# Chapter 15, Medical Overview

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## 1. Introduction to Medical Emergencies

medical emergencies involve illnesses caused by disease [6]. They are different from trauma emergencies, which result from physical forces [5]. Patients can have both medical and trauma conditions [7].

| Type of Medical Emergency | Description | Common Examples |
|---|---|---|
| Respiratory Emergencies | Difficulty breathing or inadequate oxygen supply [9] | Trouble breathing [9] |
| Cardiovascular Emergencies | Conditions affecting the circulatory system [10] | Heart conditions [10] |
| Neurological Emergencies | Involve the brain [11] | Seizure, stroke, fainting [143] |
| Gastrointestinal Conditions | Involve the digestive system [11] | Appendicitis, diverticulitis, pancreatitis [11] |
| Urologic Emergency | Involve the urinary system [12] | Kidney stones [12] |
| Endocrine Emergencies | Related to hormones [12] | Complications of diabetes [12] |

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| Hematologic Emergencies | Involve the blood [13] | Sickle cell disease, blood clotting disorders [13] |
| Immunologic Emergencies | Body's response to foreign substances [14] | Allergic reactions [14] |
| Toxicological Emergencies | Involve poisoning and substance abuse [14] | Poisoning [14] |
| Physiological or Behavioral Problems | Difficult to assess [15] | Conditions without typical signs and symptoms [15] |
| Gynecological Conditions | Involve female reproductive organs [16] | Female reproductive issues [16] |

## 2. Patient Assessment in Medical Emergencies

Assessing a medical patient focuses on the nature of illness and chief complaint [19]. Establishing an accurate medical history is crucial [20]. Use dispatch information to guide your response [21]. Avoid tunnel vision, focusing only on one aspect [22]. Maintain a professional and calm demeanor [23]. Do not label patients or show biases [24]. Remember a frequent caller may have a different complaint this time [25].

The scene size-up ensures safety for you, your crew, and the patient [26]. Use standard precautions [27]. Determine the number of patients and if more help is needed [27]. Determine the nature of the illness [28]. Be aware of potentially serious underlying conditions (index of suspicion) [28]. Initiate spinal immobilization if necessary [28].

The primary assessment includes forming a general impression [29]. Perform a rapid exam to find life threats [29]. Determine the patient's level of consciousness using AVPU [29]. Assess airway, breathing, and circulation (ABC) [29].

- For conscious patients, ensure an open airway and adequate breathing [30].
  - Check respiratory rate, depth, and quality [30].
  - Consider oxygen if breathing is affected [30].
  - Check the radial pulse [33].
  - Observe skin color, type, and condition [33].
- For unconscious patients, open the airway using the proper technique [31].
  - Evaluate breathing for several seconds [31].

- Apply oxygen, especially with shock, difficulty breathing, or low SpO2 (<94%) [32].
- May need airway adjuncts and ventilatory assistance with a bag valve mask [32].
- Check circulation at the carotid artery [34].

Make a transport decision based on the patient's condition [34].

History taking helps determine the problem or its cause [38]. Gather a thorough history [39]. Investigate the chief complaint using opqrst (onset, provocation, quality, radiation, severity, time) [41]. For unconscious patients, survey the scene for medications and medical devices [40]. Obtain patient history using SAMPLE (allergies, medications, past history, last oral intake, events) [41]. Record all allergies and medications [41]. Take medications with you to the hospital [41].

The secondary assessment may happen on scene or en route [42]. Sometimes there is no time for a secondary assessment [43]. Conscious patients get a limited or detailed physical exam based on the chief complaint [44]. Unconscious patients always get a head-to-toe exam to find clues [45]. A full body assessment should be quick to avoid delaying transport [46]. Examine the head, neck, chest, abdomen, extremities, and back [46].

Treatment depends on findings and local protocols [47]. Take vital signs: pulse rate, rhythm, and quality [48]. Assess respirations rate, quality, and regularity [49]. Obtain an initial blood pressure [50]. Measure systolic and diastolic pressures [51]. Consider using an automatic blood pressure cuff [51]. Obtain blood glucose levels and pulse oximetry [52].

## 3. Reassessment and Transport Decisions

Reassessment starts after initial assessment and treatment [53]. It continues throughout transport [53]. Repeat the primary assessment [54]. Reassess the chief complaint [54]. Consider the need for advanced life support [55]. Repeat the physical exam to find and treat changes [56]. Obtain vital signs every 5 minutes for unstable patients [58]. Obtain vital signs every 15 minutes for stable patients [58]. Review all performed treatments [59]. Document any changes from treatments [59]. Adjust treatments as needed [59].

Most emergencies need hospital treatment beyond pre-hospital care [60]. The hospital offers advanced testing [61]. Administering medicine may be beyond the EMT's scope [61] . EMTs need direct permission from medical control to give medicine [62]. EMTs can use an AED on pulseless and apneic patients [63].

Scene time may be longer for medical patients [65]. This allows gathering more information for the emergency department [65]. Critical patients need rapid transport [66].

| Criteria for Rapid Transport |
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| Unconscious or altered mental status [36] |
| Airway or breathing problems [36] |
| Obvious circulation problems (bleeding, shock) [36] |
| Very old or very young patients [66] |

Life-threatening conditions require transport with lights and sirens [67]. Non-critical patients may use non-emergency transport [68]. Transport modes are ground or air [68]. Ground units have EMTs and paramedics [69]. Air units have critical care transport professionals and paramedics [70]. Generally, transport to the closest hospital [71]. Sometimes another hospital is better for the patient's specific condition [72].

## 4. Infectious Diseases in Emergency Care

Approach patients with infectious diseases like other medical patients [73]. Perform scene size-up and standard precautions [73]. Complete the primary assessment [73]. Gather patient history using opqrst for the chief complaint [74]. Obtain sample history and baseline vital signs [75]. Pay attention to medicines and events leading up to the problem [76]. Ask about recent travel or contact with travelers [77].

General management focuses on life-threatening conditions from the primary assessment [78]. Be empathetic [79]. Position the patient for comfort on the stretcher [80]. Keep the patient warm [80]. Always use standard precautions [80]. Follow agency exposure control plans [81]. Clean equipment properly [81]. Discard disposable supplies and wash linens [81].

| Infectious Disease | Characteristics | Transmission | PPE Recommendations |
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| Influenza [84] | Susceptible: chronic conditions, compromised immune systems, very young/old [84] | Direct contact with nasal secretions, | Gloves, eye protection, HEPA/N95 mask [85] |

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| | | airborne droplets [84] | |
| Herpes Simplex [88] | Tiny fluid blisters on lips/genitals [89]. Can cause pneumonia/meningitis in young/old/immunocompromised [90] | Close personal contact [91] | Standard precautions [91] |
| HIV Infection [92] | Risk of exposure to EMTs [93]. Can be fatal, but treatment allows near normal lifespan [94]. Potentially hazardous when on mucous membranes or in bloodstream [94]. Not easily transmitted in work setting [95]. Risk from infected blood/bodily fluids [96]. Many patients show no symptoms [97] | Contact with blood and bodily fluids [96] | Proper gloves, careful handling/disposal of sharps [98]. Cover wounds [99] |
| Hepatitis [100] | Inflammation of the liver [100]. Caused by viruses/toxins [100]. No sure way to tell who is contagious [101]. A: transmitted from acute infection [101]. B/C: transmitted from long-term carriers [102] | A: oral or fecal contamination [103]. B: far more contagious than HIV [104] | Vaccination (Hep B) recommended for EMTs [104] |
| Meningitis [106] | Inflammation of meningeal covering [106]. Most forms not contagious [107]. Meningococcal meningitis is highly contagious [107] | Secretions from nose/mouth [108] | Standard precautions, gloves, mask [108] |
| Tuberculosis (Pulmonary) [109] | Chronic disease of the lungs [109]. High risk patients almost always cough [110]. Only contagious form spread by airborne transmission (droplet nuclei) [110] | Airborne droplet nuclei [110] | N95 and HEPA masks required [110] |

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|---|---|---|---|
| Whooping Cough (Pertussis) [114] | Mostly affects children <6 [115]. Symptoms: fever, whoop sound on inhaling after cough [115] | Airborne [115] | Vaccination (DPT/TDAP), mask on patient and yourself [116] |
| MRSA [117] | Bacterium resistant to antibiotics [117]. Causes soft tissue infections [120]. Skin signs: localized abscesses, sepsis in older patients [121] | Unwashed hands of healthcare providers [118] | Standard precautions [118] |
| COVID-19 [122] | Originated in Wuhan, spread globally [122]. Symptoms: fever, cough, shortness of breath 2-14 days after exposure [124] | Contact with infected person [124] | Social distancing [123] |
| MERS-CoV [126] | Middle Eastern Respiratory Syndrome [126]. First case 2012 in Saudi Arabia [127]. Most human infections in Middle East [128]. Cases found in Europe and US [129] | Unknown (suspected respiratory droplets) [129] | Surgical mask on patient, notify receiving facility [129] |
| Ebola [130] | Outbreak in West Africa 2014 [130]. Incubation 6-12 days (up to 21) [132]. Fatality rate up to 70% if ICU treatment delayed [133] | Contact with infected people [130] | Surgical mask on patient, follow local/CDC PPE protocols, notify receiving facility [134] |

Be aware of travel acquired infections [135]. Patients recently outside the US may have fever, cough, vomiting, bloody diarrhea, body aches, rashes [136]. Place a mask on the patient [136]. Gather information on travel history [136]. Ask where they traveled, if vaccinated, exposed, if travel companions are sick, food/water sources [137]. Follow appropriate PPE and notify receiving facility if a communicable disease is suspected [137]
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An epidemic is when new cases exceed expectations [82]. A pandemic is a global outbreak [83].

## 5. Conclusion and Key Takeaways

Assessing and treating medical patients is challenging [138]. Medical conditions may not be as apparent as trauma [139]. Treatment may not be straightforward [139]. Delays in diagnosis can be harmful [140]. Stay calm and use patient assessment skills [140]. Treat the patient's symptoms [140]. Report to medical control [140]. Transport the patient safely to the emergency department [140]. Be prepared for patients with both medical and trauma conditions [141].