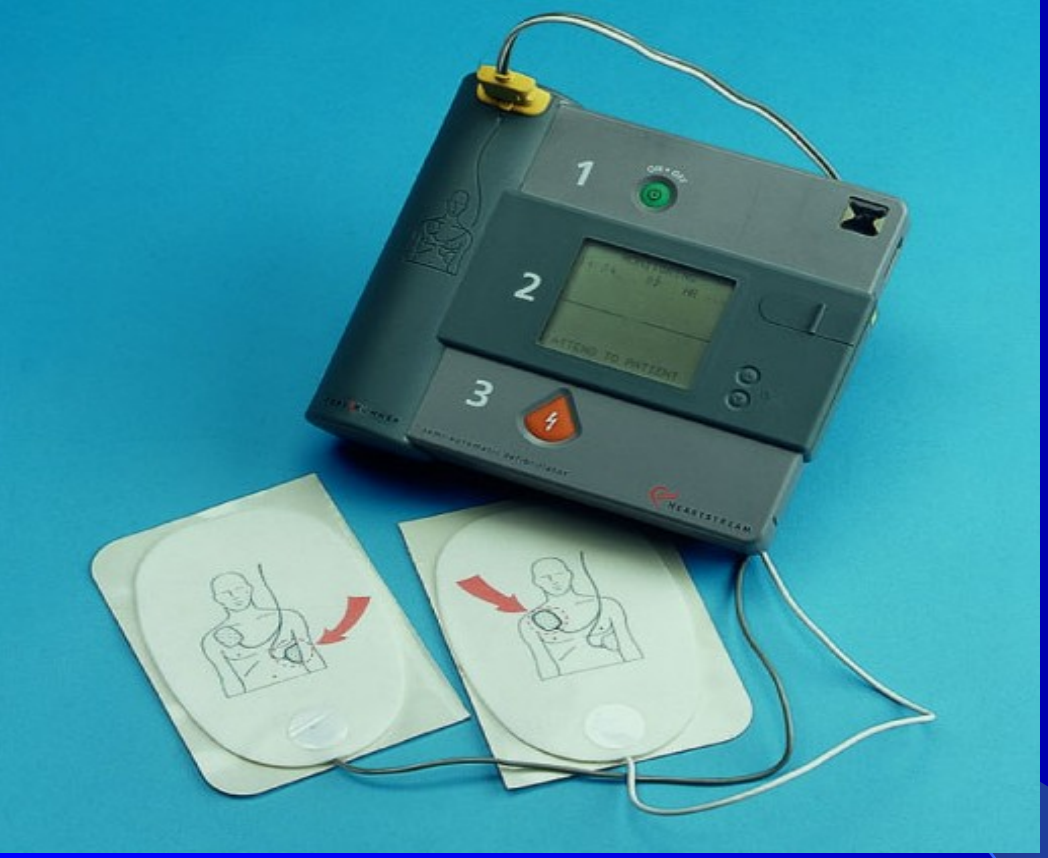


AED'S Save Lives

Cardiopulmonary Resuscitation (CPR)

And

Automated External Defibrillators (AED's)

The Chain of Survival

Early Access	Early CPR	Early Defibrillation	Early Advanced Care

CPR can support the patient but cannot reverse the condition!

كاغذ و قلم – سوزن و نخ – لباس اضافه – دمپائي – كبريت يا فندك – كارت شناسايي – حوله و صابون – ظروف

...ات انفرادي نيز وسائلي هستند كه معمولاً با توجه به نياز هر عمليات و امكانات موجود در سازمان در اختيار نيروها

كوله پشتي، كيسه خواب يا پتو، پوتين يا كفش مناسب، لباس امدادي(با توجه به فصل)، چراغ قوه، قمقمه، ماسكهاي محافظ، دستكشهاي محافظ.

The Chain of Survival

... و ابزار لازم جهت ... و انجام مأموريت ... بخش از اين تجهيزات ... امدادي و پزشك

چسب زخم ... چراغ قوه، دستكش يكبار مصرف، (Air Way) وسايل جعبه كمكهاي اوليه: باند(سه گوش، نواري، كشي)، ... استر

يك پليس، عبور و مرور را كنترل كنيد و يا مانند يك

مأمور آتش نشاني مجبور به خاموش كردن آتش

در بعضي از موقعيتهاي خاص در اثر حوادث، ابتدا نياز به يك سري عملياتهاي نجات و تجهيزات خاص مي باشد تا ما بتوانيم يك عمليات امدادي مؤثر را انجام دهيم، كه لزوم آن شناخت

سوزي و رهاسازي مصدومين گرفتار در آتش، و يا

و توانائي لازم را جهت انجام ... مصدومين و ديگران را فراهم ك

زير آوار و اتومبيل باشيد. بنابراين بايد براي ايفاي

... ش بيني اين مسئله را انجام دهيم. چراغ قوه (با باطري و لامپ اضافي)، چراغ هالوژنه، پرژكتور ثابت، پرژكتور دستي، پرژكتور مه شكن، هدلامپ(چراغ پيشاني)، چراغ روشنايي گازي

... عمليات رها سازي و دستيابي به مصدوم مورد استفاده قرار مي گيرند، از خصوصيات اين ابزار ميتوان به فراواني، قابل دسترس بودن، تعمير و تأمين مجدد آسان، كم حجم بودن، قا

ديلم(كوچك، بزرگ، متوسط)، پتك(سنگين، سبك)، تبر(كوچك، بزرگ)، تبرچندمنظوره، تايليور، جك، طناب ...

نقش صحيح خودتان احتياج به ابزار و تجهيزات

اين دسته از ابزار كارائي بسيار بالايي را جهت انجام عملياتهاي رهاسازي و نجات دارند، ولي تمام آنها معمولاًپرحجم و حمل آنها نياز به ماشينهاي جداگانه اي بجز آمبولانس را دارد.

بخصوص داريد و بايد آنجا كه ممكن است نسبت به

Automated External Defibrillators

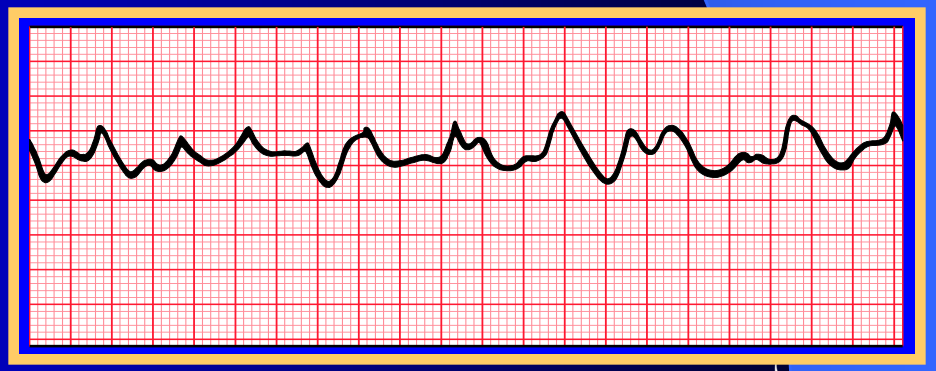
- Automated External Defibrillators (AED,s) are computerized defibrillators that may be safely operated by health care providers and lay rescuers who have only a few hours of training.
- Extremely accurate
- Relatively inexpensive

Defibrillation

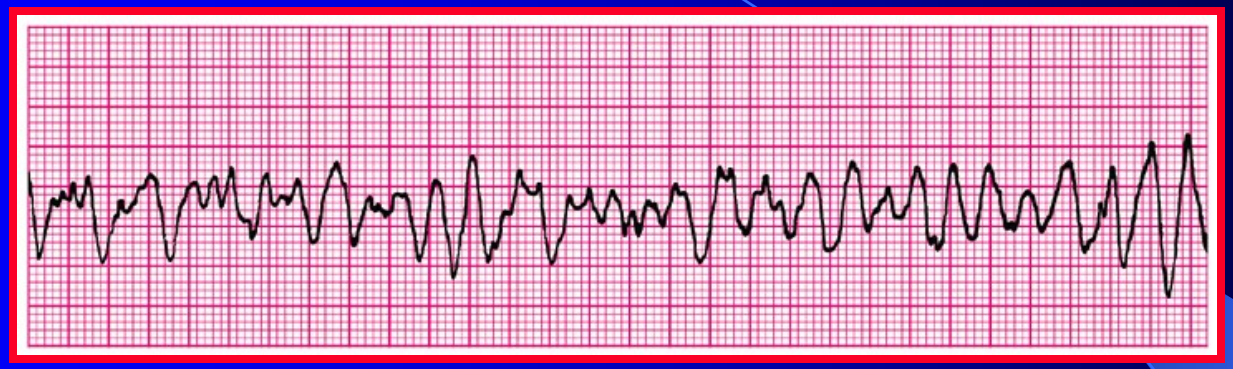
- The most important therapy for the cardiac arrest patient whose heart is in ventricular fibrillation (VF) or ventricular tachycardia (VT).
- In US 80% of adult sudden death is due to VF/VT rhythms.

AEDs and Ventricular Fibrillation

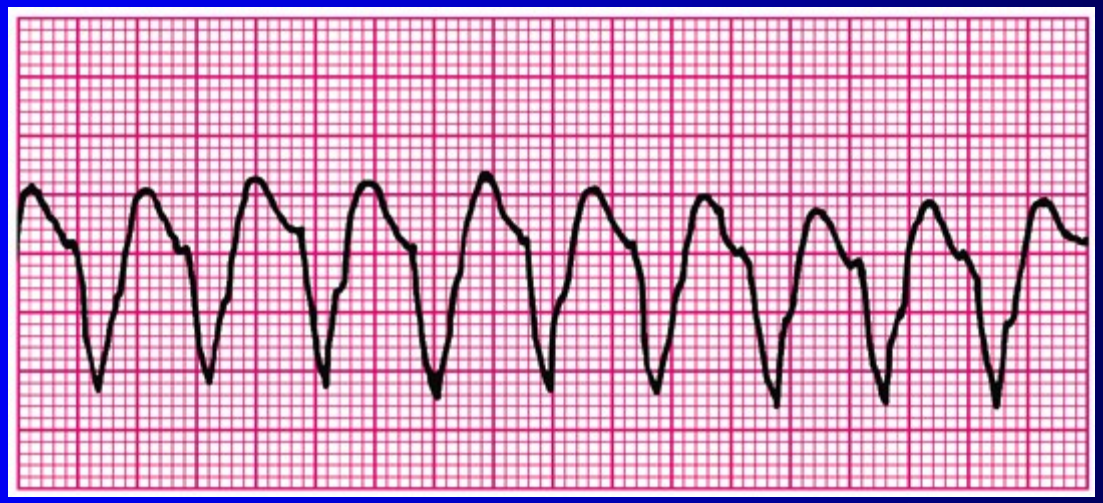
- Ventricular Fibrillation is the most frequent initial rhythm in sudden cardiac arrest
- Ventricular Fibrillation is a useless quivering of the heart that results in no blood flow
- Defibrillation is the only effective treatment for Ventricular Fibrillation
- Successful electrical defibrillation diminishes rapidly over time



Defibrillation



Ventricular Fibrillation

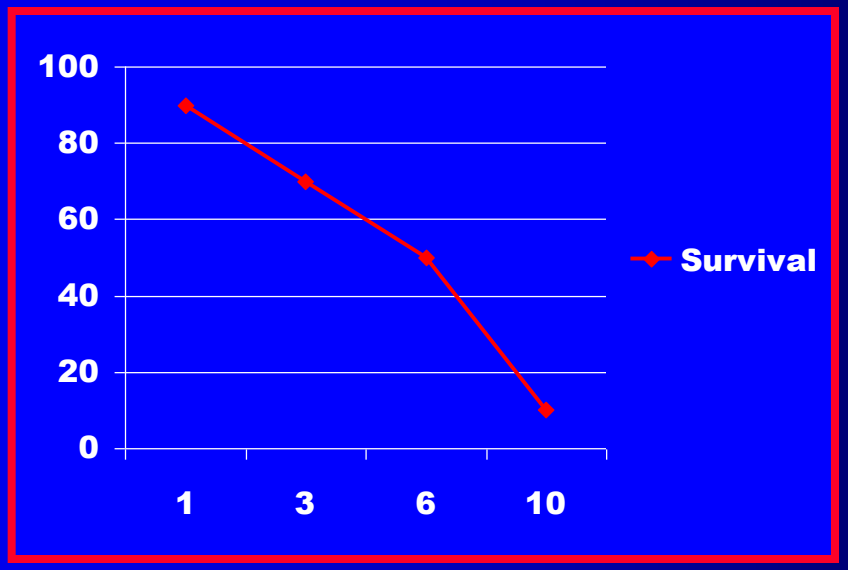


Ventricular Tachycardia

Defibrillation

- Can stop these rhythms and restore a pulse. But TIME is critical!

% survival



Minutes from collapse to first shock.

CPR can prolong, but not reverse VF/VT!

Defibrillation

Survival is affected by two time intervals:

1. Collapse to defibrillation
2. Collapse to CPR

Defibrillation

- Defibrillation is a higher priority then CPR
- If a defibrillator is available then it should be used as soon as it is known that the patient has no pulse
  - Search for a shockable rhythm
  - Find and shock as soon as possible

When to use an AED

Patients who are:

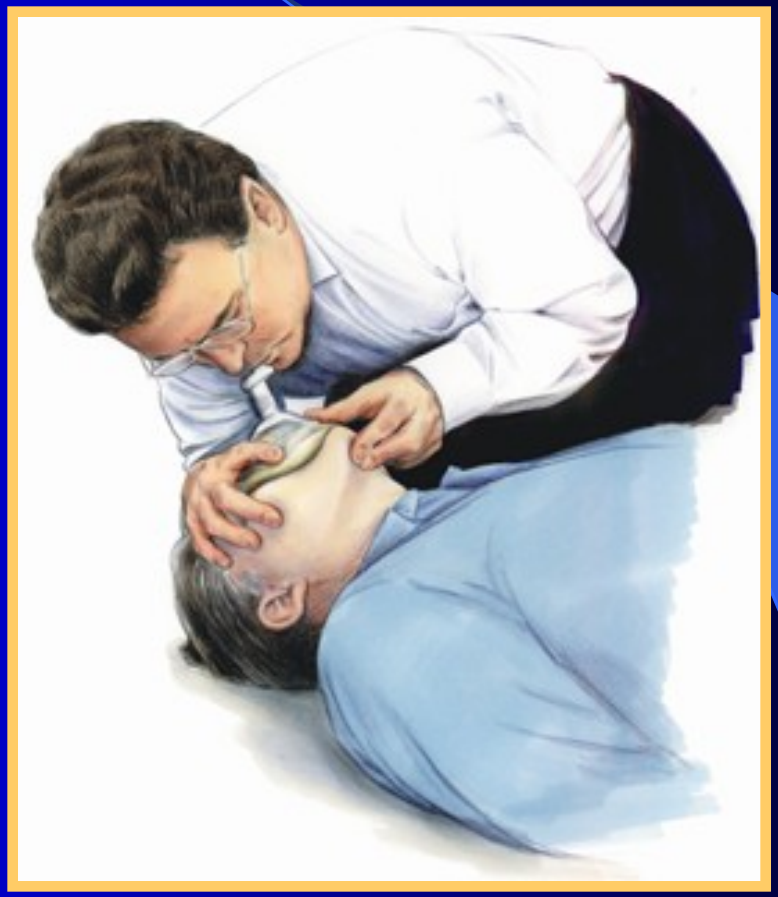
- Unresponsive
- Not breathing
- Without a pulse

Operation of AED

- Verify patient is in cardiac arrest
- Turn power on
- Apply electrodes
- Press to analyze-Stop CPR
- Follow screen messages and voice prompts

Priorities and the AED

A – Airway
B – Breathing
C – Circulation
D – Defibrillation



Special Considerations

- Is victim lying in water?
- Is victim wearing a transdermal medication patch on his or her chest?
- Does victim have a pacemaker or implanted defibrillator?

Special Considerations

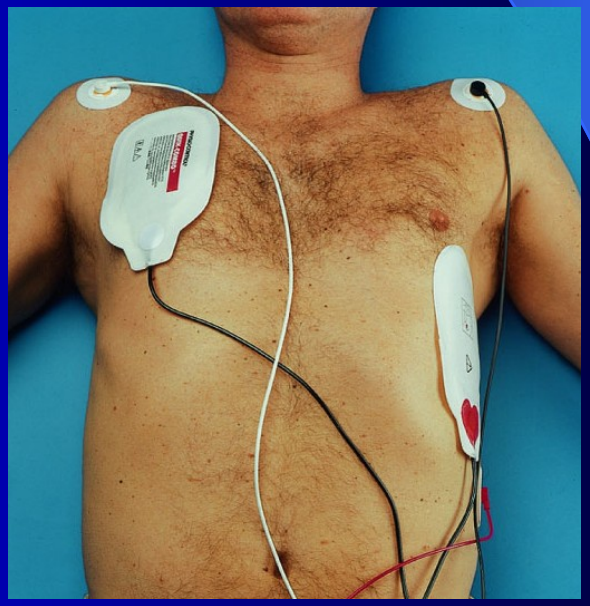
- Are you, or anyone else, in contact with the patient during defibrillation?
- Do not operate the defibrillator in a moving vehicle
- Do not use portable radios near the patient from

Manual Defibrillators

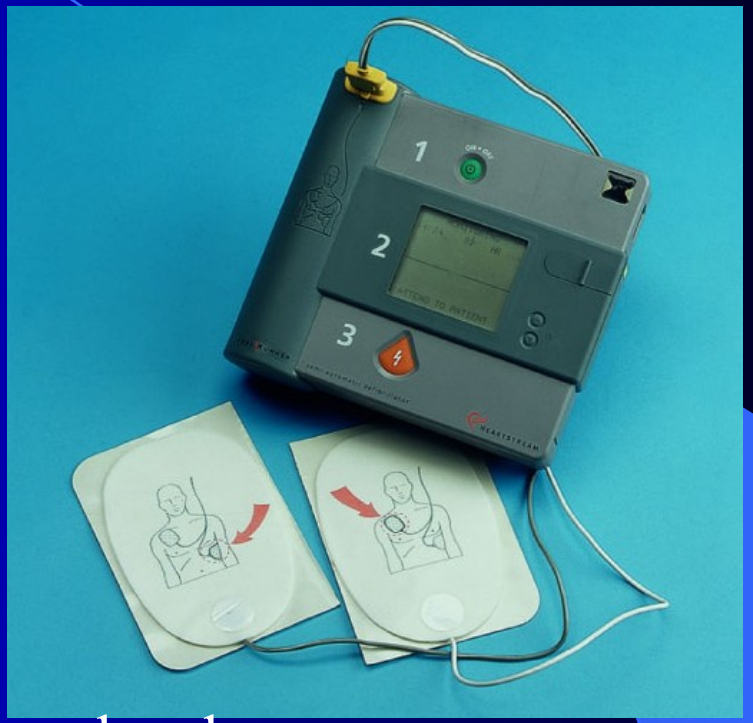
- ECG monitors/defibrillators/pacemakers
- Operator
  1. Analyzes the ECG
  2. Determines the need to shock
  3. Selects the energy levels to shock with
  4. Charges the machine
  5. Delivers the shocks
  6. Is responsible for time intervals between shocks
  7. Reassess all rhythm changes for continued need to shock

Manual Defibrillators

- Energy can be delivered through paddles placed on the chest or “defibrillation” pads that stick to the chest.



Automated External Defibrillators (AED's)



- Operator
  1. Turns on the device
  2. Applies the pads
  3. Follows directions
- AED
  1. Analyzes the rhythm
  2. Decides if shock is needed
  3. Selects the appropriate energy levels
  4. Times intervals between shocks
  5. Directs the operator on each step

AED During Resuscitation

2 Rescuers

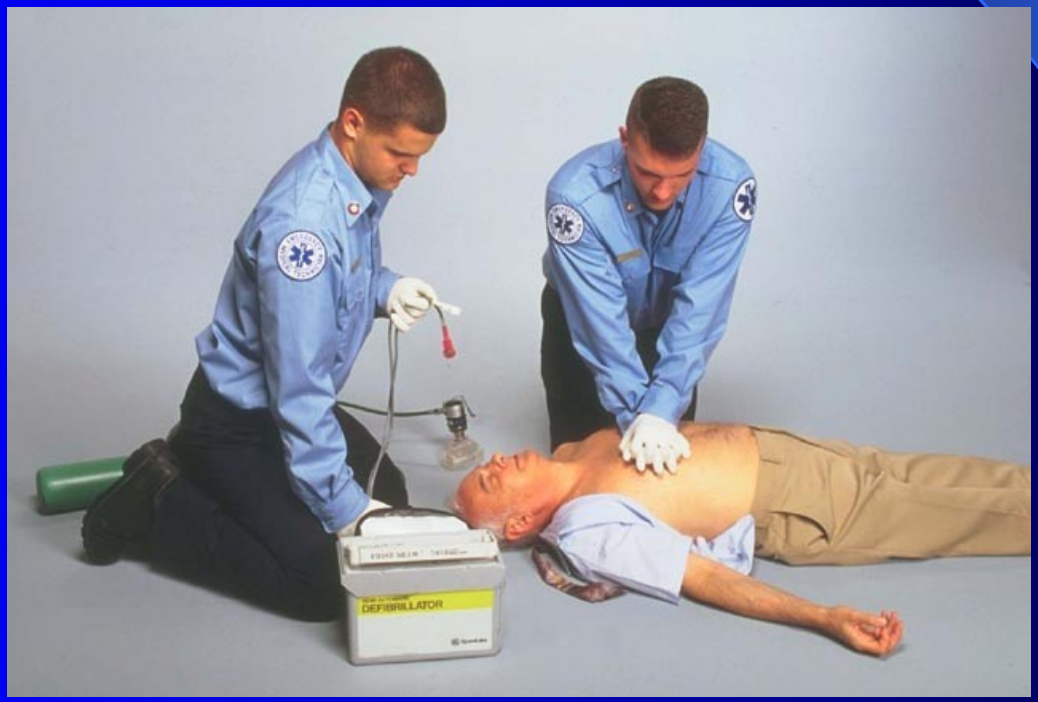
- Rescuer 1 performs initial assessment
  - Shake and shout
  - Open the airway
  - Check breathing
  - Check pulse
  - Begin 1 person CPR

AED With 2 Rescuers

- Rescuer 2 operates the AED
- Four steps
  1. Turn the AED on
  2. Apply the cable and pads
  3. Analyze the rhythm
  4. Clear and shock

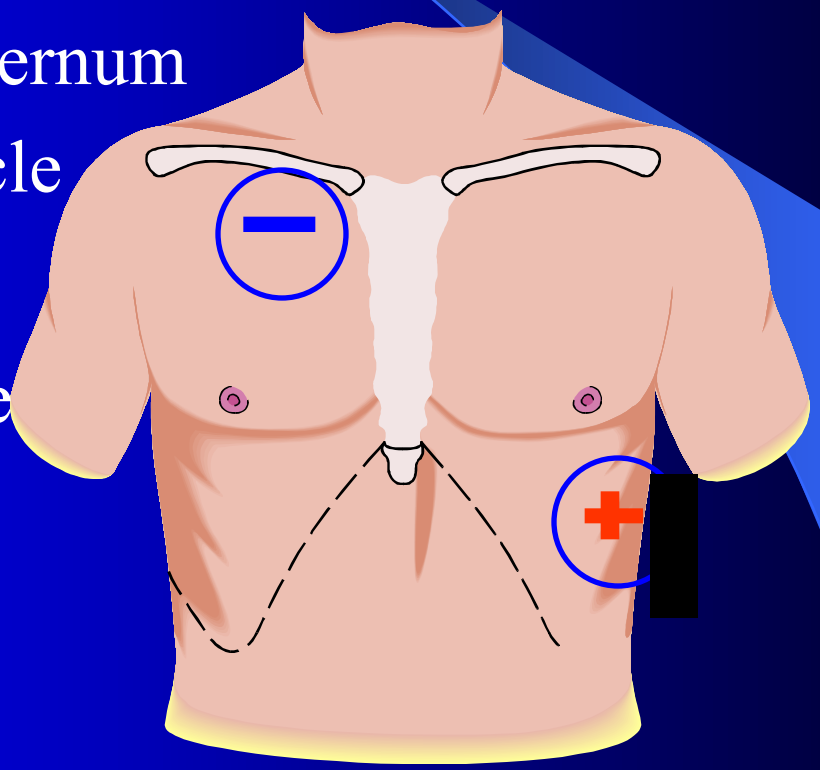
AED With 2 Rescuers

1. Turn the AED on
2. Apply the cable and pads



AED Pad Placement

- Right pad
  - Just to the right of sternum
  - Just below the clavicle
- Left pad
  - Below the left nipple
  - Midline of armpit



AED Pad Placement

- Make sure the pads stick well
  - Dry the skin if wet or very sweaty
  - May have to cut chest hair
  - Many machines will tell you "electrodes are not on" if contact is poor
  - Good contact is needed for effective shocks

AED With 2 Rescuers

3. Analyze the rhythm
   - Stop CPR
   - Make sure everyone is away from the patient

AED With 2 Rescuers

4. Clear and shock
   - If AED advises to shock
   - Clear everyone away
   - Wait for AED to charge
   - Then deliver 1st shock
   - Deliver 2nd and 3rd shocks if advised
   - Check pulse after 3rd shock

AED Safety

- No patient contact during analysis and shock
- Warn bystanders:
  - "I'm clear"
  - "You're clear"
  - "Everybody clear"
- Perform a visual inspection
- Press to shock

AED With 2 Rescuers

- When to conduct pulse checks?
  - Initial assessment
  - After AED advises “No Shock”
  - After AED delivers 3 consecutive shocks

AED With 2 Rescuers

- If no pulse
  - Resume CPR for 1 minute

- Then repeat rhythm analysis
  - Deliver shocks as directed
  - If no shock is indicated, check pulse
  - Resume CPR for 1 minute if no pulse

AED With 2 Rescuers

- If pulse is present
  - Check and support breathing
  - Continue oxygen
  - Recovery position if possible
  - Monitor pulse and breathing
  - Transport

2 Rescuer AED Summary

Rescuer 1

- Determines need and performs CPR
- Does not touch the patient during AED analyzation and shocks

Rescuer 2

- Applies and operates the AED
- Directs Rescuer 1 to clear the patient
- Follows direction of AED
- Assists with 2 person CPR when no shock and no pulse

1 Rescuer AED Summary

Single rescuer

- Determines need CPR
- Applies and operates the AED
- Performs CPR between AED analyzations

General AED Protocol

- Initiate CPR until the AED is ready
- AED analyzes rhythm
  - Deliver up to 3 shocks in rapid succession (stacked) if indicated
- Check pulse
  - Perform 1 minute of CPR if no pulse
- Repeat AED analyzation of rhythm

Shockable Rhythm – Sample Sequence

Initial assessment and delivery of shocks

- AED operator presses Analyze button
- AED advises Shock – 1
- AED automatically charges to correct energy level
- Operator assures safety and pushes Shock button

- AED Reanalyzes rhythm
- AED advises Shock – 2
- AED charges to correct energy level
- Operator assures safety and delivers Shock 2

- AED Reanalyzes rhythm
- AED advises Shock – 3
- AED charges to correct energy level
- Operator assures safety and delivers Shock 3

Shockable Rhythm – Sample Sequence

After delivery of initial 3 shocks

- **AED directs rescuers to check pulse**
- **Rescuers perform CPR for 1 minute**
- **AED prompts rescuers to Analyze**

↓

- **AED operator presses Analyze button**
- **AED advises Shock – 4**
- **AED charges to correct energy level**
- **Operator assures safety and delivers Shock 4**

↓

- **AED Reanalyzes rhythm**
- **AED advises Shock – 5**
- **AED charges to correct energy level**
- **Operator assures safety and delivers Shock 5**

Repeat this sequence for shock - 6

↓

- **AED directs rescuers to check pulse**
- **Rescuers perform CPR**

Shockable Rhythm – Sample Sequence

- **After delivery of second set stacked shocks**
  - **Many BLS protocols require transport with CPR monitoring occasionally for pulse**
  - **If the AED is used, the ambulance must be stopped**

Summary for Shockable Rhythm

- Initiate CPR
- Stop CPR for AED operations
- 3 shocks (as indicated)
- Pulse check and CPR 1 minute
- Stop CPR for AED operations
- 3 shocks (as indicated)
- Pulse check, CPR, transport

No Shock – Sample Sequence

AED operator presses Analyze button
AED advises No Shock
AED directs rescuers to check pulse

↓

Rescuers perform CPR for 1 minute
AED prompts rescuers to Analyze

↓

After 3 "No shocks" transport with CPR

Repeat twice for a total of 3 analyzations

If further analyzations are done

- **Perform after 2 or 3 minute intervals of CPR**
- **Stop the ambulance**

Summary for Non-Shockable Rhythm

- Initiate CPR
- Stop CPR for AED operations
- Following “No Shock”
- Pulse check and CPR 1 minute
- Repeat sequence 2 more times
- Pulse check, CPR, transport

Shock-No Shock – Sample Sequence

Initial Analyzation

AED operator presses Analyze button
AED advises Shock – 1
AED automatically charges to correct energy level
Operator assures safety, delivers Shock

AED automatically Reanalyzes rhythm
AED advises No Shock
AED directs rescuers to check pulse
Rescuers perform CPR for 1 minute

AED prompts rescuers to Analyze
AED advises Shock - 2
AED charges to correct energy level
Operator assures safety, delivers Shock

AED automatically Reanalyzes rhythm
AED advises No Shock
AED directs rescuers to check pulse
Rescuers perform CPR for 1 minute

AED prompts rescuers to Analyze
AED advises No Shock
AED directs rescuers to check pulse
Rescuers perform CPR for 1 minute

AED prompts rescuers to Analyze
AED advises No Shock
AED directs rescuers to check pulse
Rescuers perform CPR

Continue CPR and transport

Shock No-Shock Summary

- Check pulse after every No Shock
  - Perform CPR for 1 minute before reanalyzing
- Transport after 3 consecutive No Shocks
  - Perform CPR with occasional pulse checks enroute
  - If the AED is used enroute, stop vehicle

Shock with Return of Pulse

Initial Analyzation

- **AED operator presses Analyze button**
- **AED advises Shock – 1**
- **AED automatically charges to correct energy level**
- **Operator assures safety, delivers Shock**

- **AED automatically Reanalyzes rhythm**
- **AED advises No Shock**
- **AED directs rescuers to check pulse**

- **A carotid pulse if felt!**

Shock with Return of Pulse

- Check breathing
  - Adequate – provide oxygen
  - Inadequate provide rescue breathing
  - Keep the airway clear
- Begin transport
  - Place in recovery position if possible
  - Leave AED on
- Obtain vital signs
- If pulse is lost
  - Start CPR
  - Stop ambulance
  - Analyze with AED and follow its direction

BLS Cardiac Algorithm