

AED Use Cases

Use Case 1 - Emergency Use of AED Plus Unit

Primary Actor: Rescuer, Patient

Level: User Goal

Precondition: There exists a workable AED Plus device in the vicinity of the patient, and there exists a rescuer to operate it. The electrode cables must be plugged in and the device must pass all self-checks.

Minimal Guarantee: Device turns on and all display / audio systems are functional.

Success Guarantee: All AED Plus operations work as intended, and its simplicity allows the rescuer to increase the odds of survivability of the patient until professionals can arrive on the scene.

Note - It can be assumed that in the main success scenario, the rescuer follows the instructions of the AED device to the letter.

Main Success Scenario:

- 1) Rescuer presses the AED Plus power button and turns it on // **Additional UC**
- 2) Unit performs a series of self tests, and displays the success of those tests visually and audibly. // **Additional UC**
- 3) Device emits an audio instruction stating “Stay Calm” and updates the display with the same message.
- 4) Device indicates the next step by flashing the light next to the image of a person kneeling next to the patient asking if they’re okay. Device emits an audio instruction stating “Check responsiveness” and updates the display with the same message.
- 5) Device indicates the next step by flashing the light next to an image of a phone and an ambulance. Device emits an audio instruction stating “Call for help” and updates the display with the same message.
- 6) Device indicates the next step by flashing the light next to an image of the patient with the defib pads attached to their chest. Device emits an audio instruction stating “Attach defib pads to patient’s bare chest” and updates the display with the same message.

- 7) Device indicates the next step by flashing the light next to an image of a person kneeling beside the patient, but clearly away and not touching the patient. Device emits an audio instruction stating “Don’t touch patient. Analyzing” and updates the display with the same message.
- 8) Analysis is completed and the device guides the user as needed based on what was found. **See extensions.**
- 9) Device indicates the next step by flashing the light next to an image of the patient with the defib pads still attached, and the rescuer's hands pressing on their chest. Device emits an audio instruction stating “Start CPR” and updates the display with the same message.
- 10) After 2 minutes of CPR the device will emit an audio instruction stating “Stop CPR” and the display will be updated with the same message.
- 11) Device returns to the state as described in step (7). This loop from step 7 to step 11 repeats until the device is turned off or the electrodes are removed from the patient for an extended period of time (> 5 seconds).

Extensions:

- 1a. Batteries do not have a sufficient charge for the device to be used fully.
 - 1a1. Device emits an audio instruction stating “Change Batteries”.
- 6a. Patient is a child under the age 8 OR patient's weight is less than 55lbs.
 - 6a1. Rescuer selects the child-sized electrodes and places them as shown in the operator guide
- 8a. Analysis of the ECG has found a non-shockable rhythm.
 - 8a1. Device emits an audio message that says “No Shock Advised. Start CPR” and updates the display with the same message.
 - 8a2. Device moves to step 9.
- 8b. Analysis of the ECG has found a shockable rhythm.
 - 8b1. Central indicator “heart” light flashes. Device emits an audio message saying “Stand clear. Do not touch patient. Shock will be delivered in three, two, one..” and updates the display with the same message.
 - 8b2. Shock tone will sound and the shock will be delivered to the patient. The device will emit an audio message saying “Shock Delivered”. and updates the display with the same message
 - 8b3. After one shock, the device moves to Step 9