



# Cardiac Emergencies

PRESENTED BY:

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PRESIDENT – TEAM LIFE, INC.

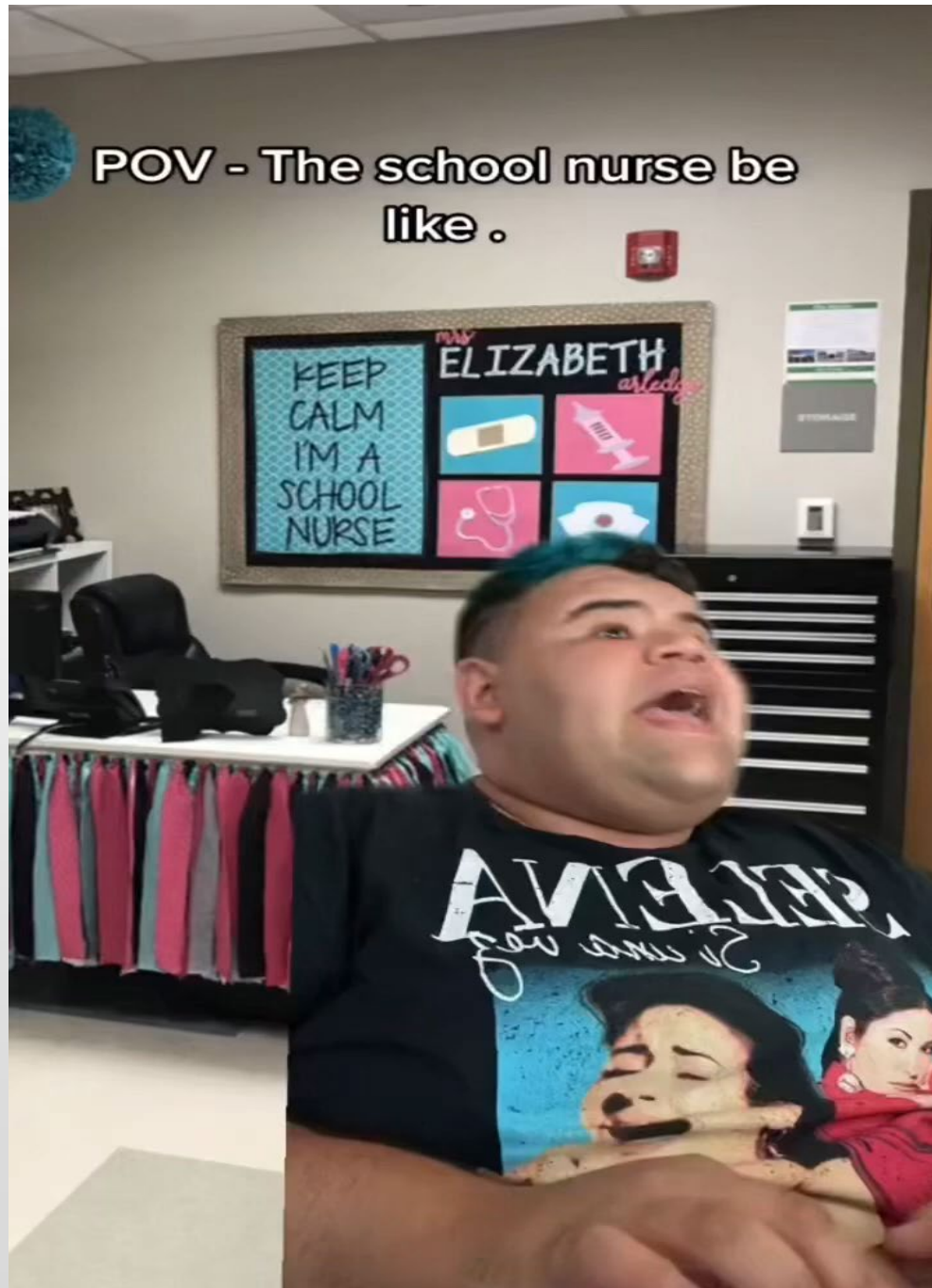


**James Schatzle**  
**TEAM LIFE, Inc.**  
**Paramedic, Founder & President**



- Proud Dad of 2 Sons
- 42 Years in Emergency Services: EMT, Firefighter, Paramedic
- UMBC: interned at Johns Hopkins and Shock Trauma Center
- Founded TEAM LIFE in 1994
- Adjunct Faculty Seton Hall University – School of Health & Sciences
- Former Mayor Colts Neck Township
- Master of Arts Candidate in Happiness Studies – Centenary University





## Day in the Life of a School Nurse

# Real Day in the Life of a School Nurse

<b>Assessment</b>	<b>Documentation</b>	<b>Social Work</b>	<b>Negotiator</b>
<b>Diabetic Educator</b>	<b>School Policies</b>	<b>Psychology</b>	<b>Students</b>
<b>Ortho Expert</b>	<b>State Policies</b>	<b>Compassion</b>	<b>Parents</b>
<b>Asthma Expert</b>	<b>CDC Policies</b>	<b>Disciplinarian</b>	<b>Teachers</b>
<b>Dermatology Expert</b>	<b>Local Board of Health</b>	<b>Educator</b>	<b>Administration</b>
<b>Gastrologist Expert</b>	<b>Sports Physicals</b>		<b>Board of Education</b>
<b>Seizure Expert</b>			<b>Family</b>
<b>CARDIAC EXPERT</b>			<b>EMS</b>

# Cardiac Emergencies - Assessment

- **ADULT**
  - **Stable vs. Unstable**
    - Chief Complaint
    - Event
    - Onset
    - Heart Rate
    - Blood Pressure
    - Respiratory Rate
    - Skin – Color, Temperature, Condition
    - History
    - Diagnostic Equipment



# Cardiac Emergencies – Vital Signs

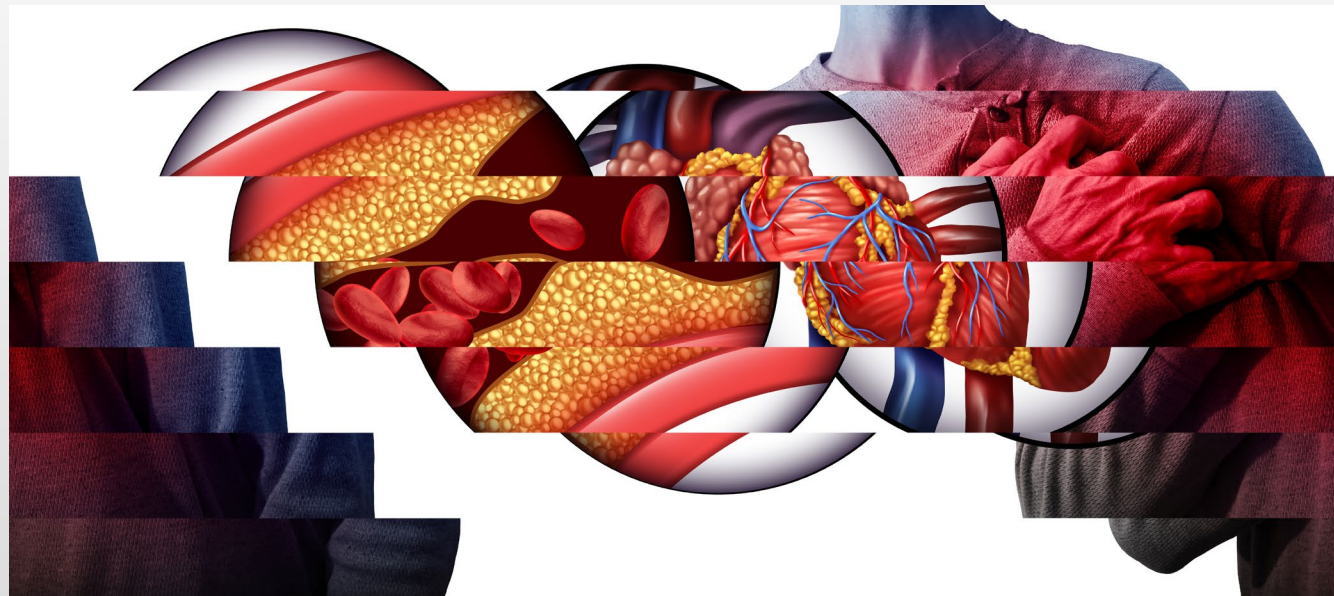
- **Adult**
  - Heart Rate                    **60 - 100**
  - Respiratory Rate            **12 - 20**
  - Blood Pressure              **110/70**
  - Skin                            **Warm, Dry, Normal**
  - Pupils                         **PEARL**
  - Pulse Oximetry              **> 94%**
  - Temperature                 **98.6 F**

Vital Sign Ranges			
Age-Appropriate Vital Signs			
	Heart Rate	Respirations	Blood Pressure
Newborn	80-180	30-60	60-80/30-60
Toddler	80-110	24-32	90-100/50-65
School Age	60-110	18-26	95-110/55-70
Adolescent	50-90	16-20	110-120/60-80
Adult	60-100	12-20	110-140/60-90

Age-Appropriate Vital Signs

# Cardiac Emergencies – Treatment – Adult (AHA)

## Chest Pain - MI



- Adult
- Conscious / Responsive
  - Chest Pain
    - Nitro Tab 0.4 mg Systolic over 100
    - ASA 324 Mg
    - Oxygen if pulse ox under 94%
    - 12 Lead ECG
    - IV
    - Morphine
    - Transport to Cath Lab (STEMI)



# Cardiac Emergencies – Treatment – Pediatric (AHA)

## Rate Issues – Bradycardia

- **Bradycardia**

- **Stable**

- **12 Lead ECG**

- **Underlying Causes (H's & T's)**

- **Bradycardia Persists**

- **IV**

- **Epinephrine 0.01mg/kg**

- **Atropine 0.02mg/kg**

- **External Pacing**

- **H's & T's**

- **Hypoxia**

- **Hypovolemia**

- **Hypothermia**

- **Hydrogen ion (acidosis)**

- **Hypo / Hyperkalemia**

- **Hypoglycemia**

- **Toxins**

- **Tension pneumothorax**

- **Tamponade, cardiac**

- **Thrombosis, pulmonary**

- **Thrombosis, coronary**

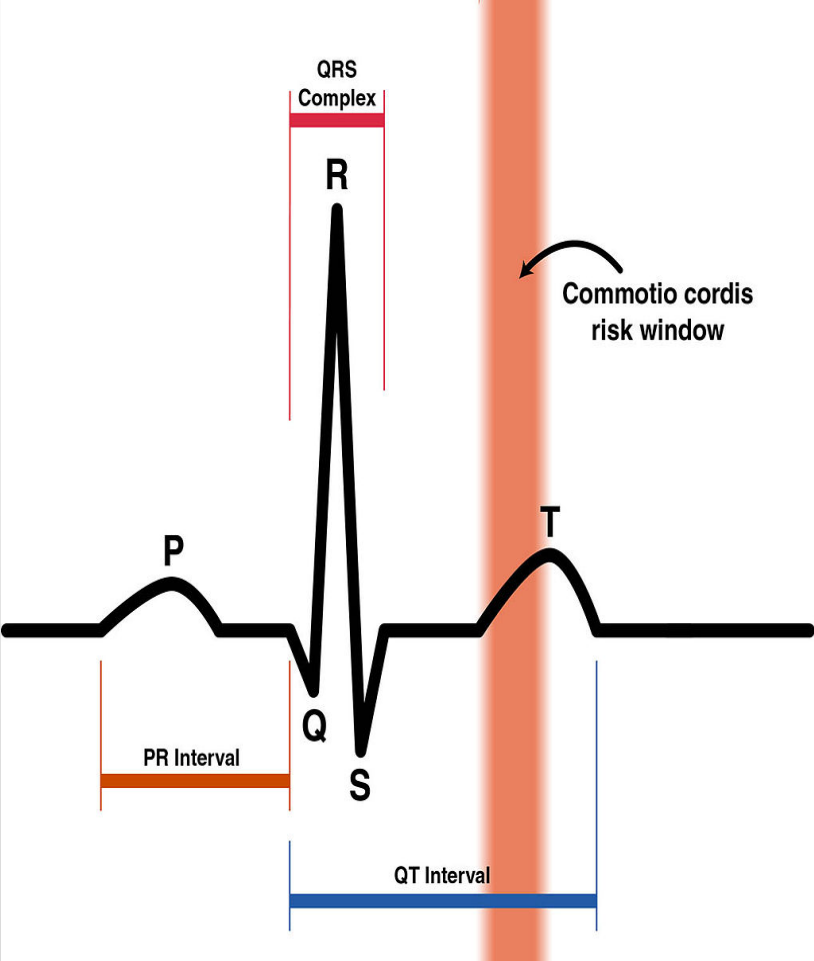


# Cardiac Emergencies – Treatment – Pediatric (AHA)

## Rate Issues – Tachycardia

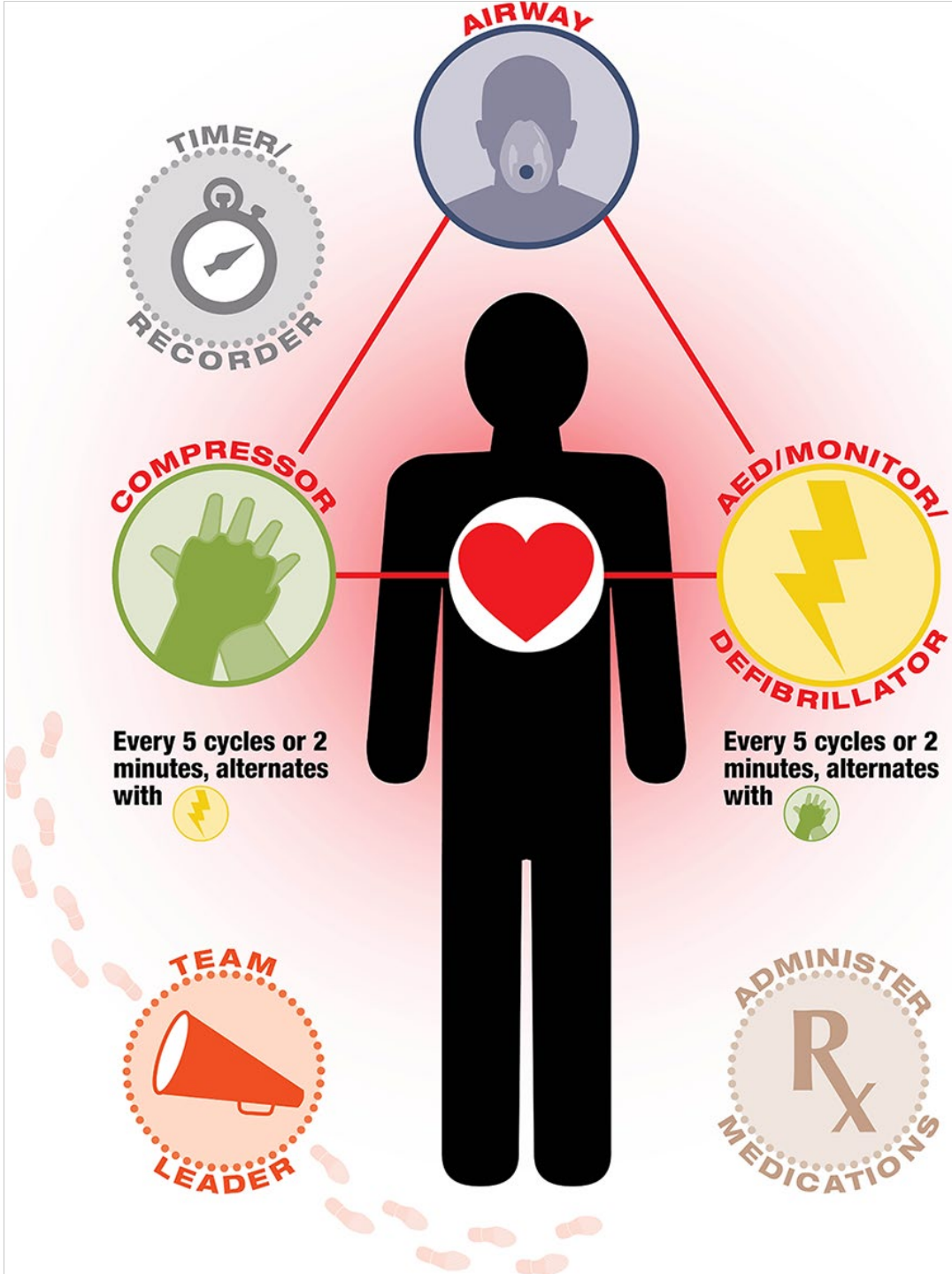
- **Tachycardia**
  - **Stable**
    - **12 Lead ECG**
    - **Causes**
    - **Vagal Maneuvers**
    - **IV**
    - **Adenosine**
- **Tachycardiac**
  - **Unstable**
    - **12 Lead ECG**
    - **IV**
    - **Synchronized Cardioversion**

# Commotio Cordis



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# Cardiac Emergencies Sudden Cardiac Arrest

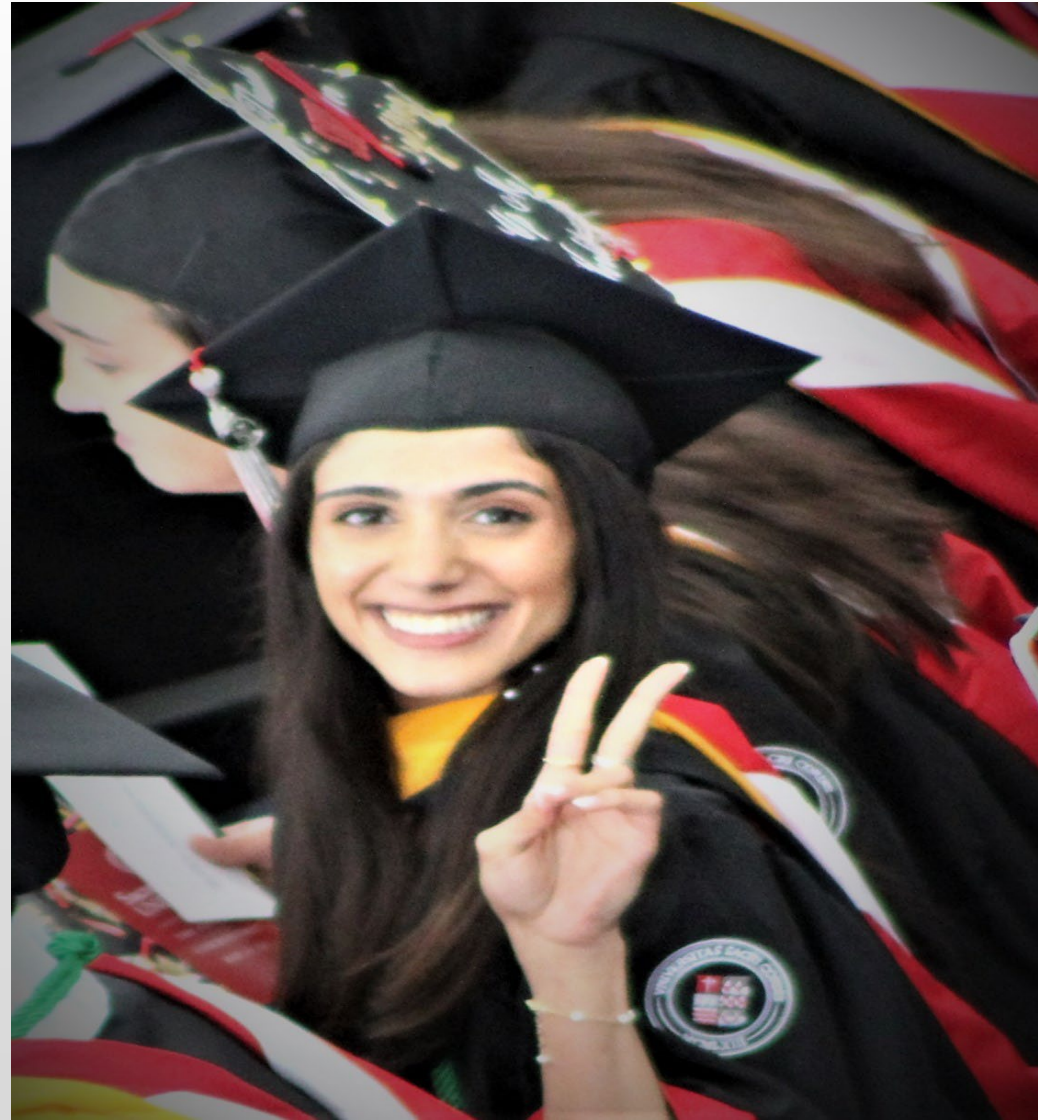
More than 5000 children experience out of hospital SCA each year in the United States.

[www.ahajournals.org/doi/full/10.1161/circulationaha.111.071472](http://www.ahajournals.org/doi/full/10.1161/circulationaha.111.071472) 2012





# Introduction of Sarah Magaldo



# CHAIN OF SURVIVAL



Recognition and activation of the emergency response system

Immediate high-quality CPR

Rapid defibrillation

Basic and advanced emergency medical services

Advanced life support and postarrest care



**American Heart Association**

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# RECOGNITION AND ACTIVATION OF THE EMERGENCY RESPONSE SYSTEM

## What Happens When You Call 911?

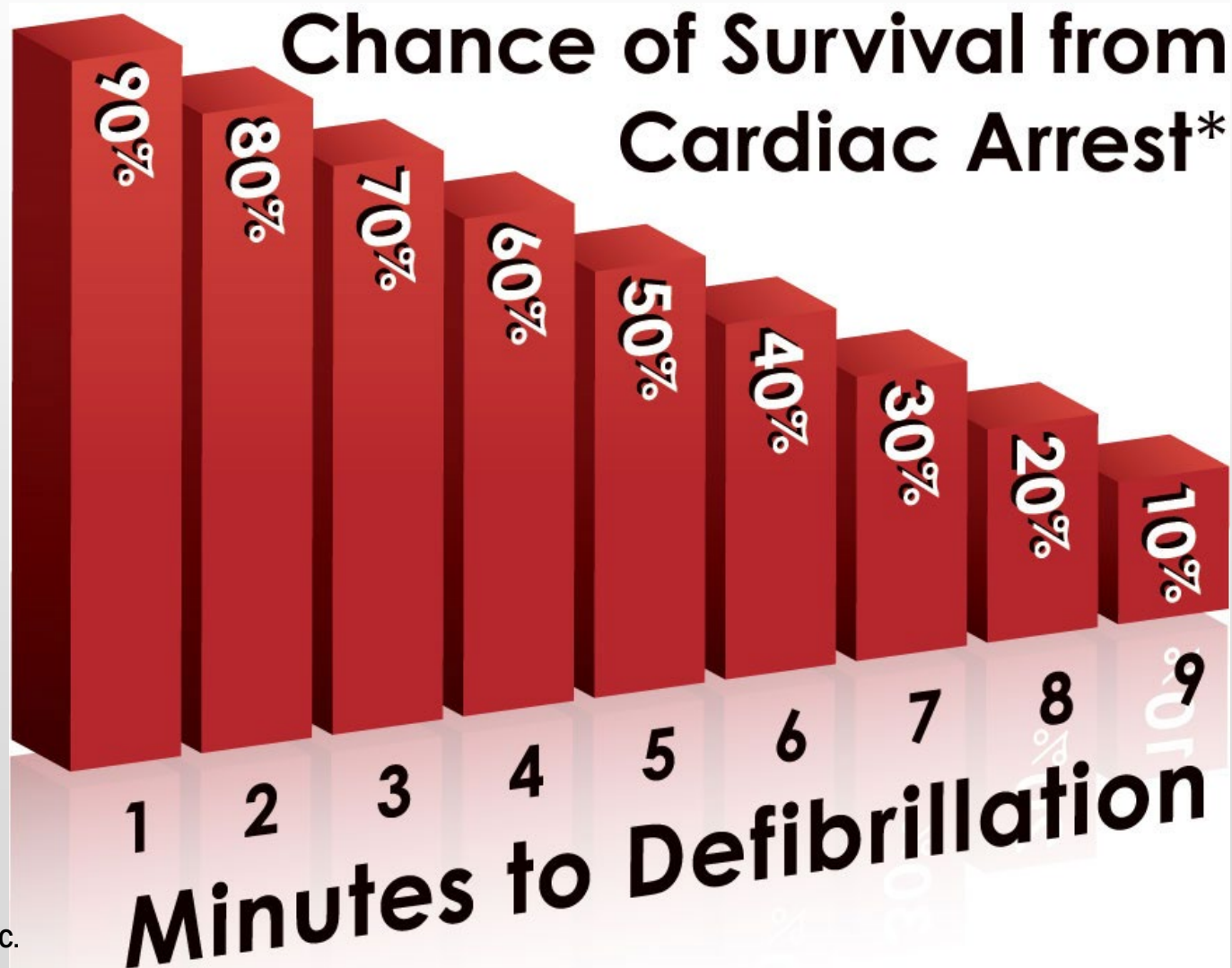
Best Case Scenario

Identify emergency/ Activate emergency response plan	30 seconds
911 call	1 minute
Alert ambulance and rescue squads (dispatch)	30 seconds
Responders to their units	30 seconds
Travel time to location	5 minutes*
Unload equipment/ Distance to patient	2 minutes
Assess patient/ Apply defibrillator/ Deliver shock	1.1 minutes**
<b>TOTAL</b>	<b>10.6 minutes</b>

\*Travel time varies depending on weather, traffic, distance (vertical and horizontal), and ambulance (with defibrillator capability) availability.

\*\*Cummins RO, et.al. Automatic external defibrillators used by emergency medical technicians: a controlled clinical trial. JAMA. 1987; 257:1605-10

# RAPID DEFIBRILLATION





# AUTOMATED EXTERNAL DEFIBRILLATOR (AED)



# AED IMPLEMENTATION PLAN

- Medical Oversight
- Inform Your Local EMS
- Choose An AED
- Check Technical And Program Support
- Determine How Many AEDs Are Needed – Inside & *Outside*
- Place Your AEDs In A Visible And Accessible Location
- Develop A Training Plan
- Raise Awareness Of The AED Program
- Ongoing Routine Maintenance

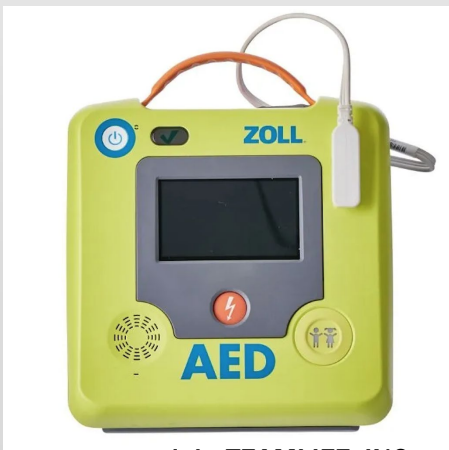


# AED IMPLEMENTATION PLAN

## Which AED?

When you are selecting your device it is extremely important that you look at all the AEDs available and what unique features they may have.

Be cautious of how old their medical technology is.



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# AED IMPLEMENTATION PLAN

## Check Technical And Program Support

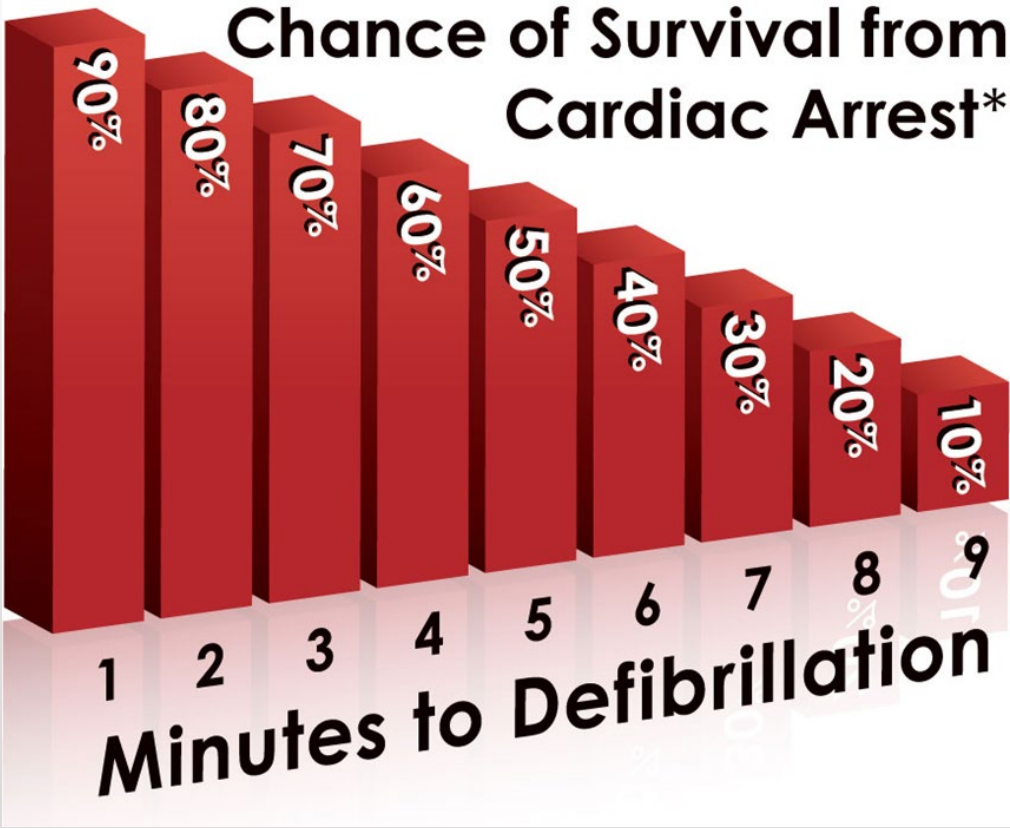


- Beyond shipping you a box
- On-Going Support
- Upgrades
- Post Rescue



# AED IMPLEMENTATION PLAN

## Determine How Many AEDs Are Needed



# AED IMPLEMENTATION PLAN

## Ongoing Routine Maintenance

1. Check Your Status Indicator
2. Change Your Pads (when required)
3. Change Your Battery (when required)
4. Service Plans



- ***Never remove the battery because it is beeping, there is a reason, check the AED, if needed make the call***

# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) TYPES



# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) FEATURES

**Automatic**



**Semi-Automatic**





# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) FEATURES



# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) FEATURES



## Data Transfer

- USB Flash Drive
- Direct Connect Cable

# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) FEATURES

## Intellisense Defibrillation Pads



# AUTOMATED EXTERNAL DEFIBRILLATOR (AED) FEATURES



## PADS

- **Non-Polarized**
- **Biphasic**
- **Pre-Connected**
- **Energy Delivered**





# EXTENDING THE LIFE OF YOUR AED

## AED Storage



# EXTENDING THE LIFE OF YOUR AED

## AED Storage



### **Weather Proof Case with Stand**

**Winter, Spring,  
Summer and Fall –  
leave your AED out  
365 Days a year**

# The AED world in 2023

- **AEDs need to be updated**
- **Feedback Device should be part of your AED**
- **Dual Language should be part of your AED**
- **Supply Chain issues**
- **Discontinued AED and Accessories**
- **Fixed energy units**
- **Lead times for AEDs**

# Timing

- **Now is the Time to Upgrade your AEDs**
- **Now is the Time to expand your AED program**
- **Now is the Time to expand your CPR trained staff**
- **Now is the Time to get Outdoor AEDs**
- **Now is when you as inside Champion have the attention this has always deserved**



# TEAM LIFE – School Clients

Colts Neck schools  
Eatontown Schools  
Farmingdale Schools  
Fairhaven Schools  
Freehold Boro  
Freehold Township  
Freehold Regional High  
Schools  
Neptune schools  
Howell schools  
Matawan-Aberdeen  
schools  
Hazlet schools  
Keansburg schools

Keyport schools  
Little Silver Schools  
Long Branch Schools  
Manasquan schools  
Monmouth Regional HS  
Middletown Schools  
Ocean twp schools  
Oceanport schools  
Red bank schools  
Rumson Schools  
Tinton falls schools  
Shore Regional HS  
Union Beach Schools  
MOES  
Avon by the sea schools  
Brielle schools  
Brookdale University  
Monmouth UniVersity

St. Rose  
St. Veronicas  
CBA  
RBC  
Trinity Hall  
St. John Vianney



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# References

- [www.ahajournals.org/doi/full/10.1161/circulationaha.111.071472](http://www.ahajournals.org/doi/full/10.1161/circulationaha.111.071472)
- American Heart Association 2020 Handbook of Emergency Cardiovascular Care for Healthcare Providers
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