

# Protecting Hearts

Managing and Participating in an AED Program

**ZOLL**®



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# Agenda

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- The elements of a rescue
- American Heart Association Guidelines
- Ten things to AVOID as an AED Program Manager
- Questions



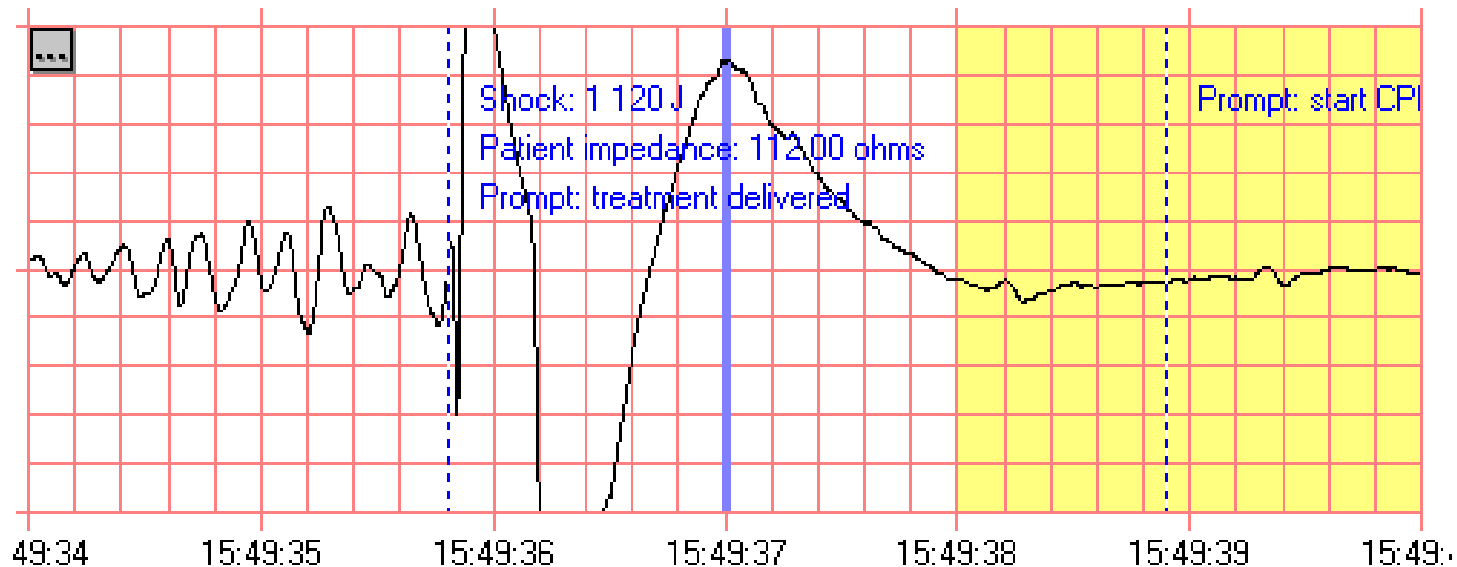
# From the top ...

- What is Cardiac Arrest?
  - ***Cannot be prevented – Strikes on its own***
  - A “heart seizure” – heart’s electrical system goes haywire
  - Victim becomes totally unresponsive
  - May look like a seizure
  - After a minute or two, looks DEAD!
  
- Different from heart attack
  - Blockage in heart (myocardial infarction) CAN lead to cardiac arrest



# What is an AED?

- Automated External Defibrillator
  - Can STUN the “haywire” heart with a shock
    - Allows it to re-organize itself



## HOW A SHOCK WORKS



# What is CPR?

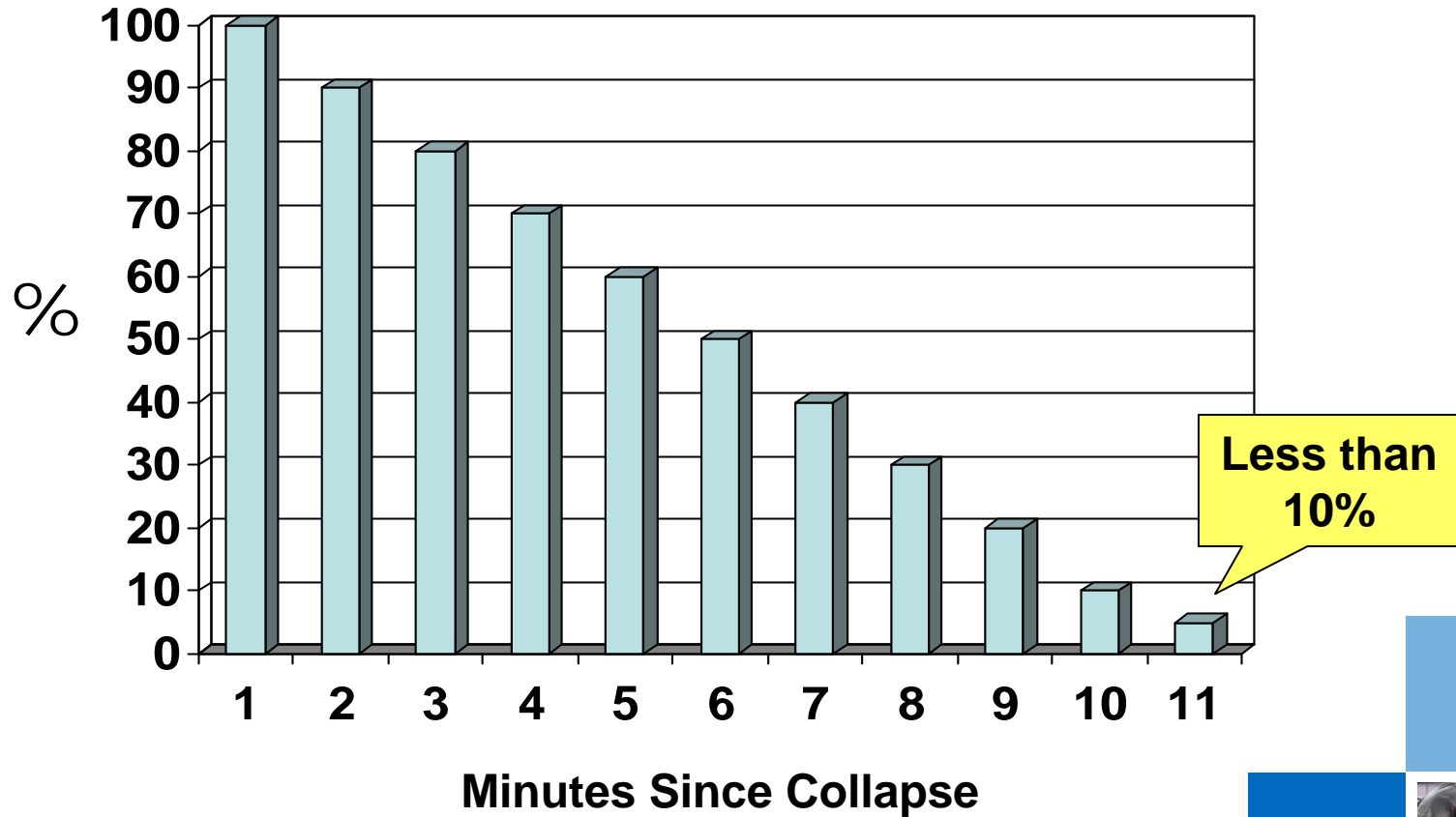
- **Cardio-Pulmonary Resuscitation**
  - “Heart-Lung” Resuscitation
  
- **Good CPR:\***
  - 100 chest compressions per minute
  - Chest compressions 1½-to-2 inches deep
  - 2 rescue breaths (mouth-to-mouth) after every 30 compressions

\* According to the **American Heart Association** (AHA)



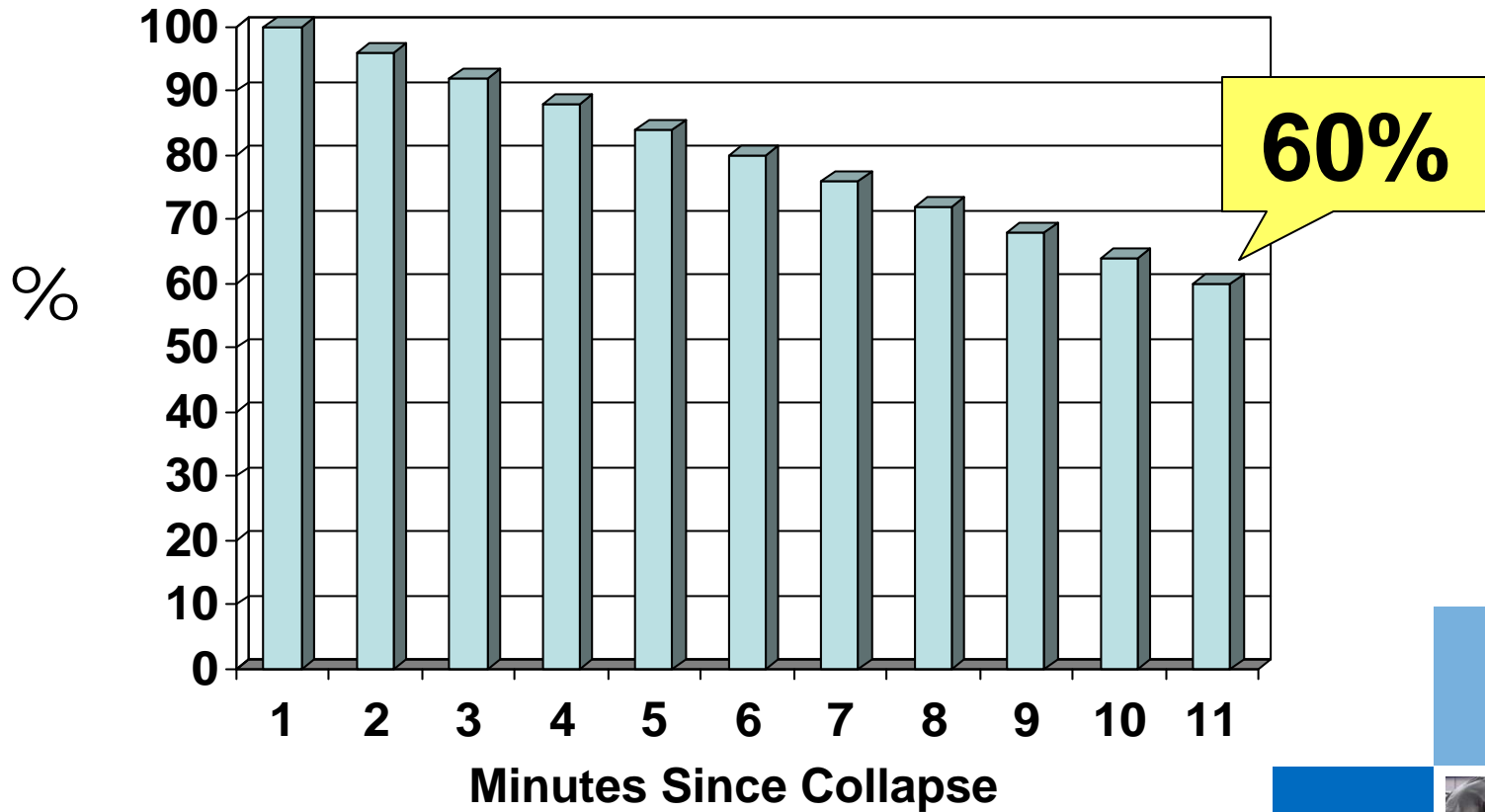
# Effect of NO CPR

## Resuscitation Probability (%)



# Effect of GOOD CPR

## Resuscitation Probability (%)



# How to save a life?

- An AED is not much good without CPR
  - Once you turn the key, ***STEP ON THE GAS!***

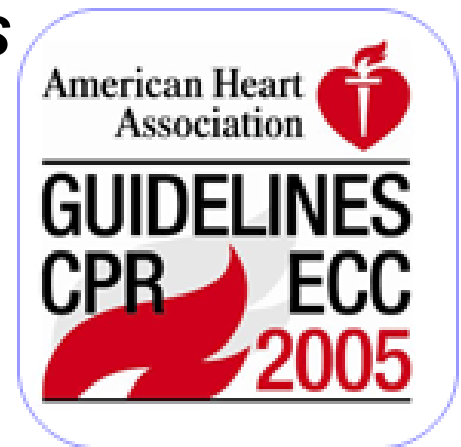


20 SECONDS AFTER THE SHOCK

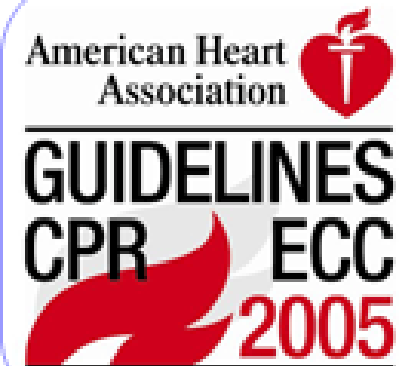


# AHA's Cardiac Care Guidelines 2005

- Radically modified the AED/CPR protocol
  - Before: **One** minute of CPR between heart analyses
  - **NOW: TWO MINUTES OF CPR**
  - Before: **15** chest compressions for every 2 rescue breaths
  - **NOW: THIRTY CHEST COMPRESSIONS**
  - Before: **Check** circulation
  - **NOW: NO CHECK FOR CIRCULATION**
  - Before: **Three** “stacked” shocks
  - **NOW: ONE SHOCK - THEN IMMEDIATE CPR**



# The AHA's BIG IDEA



- *MORE* CHEST COMPRESSIONS
  - Higher “COMPRESSION DENSITY”
- *FASTER* CHEST COMPRESSIONS
  - Get to 100 per minute
- *DEEPER* CHEST COMPRESSIONS
  - “Push FAST! Push HARD!”
- *MINIMIZE* INTERRUPTIONS



# Managing / Participating in a Program

- Ten Mistakes Every Program Manager Should **AVOID**
  - **DON'T** do these things
  - And you **INSURE** a quality program



# 1. Consider it a short-term project

- Be an INVESTOR and not a TRADER
  - Investing is ALLOCATING CAPITAL for the long-term
  - Trading is SPECULATING for the short-term
- Time to establish program: 90 days
- Investment time horizon: TEN YEARS
  - A rescue, however, will only take 20 minutes!
  - CRITICAL part: **FIRST FIVE MINUTES**



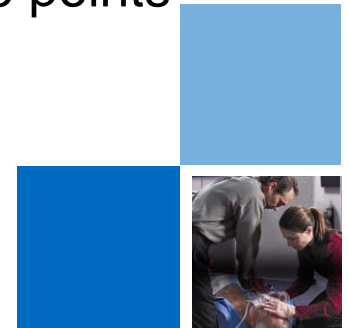
## 2. Focus on AED and NOT Training

- Rescuers save victims of cardiac arrest
  - **NOT** AEDs
- Rescuers NOT well-trained?
  - Won't much matter what AED you have
- Rescuers ARE well-trained?
  - The AED's SHOCK may save the victim.



# 3. Ignore need for high-quality CPR

- Half of all rescues using an AED, START with CPR
  - Do it well, and next heart analysis may find a shockable heart
- AEDs do NOT REPLACE CPR!
- 1.5 million AEDs now installed in US
  - But survival has increased only a few percentage points



# 4. Train but don't explain

- Understand **WHY**
  - To help remember **WHAT** to do and **HOW** to do it
- Electrode pads:
  - Must make **good contact**
  - Must put heart **between** them
- What CPR does
  - **EVACUATES** BLOOD from heart
  - Supplies BLOOD to **BRAIN**
  - Supplies BLOOD to **HEART**



# 5. Fail to schedule and track training

- AHA certification:
  - Requires re-training every TWO years
  - Recommends ratio of ONE instructor for every SIX students
- Track it!
  - Who is assigned to a given AED?
  - What is their current training status?
- Good training:
  - Refresher training available between certifications
  - On-site practice drills with instructor critique



# 6. Fail to train **EVERYONE** minimally

- **EVERYONE** in the enterprise should **know**:
  - What cardiac arrest looks like
  - Number to call for an ambulance (911?)
  - What an AED does
  - Where the AEDs are
  - Who is trained to use them
- **EVERYONE** should be **encouraged to try**:
  - Calling 911(or assigned number)
  - Pushing hard and fast on the center of the chest
    - FORGET BREATHING, just **PUSH!**



# 7. Purchase a “single-product” AED

- AED manufacturers **can** go out-of-business
  - Access Cardio Systems, Inc.
- Well-established manufacturers:
  - In business more than ten years
  - AEDs only part of their total business
- The “Big 4”
  - Cardiac Science
  - Philips
  - Physio Control (Medtronic)
  - ZOLL Medical



# 8. Ignore Total-Cost-of-Ownership

- Downstream costs *will* add up
  - Time horizon: 10 years
- Replacement batteries and electrode pads
  - 10 year cost: **\$200 to \$1,000**
- Re-training
  - 10 year cost: 10 people per AED every two years = **50**
  - \$40 per person per class
  - **TOTAL 10 YEAR COST: \$2,000**



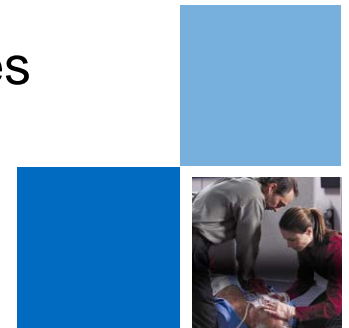
# 9. Ignore rescue accessories

- Rescues can get messy and confused
- Don't improvise without the right tools
- Tools:
  - Protective gloves
  - Scissors
  - Paper towel
  - Razor
  - Barrier mask



# 10. Ignore psychological residue

- In the days (weeks and years) following a rescue attempt, expect MEMORIES
- Victim **saved**? GOOD memories
  - This is a great place to be
  - Safe as an airport
  - Safer than at home
- Victim **died**?
  - Rescuers did all they could? GOOD memories
  - Rescue *not attempted* or *bungled*: BAD memories



**Heroes aren't born...**



# The Rules are Universal

1. **LONG**-term project
2. Focus on **TRAINING**
3. Focus on **DETAILS**
4. Train and **EXPLAIN**
5. **SCHEDULE** and **TRACK** training



# The Rules are Universal

6. **EVERYONE** must be minimally trained
7. Use **WELL-ESTABLISHED** equipment
8. Consider **ALL THE COSTS**
9. Provide **ALL THE TOOLS** needed
10. Consider **AFTER-EFFECTS**



# Questions?

# THANK YOU



## Ten Mistakes

Every AED Program Manager Should Avoid.

