Administration of Epinephrine Auto-Injector (EpiPen)

1. Identify symptoms of systemic anaphylaxis (e.g., respiratory distress, hypotension, or laryngeal oedema). Confirm the medication is not expired and the solution is clear and colourless. Form a fist around the midsection of the injector, ensuring no digits cover either end of the device.
2. Remove the blue safety release cap by pulling it straight up while maintaining a firm grip on the carrier tube. This action arms the internal spring-loaded firing mechanism.
3. Identify the vastus lateralis (outer thigh) as the injection site. If necessary, clear the area of bulky clothing, though the needle is designed to penetrate standard medical scrubs or denim.
4. Position the orange tip at a 90-degree angle against the vastus lateralis. Swing and push the injector firmly until a distinct "click" is heard or felt, signalling the needle has deployed into the intramuscular space.
5. Maintain the device firmly against the thigh for a full 3 to 10 seconds (depending on specific manufacturer calibration) to ensure the entire dose of epinephrine is delivered via the pressurized plunger.
6. Withdraw the unit and massage the injection site for 10 seconds to enhance systemic absorption. Place the used unit into a designated sharps container, noting that the orange tip will now extend to cover the needle.

Common Mistakes

- Improper Grip: Placing a thumb over the end of the device, which can lead to accidental self-injection into the digit.
- Inadequate Force: Failing to hear the "click," resulting in the needle not penetrating the subcutaneous layer.
- Premature Withdrawal: Removing the device before the 3-second minimum, leading to an incomplete dose.

Critical Fail Steps

- Accidental self-injection: Attempting to deploy the device with the needle end facing the user’s thumb.
- Incorrect injection site selection: Attempting to inject into a vein or the gluteus muscle.

Adult basic life support (CPR)

1. Verify the scene is safe. Check for responsiveness by tapping the shoulders and shouting. Simultaneously scan the chest for breathing and palpate the carotid pulse for no less than 5 but no more than 10 seconds.
2. If the patient is unresponsive and has no pulse (or only gasping), immediately activate the emergency response system and send a specific bystander to retrieve an Automated External Defibrillator (AED).
3. Place the patient supine on a firm, flat surface. Position the heel of one hand on the lower half of the sternum and the other hand on top, interlocking fingers. Ensure shoulders are directly over the hands with elbows locked.
4. Deliver compressions at a rate of 100–120 bpm and a depth of 2–2.4 inches (5–6 cm). Ensure full chest recoil between compressions by not leaning on the chest.
5. Perform a head-tilt/chin-lift maneuver to open the airway. (Use a jaw-thrust maneuver if a cervical spine injury is suspected). Ensure the airway is clear of foreign bodies or secretions.
6. Using a barrier device (e.g., Bag-Valve-Mask or pocket mask), deliver 2 rescue breaths. Each breath should last approximately 1 second and provide enough volume to result in visible chest rise.
7. Continue cycles of 30 compressions followed by 2 breaths. Minimize interruptions in chest compressions to less than 10 seconds.
8. After 5 cycles (approximately 2 minutes), reassess the rhythm/pulse. If multiple providers are present, switch roles to prevent compressor fatigue and maintain compression quality.

Common Mistakes

- Inadequate Compression Depth: Failing to reach the 2-inch minimum, which results in insufficient blood flow to the brain and heart.
- Lean on the Chest: Failing to allow full recoil, which prevents the heart from refilling with blood between compressions.
- Excessive Ventilation: Delivering breaths too forcefully or too quickly, which can cause gastric inflation and reduce venous return to the heart.

Critical Fail Steps

- Protracted Pulse Check: Spending more than 10 seconds assessing the pulse.
- Xiphoid Process Compression: Positioning hands too low on the chest and compressing the xiphoid process.
- Interruption of Compressions: Pausing compressions for more than 10 seconds for any reason other than rhythm analysis or shock delivery.

Surgical Hand Scrub-In

1. Ensure all jewelry (rings, watches, bracelets) is removed. Inspect hands and forearms for any open lesions, paronychia, or dermatitis, as these preclude scrubbing. Adjust surgical mask and eye protection before beginning the water-flow.
2. Perform a general wash of hands and forearms with non-medicated soap and running water to remove transient flora and organic matter. Rinse thoroughly from fingertips to elbows.
3. Under running water, utilize a disposable nail cleaner to remove debris from the subungual area of both hands. Discard the cleaner and perform a brief rinse.
4. Apply a standardized antimicrobial surgical scrub agent (e.g., 4% Chlorhexidine Gluconate or Povidone-iodine) to the hands and forearms using a sterile sponge or brush.
5. Divide each finger into four planes. Scrub all surfaces of the fingers, the webbing between them, and the palmar and dorsal surfaces of the hand using a standardized stroke-count or timed method (usually 2–5 minutes total).
6. Proceed to scrub the wrist and forearm, moving in a circular motion toward the elbow. Ensure the scrub extends to 2 inches (5 cm) above the elbow.
7. Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbows. Never move the arm back and forth through the stream.
8. Once rinsed, maintain the hands in a flexed position, held above the level of the elbows and away from the scrub suit. This ensures water drains from the cleanest area (fingertips) toward the less clean area (elbows).
9. Enter the operating room using a back-first entry. Retrieve a sterile towel from the pack, grasping only the corner. Use one half of the towel to dry one hand and arm (moving from fingers to elbow) and the other half for the opposite side, using a dabbing motion.

Common Mistakes

- Inadequate Scrub Duration: Failing to maintain the contact time required by the antimicrobial manufacturer, resulting in high residual bacterial counts.
- Sink Contact: Accidental contact between the hands/arms and the sink or faucet during the rinsing process.
- Back-and-Forth Rinsing: Moving the arm back through the water stream, which can re-contaminate the hands with flora from the upper arm.

Critical Fail Steps

- Lowering of the Hands: Dropping the hands below the waist or below the level of the elbows after the scrub is complete.
- Omission of Subungual Cleaning: Failing to clean under the nails with a designated tool.
- Cross-Contamination during Drying: Using the same portion of the sterile towel for both the hand and the elbow, or moving from the elbow back up to the hand.

Automated External Defibrillator (AED)

1. Once the AED is bedside, immediately place it near the patient's head on the side of the rescuer who will operate it. Open the case and activate the device by pressing the "Power" button or opening the lid, then follow the rhythmic voice prompts provided by the unit.
2. Rapidly remove all clothing from the patient’s chest to allow for direct skin contact. If the chest is wet, wipe it dry with a towel. If the patient has excessive chest hair that may interfere with pad adhesion, use the razor included in the AED kit to quickly shave the application sites.
3. Apply the self-adhesive pads to the patient’s bare chest as illustrated on the packaging. Place one pad on the upper right chest (infraclavicular) area and the other on the lower left (lateral to the left nipple) in the mid-axillary line.
4. Connect the electrode cable to the AED unit (if not pre-connected). Ensure all rescuers cease CPR and clear the patient. Allow the device several seconds to perform a cardiac rhythm analysis to determine if a "shockable" rhythm (e.g., Ventricular Fibrillation or Pulseless Ventricular Tachycardia) is present.
5. If the AED advises a shock, the operator must ensure no one is touching the patient. Perform a visual sweep and loudly state, "I’m clear, you’re clear, everybody’s clear!" to ensure no physical contact with the patient or conductive surfaces.
6. Press the "Shock" button (typically a flashing orange or red button) to deliver the electrical discharge. During the shock, maintain visual contact with the patient to ensure no bystanders or rescuers inadvertently touch them.
7. Without waiting for a new prompt from the AED or checking for a pulse, immediately resume high-quality chest compressions. The AED will set a timer for two minutes of CPR before initiating the next analysis cycle.

Common Mistakes

- Delayed Power-On: Waiting to finish a cycle of CPR before turning on the AED. The device should be powered on the moment it arrives.
- Poor Pad Adhesion: Failing to press the pads firmly onto the chest, which can lead to a "Check Pads" error and delay treatment.
- Inappropriate Pad Placement: Placing pads too close together or reversed, which may decrease the effectiveness of the current flow through the myocardium.

Critical Fail Steps

- Rescuer Contact During Analysis: Touching the patient while the AED is analyzing the rhythm.
- Failure to "Clear" During Discharge: Pressing the shock button while a team member is in contact with the patient.
- Oxygen Proximity: Delivering a shock in the presence of a flowing, uncontained oxygen source (e.g., a mask or tube held directly over the chest).

Rapid Response Strep A Test

1. Verify the kit's expiration date and ensure all components are at room temperature. Place a clean extraction tube in the designated workstation rack. Dispense the exact prescribed volume of Reagent A (typically acetic acid) and Reagent B (sodium nitrite) into the tube. The solution should undergo a distinct colour change to indicate successful chemical activation.
2. Using a sterile dacron swab, depress the patient's tongue with a tongue blade to ensure clear visualization. Vigorously swab both posterior pharyngeal areas and the tonsillar pillars. Focus on areas with visible exudate (white patches), erythema, or inflammation.
3. Immediately insert the specimen swab into the extraction tube. Rotate the swab vigorously at least 10 times against the side of the tube. This mechanical action is necessary to release the Group A Streptococcal antigens from the swab fibres into the reagent solution.
4. Allow the swab to sit in the reagent for exactly one minute (or as specified by the manufacturer). Before removing the swab, squeeze the sides of the flexible extraction tube firmly against the swab head to "wring out" as much liquid as possible. This ensures the maximum concentration of the extracted antigen remains in the tube.
5. Remove the test strip from its foil pouch, taking care to handle it only by the top. Insert the strip into the extraction tube with the arrows pointing downward. Ensure the liquid level does not exceed the maximum fill line (muco-migration line) on the strip, as this will invalidate the capillary flow.
6. Leave the strip in the tube and set a timer for the manufacturer’s specified read time (usually 5 minutes). Observe the strip for the appearance of the Control (C) line. Once the C-line is visible, look for any pink-to-purple Test (T) line. Any visible T-line, no matter how faint, indicates a positive result for Group A Streptococcus.

Common Mistakes

- Insufficient Swab Pressure: Failing to use enough force during the throat swab, resulting in an inadequate specimen for the assay.
- Premature Interpretation: Reading the results before the full incubation period, which may result in a false negative if the antigen concentration is low.
- Handling the Test Strip: Touching the reagent-impregnated portion of the strip with gloved hands, which can introduce contaminants or oils that interfere with the lateral flow.

Critical Fail Steps

- Oral Flora Contamination: Allowing the swab to touch the patient’s tongue, cheeks, or teeth during the collection process.
- Reagent Sequence Inversion: Adding the reagents in the wrong order or using incorrect volumes.
- Invalidated Control Line: Reporting a negative or positive result when the Control (C) line fails to appear.