaten you or the patient? [48]
 - How many patients are there? [48]
 - Do you have resources for their conditions? [48]

3. Primary Assessment

The primary assessment's goal is to identify and treat immediate life threats [49]. This involves physically examining the patient [49]. You assess level of consciousness, airway, breathing, and circulation [49].

- Form a **general impression** first [50].
 - This helps determine priority of care [50].
 - Note age, sex, race, distress level, and overall appearance [50].
 - Ensure the patient sees you approaching [51].

- Note patient position and movement [51].
- Avoid standing over the patient [52].
- Address the patient by name and introduce yourself [53].
- Ask about the chief complaint [53].
- The patient's response offers insight into consciousness, airway, breathing, and circulation [54].
- Treat life-threatening problems immediately [55].
- Define the patient's condition as stable, stable but potentially unstable, or unstable [56].
- Scan for and control **uncontrolled external bleeding** [56]. This takes priority [56].
- Assess the **level of consciousness (loc)** [57].
 - LOC indicates neurologic and physiologic status [57].
 - Assessment of an unconscious patient focuses on ABCs [58].
 - Sustained unconsciousness suggests a critical respiratory, circulatory, or CNS problem [58].
 - Altered LOC in conscious patients may be due to inadequate perfusion, medication, drugs, alcohol, or poisoning [59].
 - Use the **AVPU mnemonic** for responsiveness [60]. Choose one description [60].
 - Test patients not responding to verbal stimuli for response to painful stimulus [60].
 - Painful stimuli include pinching the arm, skin, or trap area [61]. Also apply upward pressure along the orbital ring [62].
 - A patient moaning or withdrawing responds to stimulus [62].
- Orient and test **mental status** by checking memory and thinking [63].
 - Evaluate ability to remember: Person (name), Place (location), Time (year, month, date), and Event (what's happening) [64].
 - Answering all is being alert and oriented times four (A&Ox4) [64].
 - Any deviation from A&Ox4 or baseline is altered mental status [65].
- **Identify and treat life threats** [66].
 - Conditions causing sudden death are life threats [66].
 - Examples include airway obstruction, respiratory failure/arrest, shock, severe bleeding, or cardiac arrest [66].
 - Usually, address life threats with **ABC** (Airway, Breathing, Circulation) [67].

- Sometimes, CAB (Circulation, Airway, Breathing) is more appropriate [68].
- Assess the **Airway** (A) [69].
 - Stay alert for airway obstruction [70].
 - Ensure the airway remains patent and adequate [71].
 - Responsive patients talking or crying have an open airway [71].
 - A conscious patient who cannot speak or cry likely has a severe obstruction [72].
 - If an airway problem is found, stop assessment and clear it [73].
 - If the patient has difficulty breathing and is not breathing, take immediate corrective actions [73].
 - Assess airway patency in unresponsive patients [74].
 - Use the **jaw thrust maneuver** for potential trauma to open the airway [75].
 - If jaw thrust doesn't work or trauma is ruled out, use the **head tilt chin lift maneuver** [76].
 - Signs of obstruction in an unconscious patient: obvious trauma, blood, obstruction, noisy breathing (snoring, bubbling, gurgling, crowing, stridor), extremely shallow or absent breathing [76].
- Assess **Breathing** (B) [77].
 - Ensure the patient's breathing is present and adequate after ensuring a patent airway [77].
 - Ask: Is the patient breathing? Is it adequate? Is the patient hypoxic? [79].
 - Perform positive pressure ventilation for patients not breathing, or whose breathing is too slow or shallow [79].
 - If breathing is adequate but hypoxic, administer oxygen [80].
 - Oxygenation goal for most patients is 94-99% saturation [81].
 - If difficulty breathing develops after primary assessment, re-evaluate the airway immediately [82].
 - Consider positive pressure ventilations with an airway adjunct when respirations exceed 28, are fewer than 8, or are too shallow for adequate exchange [83].
 - Shallow respirations show little chest wall movement [83].
 - Observe effort required for breathing [83]. Look for retractions, accessory muscle use, nasal flaring [83].
 - Note two-to-three word dyspnea (shortness of breath when talking) [83].

- Look for the tripod position (sitting up and leaning forward) or labored breathing [84].
- **respiratory distress** is increased effort and rate [85].
- **respiratory failure** is inadequate oxygenation or ventilation [85].
- respiratory failure can lead to respiratory arrest if uncorrected [86].
- Assess **Circulation (C)** [87].
 - Evaluate by assessing mental status, pulse, and skin condition [87].
 - These are the three parts of circulation assessment [88].
 - Assess the **pulse** [89]. Palpate if a pulse is present [89].
 - Responsive patients older than one year: palpate radial pulse at the wrist [90].
 - Unresponsive patients older than one year: palpate carotid pulse at the neck [91].
 - Children under one year: palpate brachial pulse in the upper arm [91].
 - If a pulse cannot be palpated in an unresponsive patient, start CPR [92].
 - Assess **skin condition** for perfusion [93]. Evaluate skin color, temperature, condition, and capillary refill [94].
 - Skin color: Pale, white, ashen, or gray indicates poor peripheral circulation [95]. Abnormally flushed or red can indicate high blood pressure [96]. Blue indicates low oxygen saturation (cyanosis) [96].
 - Skin temperature: Normal is warm [97]. Abnormal is hot, cold, cool, or clammy [98].
 - Moisture: Normal is dry [99]. Wet, moist, or excessively dry/hot suggests a problem [99].
 - **capillary refill** is evaluated in pediatric patients [100]. It assesses circulation to capillary beds in fingers and toes [100].
 - Cap refill should restore within two seconds [101].
 - Test by gently pushing a fingertip until it blanches white [101]. Release and count how long it takes for the pink color to return [102]. Should be less than two seconds [102].
- Assess and control any **external bleeding** [103]. This should occur before addressing airway or breathing [103].
 - Bleeding from a large vein is a steady flow [104].
 - Bleeding from an artery is characterized by spurting [104].
 - Control bleeding by applying direct pressure [105].

- If direct pressure fails or there is obvious arterial hemorrhage, apply a tourniquet [105].
- Perform a **rapid scan** to identify life threats [106].
 - Identify injuries needing management or protection before transport [106].
 - This is a 60-90 second exam [106].
 - It is not a systematic or focused physical exam [106].
- Determine **patient priority and transport** (D) [107]. This follows ABC [107].
 - High-priority patients include those who are unresponsive, have difficulty breathing, or uncontrolled bleeding [108].
 - Other high-priority conditions: altered LOC, severe chest pain, pale skin/poor perfusion signs, complicated childbirth, or severe pain [108].
 - Load and go for high-priority patients [108].
 - The **golden hour** (or Golden Period) is the time from injury to definitive care [109]. Treatment of shock and traumatic injuries must occur then to maximize survival [109].
 - Immediate transport is key for patients needing care the EMT cannot provide [109].
 - The timeline: Discovery/EMS activation (first 20 minutes), platinum 10 minutes (initial assessment, intervention, packaging, getting off scene), EMS transport/hospital stabilization [110].
 - Transport decisions are made at this point [111].
 - Decisions are based on patient condition, availability of advanced care, transport distance, and local protocols [112].

Step	Action
General Impression	Note age, sex, race, distress, appearance; determine care priority [50]
Assess LOC (AVPU)	Use AVPU to determine responsiveness; check orientation (Person, Place, Time, Event) [60]
Identify Life Threats	Recognize conditions causing sudden death (airway, breathing, circulation, bleeding) [66]

Airway Assessment	Ensure patent airway; check for obstruction signs; use maneuvers if needed [70]
Breathing Assessment	Check presence and adequacy; assess rate, rhythm, quality, depth; administer oxygen/ventilate [77]
Circulation Assessment	Assess mental status, pulse, skin condition; control external bleeding [87]
Rapid Scan	Quickly identify any other life threats [106]
Priority/Transport	Determine patient priority (high priority conditions); decide on transport [107]

4. History Taking

history taking is the next part of patient assessment [113]. It includes the patient's history and the history of the present illness [113]. This provides details about the chief complaint and symptoms [114].

- Document the date, patient age, gender, race, medical history, and current health status [114].
- Investigate the **chief complaint** and history of the present illness [115].
- Begin by introducing yourself and making the patient comfortable [115]. Obtain permission to treat [115].
- Ask simple, direct questions [116]. Use Mr., Miss, or Mrs. with the patient's last name [116].
- Use **open-ended questions** to determine the chief complaint [116].
- Use eye contact to encourage the patient to speak [116]. Repeat statements to show understanding [116].
- If the patient is unresponsive, get information from family or bystanders [117].
- Look for medical alert jewelry or documentation [119].
- Use the **OPQRST mnemonic** to gather information on the present illness [121].
 - **Onset:** When the problem started [122].
 - **Provocation:** What makes the problem better or worse? [123]
 - **Quality:** How would you describe the feeling (pain, stabbing, pressure)? [124]

- **Region/Radiation:** Where the problem is and if it spreads [124].
- **Severity:** On a scale of 0-10, how bad is the pain? [124]
- **Timing:** When did it start? Is it constant or intermittent? [124]
- Identify **pertinent negatives:** negative findings that don't require care or intervention [121].
- Obtain the **SAMPLE history** [125].
 - **Signs and symptoms** [125].
 - **Allergies** [125].
 - **Medications** [125].
 - **Past pertinent medical history** [125].
 - **Last oral intake** [125].
 - **Events leading up to the illness or injury** [125].
- OPQRST is for the present illness, SAMPLE is for the patient history [125].
- **Critical thinking** is essential in assessment [126].
 - Gather facts for clinical decision making [126].
 - Evaluate what the information means [126].
 - Synthesize information into a plan for managing the scene/patient care [126].
- Taking history on **sensitive topics** requires a professional approach [127].
 - **Alcohol or drugs:** Signs can be confused or hidden [127]. Patients may deny problems [127]. History from dependent patients may be unreliable [128]. Do not judge [129].
 - **Physical abuse or violence:** Report all abuse/domestic violence to authorities [130]. Follow state laws and local protocols [131]. Do not accuse; involve law enforcement immediately [132]. This is mandatory reporting [133].
 - **Sexual history:** May be sensitive [133]. Consider all female patients of childbearing age with lower abdominal pain pregnant until ruled out [134]. Ask about last menstrual period [135]. Inquire about urinary symptoms with male patients [135]. Ask about potential STDs when appropriate [135].
- **Special challenges** in history taking [136].
 - **Silence:** Patience is important [137]. Closed-ended questions (yes/no) may work best [138]. Consider if silence is a clue to the chief complaint [138].
 - **Overly talkative patients:** Reasons can include caffeine, nervousness, drug use (crack, cocaine, methamphetamines), or physiological issues [139]

- **Multiple symptoms:** Prioritize complaints like in triage [140]. Start with the most serious [140].
- **Anxiety:** Recognize it may be a sign of a serious medical condition [141]. Common in disaster scenes [142]. Anxious patients may show signs of shock (pale, sweating, shortness of breath, numbness/ tingling, dizziness, loss of consciousness) [143]. Anxiety can indicate low blood sugar, shock, or hypoxia [143].
- **Anger and hostility:** Family or bystanders may direct anger at you [145]. Remain calm, reassuring, and gentle [145]. Retreat if the scene is unsafe until secured [146].
- **Intoxication:** Do not corner an intoxicated patient [147]. Potential for violence is high [147]. Alcohol dulls senses [148].
- **Crying:** A patient may be sad, in pain, or overwhelmed [149]. Remain calm, patient, reassuring, and confident [150]. Maintain a soft voice [150].
- **Depression:** A leading cause of disability [151]. Symptoms include sadness, hopelessness, restlessness, irritability, sleeping/eating disorders, decreased energy [152]. Being a good listener is effective [153].
- **Limited cognitive abilities:** Keep questions simple; limit medical terms [154]. Be alert for partial answers; keep asking questions [155]. Rely on family, caregivers, or friends for answers with severely limited cognitive function [156].
- **Cultural challenges:** Don't use medical language [157]. Some cultures prefer same-gender healthcare providers [158]. Gain assistance from friends, family, or same-culture providers if possible [158].
- **Language barriers:** Find an interpreter if possible [159]. Determine if the patient understands who you are [159]. Keep questions straightforward and brief [160]. Use hand signals or gestures if needed [160]. Be aware of community language diversity [161].
- **Hearing problems:** Ask slowly and clearly [162]. Use a stethoscope as a hearing aid [162]. Learn simple sign language or use paper/pencil [163].
- **Visual impairments:** Identify yourself verbally upon entering [164]. Return moved items to their previous position [165]. Explain each step of assessment and vital signs [165]. Notify the patient before lifting or moving them [166].

5. Secondary Assessment

The secondary assessment is the fourth section [168]. If the patient is stable and has an isolated complaint, perform it at the scene [169]. If not, perform it in the ambulance en route to the hospital [169].

- Sometimes, there isn't time for a secondary assessment [171]. Continue managing life threats during transport [171].
- The purpose is to perform a **systematic physical exam** [172].
- This may be a **focused assessment** based on the chief complaint or a certain body area/system [172].
- How to assess during the physical exam: **inspect, palpate, auscultate, and percuss** [172]. Look, listen, and feel [172].
 - Inspect: Look at the patient for abnormalities [173].
 - Palpate: Feel for abnormalities [174].
 - Auscultate: Listen with a stethoscope [174].
- The mnemonic **DCAP-BTLS** helps remember what to look for in trauma assessments [175].
 - Compare findings on one side of the body to the other [176].
 - **D**eformities [177]
 - **C**ontusions [177]
 - **A**brasions [177]
 - **P**unctures or penetrations [177]
 - **B**urns [177]
 - **T**enderness [177]
 - **L**aceration [177]
 - **S**welling [177]
- The systematic assessment's goal is to identify hidden injuries [178].
- Perform a **focused assessment** on patients with non-significant MOIs or medical patients [180]. It is typically based on the chief complaint [180].
 - Focus attention on the affected body part or system [180].
 - **Respiratory system** focus (for difficulty breathing) [181]:
 - Expose and inspect the chest for obstruction signs or trauma [182].
 - Inspect chest symmetry (both sides rising/falling) [183].
 - Auscultate and listen to breath sounds, noting abnormalities [184].
 - Measure respiratory rate, chest rise/fall (tidal volume), and effort [184].
 - Look for retractions and increased work of breathing [185].

- Obtain **RRQ** (respiratory rate, rhythm, quality, depth) [187].
- Normal adult rate is 12-20 breaths/minute [188]. Children breathe faster [189]. Count breaths in 30 seconds and multiply by two [189].
- Respiratory rhythm should be regular or irregular [190]. Regular means consistent time between chest rises [190]. Irregular can indicate an underlying medical or trauma condition [191].
- Quality of breathing: Normal is silent [192]. Other sounds (advantageous breath sounds) indicate respiratory problems [192].
- Depth of breathing: Amount of air exchanged, depends on tidal rate and volume [193].
- Auscultate breath sounds on both sides and multiple lung fields [193].
- Listen for: Normal, snoring (upper respiratory), wheezing (lower), crackles (lower), rhonchi (lower), stridor (upper) [194].
- **Cardiovascular system** focus (for chest pain) [198]:
 - Look for trauma to the chest; listen for breath sounds [198].
 - Consider pulse, respiratory rate, and blood pressure [199].
 - Pay attention to rate, quality, and rhythm of the pulse [199].
 - Consider skin findings [200].
 - Check and compare distal pulses for differences [201].
 - Consider auscultation for abnormal heart tones [201].
 - Pulse: Normal adult resting pulse is 60-100 [202]. Younger patients have faster rates [203].
 - Assess pulse **RRQ** (rate, rhythm, quality) [204].
 - Pulse quality: Strong or bounding [205]. Weak or thready is difficult to feel [205].
 - Pulse rhythm: Regular or irregular [206]. Regular has consistent intervals [206]. Irregular means early or late beats or missed beats [208].
 - Take **blood pressure** [209]. It's the pressure against artery walls [209].
 - Low blood pressure (hypotension) can indicate blood/fluid loss, loss of vascular tone, or cardiac problems [209]. It is a late sign of shock [210].
 - High blood pressure (hypertension) can result in rupture or damage [210].
 - Blood pressure cuff components: wide upper cuff, inflatable bladder, bulb pump/valve, pressure gauge [212].
 - **Auscultation** is a common way to measure BP [213].

- **Palpation** (feeling) can be used in certain cases (blood pressure by palp) [214].
- **Neurologic system** focus (for mental status changes, head injury, stupor, dizziness, drowsiness, syncope) [216]:
 - Evaluate level of consciousness and orientation using AVPU or Glasgow Coma Scale (GCS) [216]. GCS provides info on mental status changes [218].
 - Assess **pupils** [219]. Normally round, equal size, and adjust to light [219].
 - Pupil size and reactivity reflect brain status, perfusion, oxygenation, and condition [220].
 - Pupils dilate in the absence of light [221].
 - Unequal pupils (anisocoria) can indicate altered brain function, though a small population has unequal pupils normally [222].
 - Use the **PEARL mnemonic**: Pupils Equal And Round, Regular in size, and Reactive to Light [222].
 - Assess **neurovascular status** with a hands-on assessment [223]. Determine sensory and motor response [223].
 - Look for bilateral muscle strength and weakness [223].
 - Complete a thorough sensory assessment [224]. Test for pain sensation and position [224].
 - Compare distal and proximal sensory and motor responses side to side [224].
- For **trauma situations**, perform the **DCAP-BTLS** assessment on all body regions [226].
 - Head, neck, and cervical spine: palpate, check eyes, cheekbones, ears (look for fluid), maxilla, mandible, mouth (broken teeth, odors) [227].
 - Chest: look, listen, and feel [227].
 - Abdomen: palpate for tenderness, rigidity, guarding [228]. Palpate the four quadrants (left upper/lower, right upper/lower) [228].
 - Pelvis: inspect for symmetry [229].
 - Extremities: check for DCAP-BTLS, pulses, motor, and sensory function [229].
 - Roll the patient (often onto a backboard) [230]. Inspect the back for DCAP-BTLS, symmetry, open wounds [231]. Palpate the spine from neck to pelvis for tenderness or deformity [232].

Component	Focus
Systematic Exam	Inspect, palpate, auscultate, percuss [172]
Focused Assessment	Based on chief complaint or affected system (e.g., respiratory, cardiovascular, neurologic) [172]
Trauma Assessment	DCAP-BTLS on all body regions (Head, Neck, Spine, Chest, Abdomen, Pelvis, Extremities, Back) [175]
Vital Signs	Pulse, Respiratory Rate, Blood Pressure, Skin (Color, Temp, Condition), Capillary Refill, using devices (Pulse Ox, Capnography) [234]

6. Vital Signs and Reassessment

Assessing vital signs is the next area [234]. Use appropriate monitoring devices, but they don't replace a comprehensive assessment [235].

- Monitoring devices:
 - **Pulse oximetry:** Evaluates oxygenation effectiveness; measures oxygen saturation [235]. Patients with difficulty breathing should get oxygen regardless of pulse ox reading [235].
 - **Capnography:** Provides information on patient ventilation, circulation, and metabolism [236].
 - **Blood glucose/glucometry:** Measures blood sugar level [237].
 - **NBP (Non-invasive blood pressure)** measurement [237].
- **reassessment** is the very last part [238].
 - Perform reassessment at regular intervals [238].
 - Purpose: Identify and treat changes in the patient's condition [238].
 - Steps in reassessment:
 - Repeat the primary assessment [238].
 - Reassess vital signs [238]. Compare baseline vitals to subsequent ones to look for trends (e.g., BP changes, heart rate changes) [238].
 - Reassess the chief complaint [238].

- Recheck interventions [\[238\]](#).
- Document any changes and whether they were positive or negative [\[239\]](#).
- Identify and treat the patient's condition [\[239\]](#).
- Reassess unstable patients every five minutes [\[240\]](#). It is a continuous process [\[241\]](#).