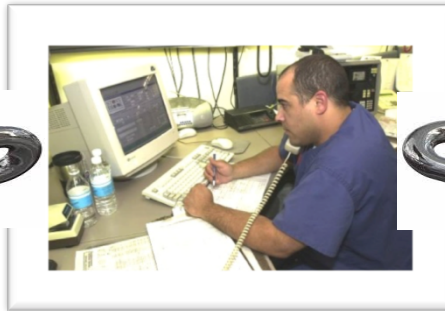




Stony Brook Medicine

Prehospital Resuscitation for the 21st Century



Edward R. Stapleton, EMT-Paramedic
Associate Professor of Emergency Medicine
Department of Emergency Medicine
School of Medicine
Stony Brook University



Suffolk County Data

- 1.5 Million People
- 912 square miles
- Approximately 90 miles long
- Approximately 30 miles wide
- 105 Ambulance Service
- **Almost 1,000 OOH cardiac arrests per year**
- **3.0 -4.4 % Cardiac Arrest Survival Rate for Over 20 Years!**



Suffolk County vs. Seattle 2012

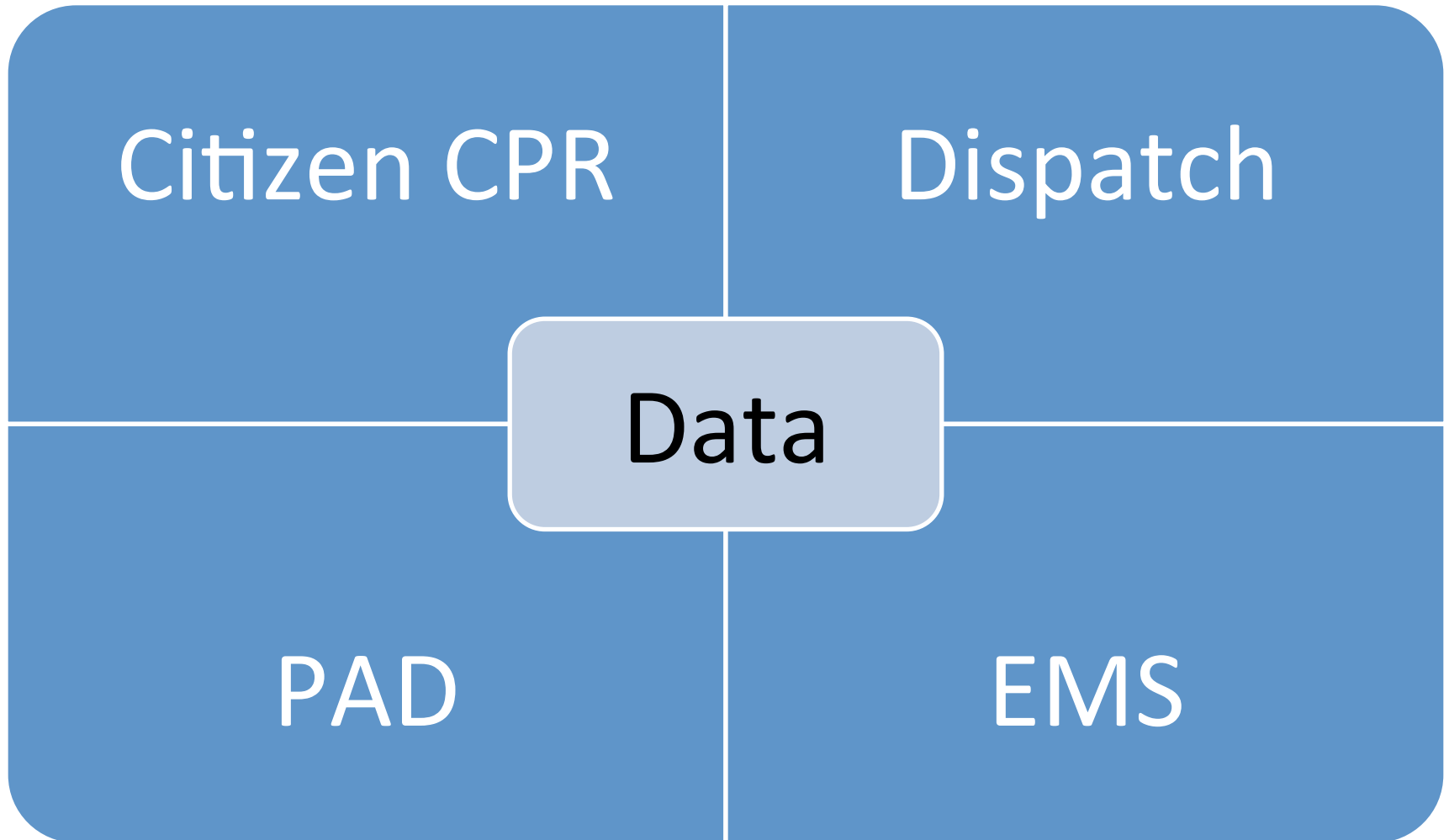
- **In multiple studies:**
 - Bystander CPR increases survival by 2-3 Fold
- **Suffolk Out of Hospital Survival for two decades**
 - 3.0% - 4.4%
- **Suffolk Bystander CPR rate**
 - **19%**
 - Unknown number of persons trained
- **Seattle Bystander Rate of CPR**
 - 70%
 - 60% of the population is trained in CPR





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Areas of Evaluation/Action





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Program Emphasis

Community CPR and AED **Perfusion through quality chest compressions**

Guided by physiologic data

Use of mechanical CPR

Minimal interruption of chest compressions

During defibrillation

During intubation and other procedures

Control of ventilation rates

Meticulous teamwork

Importance of quality post resuscitation care

Therapeutic Hypothermia

PCI

Sponsored by



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Department of
Emergency Medicine



Registration Form

Name

Certification Level

☐ EMT ☐ EMT-CC ☐ EMT-P

Email address

Daytime Phone Number

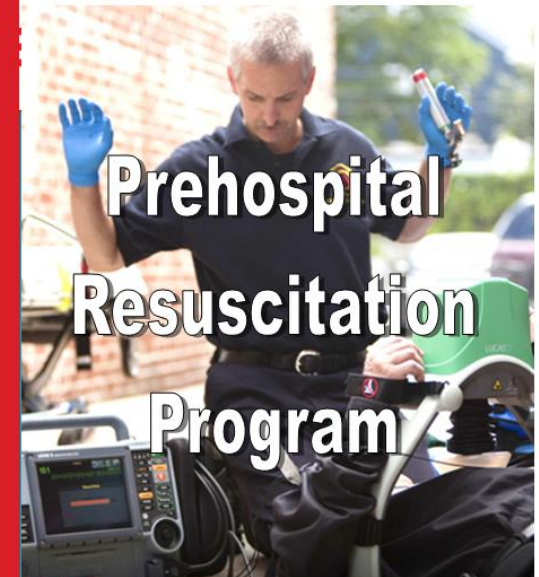
Return form to John Martens.

This program has been approved
for 3.0 hours of Non-Core CME for
all NY State Certified
EMS Providers.

STONY BROOK

Stony Brook Medicine
Department of Emergency Medicine
Level 4, HSC, Room 080
Stony Brook, NY 11794-8350

Phone: 631-444-7687



Prehospital Resuscitation Program



Stony Brook Medicine

**for the
21st Century**



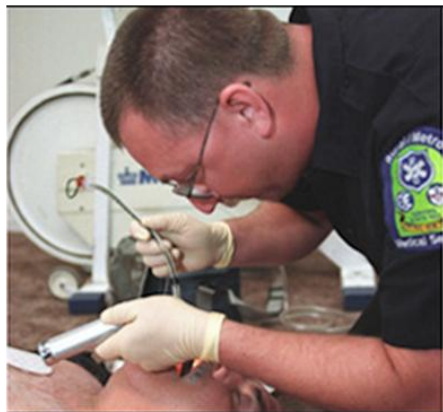
Light Dinner will be provided.



Prehospital Resuscitation Program for the 21st century

Improving Outcomes

Stony Brook University Medical Center is in the process of developing a Comprehensive Resuscitation Program to assure the greatest chance for survival for Sudden Cardiac Arrest Patients transported to our Stony Brook by local EMS services.



This includes: use of mechanical CPR, cerebral perfusion monitoring new and innovative monitoring strategies, use of ultrasound for differential diagnosis and many other cutting edge strategies.

Collaboration

We are cordially inviting our local EMS Services to be an important part of this innovative revolution! True success requires a systems approach that includes: Dispatch; EMS Care; Emergency Department and Intensive Care; and Cardiac Interventional Techniques.



Evidence-Based

New and exciting developments have occurred in the world of Prehospital Resuscitation to enhance cardiac arrest outcome.

This 3.5 hour program will integrate the key principles of management of cardiac arrest in the prehospital setting including hands-on practice in a modern simulation environment.

Faculty

The faculty for the program will include physicians who are Board Certified in Emergency Medicine, Anesthesiology, and Intensive Care.



Program

- Review of the Latest Science of Resuscitation
- Demonstration and Practice with Mechanical CPR
- Video Presentation: EMS Code Management
- Monitoring During Cardiac Arrest with ETCO₂ and Cerebral Perfusion Monitor
- Use of Therapeutic Hypothermia in Prehospital Care
- Simulation Practice in Code Management
- Introduction to the use of Ultrasound in Cardiac Arrest

Position # 1



COMPRESSOR

PATIENT'S RIGHT SIDE

- ✓ Assess patient (all pulse checks)
- ✓ Initiate Compressions
 - 100/minute, 2 inches
 - Alternate with Position 2 every 2 minutes
- ✓ Assist, when not compressing:
 - Airway and Ventilations
 - Advanced airway preparation
- ✓ Start IV access and administer meds (3-Person Crew)

Position #2



COMPRESSOR/ELECTRICAL

PATIENT'S LEFT SIDE

- ✓ Operates AED/ALS Monitor
- ✓ Alternates compressions with Position 1
- ✓ Monitor ECG for Rhythm Changes
- ✓ Delivery of electrical Therapy:
 - Defibrillation
 - Cardioversion
 - Pacing

Position #3



AIRWAY

BEHIND PATIENT'S HEAD

- ✓ Initial Assessment of Airway Patency
- ✓ Opening of Airway with adjuncts (OPA/NPA)
- ✓ Ventilation of Patient
- ✓ Advanced Airway Placement (EGD,ET)
- ✓ ITD and Capnography set-up
- ✓ Continuous Monitoring of ETCO2 to guide perfusion and airway position

Position # 4



IV/I/O MEDICATIONS

PATIENT'S RIGHT LEG

- ✓ Prepare access during first round of compressions
- ✓ Gain vascular access after 1st shock or confirmation of non-shockable rhythm
- ✓ IV (Right arm) or I/O (Right Tibia or Humerus)
- ✓ Prepare at least two rounds of drugs
- ✓ If possible, serve as recorder

Position #5

TL

CODE TEAM LEADER

AT FOOT OF PATIENT ON RIGHT SIDE

- ✓ Assess and plan treatment of patient
- ✓ Use entire team for constructive feedback
- ✓ Strong and steady
- ✓ Monitor VS, ECG, ETCO2 and SPO2
- ✓ Plan for transport and destination
- ✓ Serve as recorder.

Position # 6

FL

FLOAT

AVOID LOCATIONS OF ACTIVE PROVIDERS

- ✓ Observe all positions, and be ready to assist as needed
- ✓ Act as recorder and/or supply person
- ✓ Do not assume any task unless directed by the Code Leader

Our Model for Today:

- Understand –Why?
- Adapt – How?
- Integrate – When?



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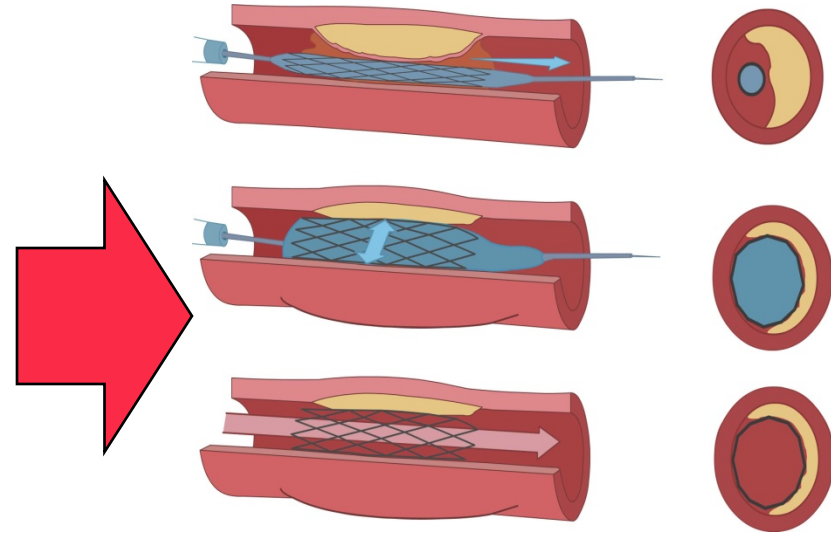
Ultrasound “The Enlightening Carrot”



Therapeutic Hypothermia



Door to Balloon 2013



183 Code H cases through our ED January 1, 2013 – December 31, 2013

**1st EKG
performed
in Hospital**



100 Cases

54.6%

**1st EKG
performed
Prior to
Arrival (PTA)**



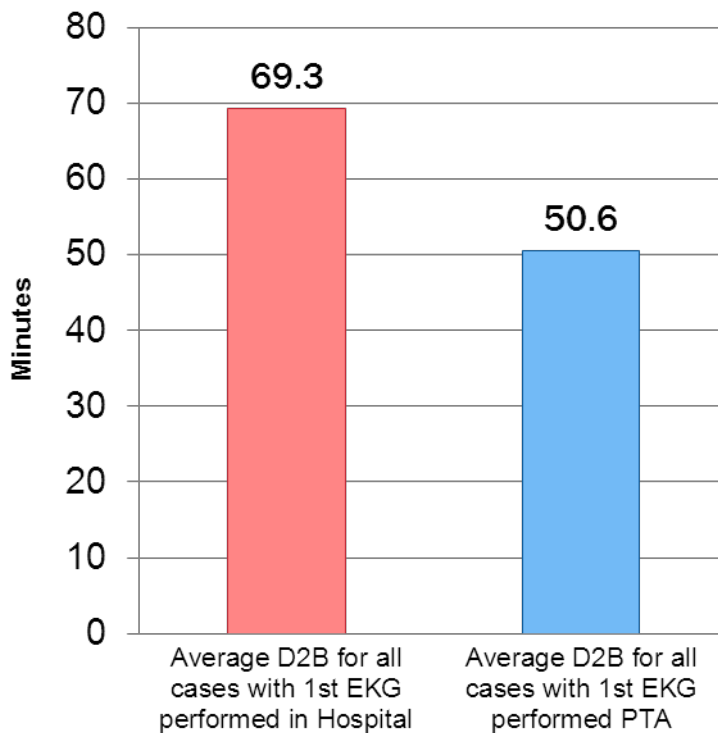
83 Cases

45.4%

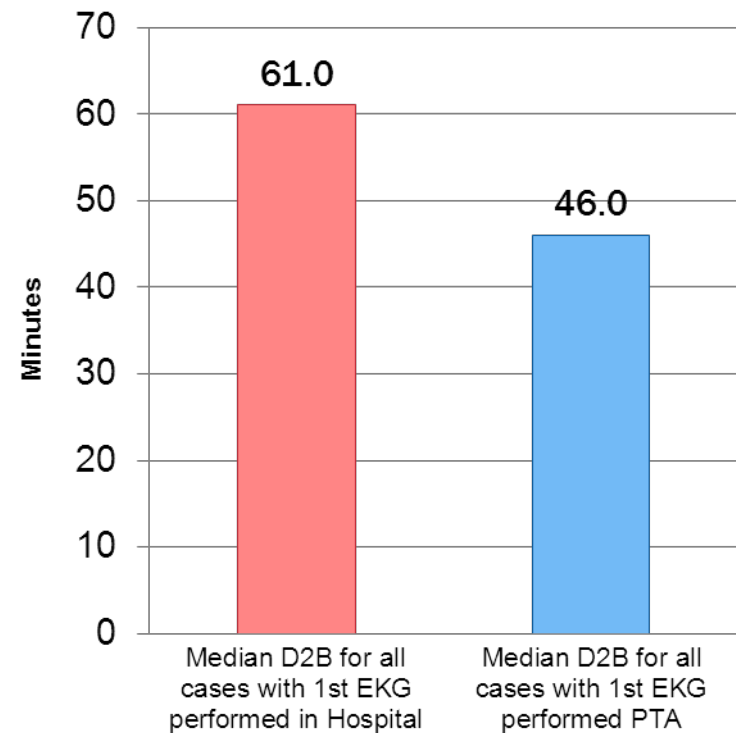


All Code H Cases 1/1/2013 – 12/31/2013

Average D2B times



Median D2B times



Note: The difference between Average D2B with 1st EKG performed in Hospital vs. 1st EKG PTA is statistically sig.



Prehospital Data Collection

ET/CT Confirmation									
Tech Details:									
ET/CT/K placement confirmed by (check all that apply):									
<input type="checkbox"/>	Auscultation	<input type="checkbox"/>	Direct visualization	<input type="checkbox"/>	Disposable colormetric ETCC				
<input type="checkbox"/>	Electronic Capnography	<input type="checkbox"/>	Esophageal Detection Device	<input type="checkbox"/>	Other				
ET/CT/K secured by (check all that apply):									
<input type="checkbox"/>	Commercial tube holder	<input type="checkbox"/>	Tape	<input type="checkbox"/>	Tie	<input type="checkbox"/>	Head immobilization		
ET/CT/K placement at hospital confirmed as:									
<input type="checkbox"/>	Tracheal	<input type="checkbox"/>	Esophageal	<input type="checkbox"/>	Oropharyngeal	<input type="checkbox"/>	None		
ED Details:									
ET/CT/K placement at ED confirmed as:									
<input type="checkbox"/>	Tracheal	<input type="checkbox"/>	Esophageal	<input type="checkbox"/>	Oropharyngeal	<input type="checkbox"/>	None		
ET/CT/K placement confirmed by (check all that apply):									
<input type="checkbox"/>	Auscultation	<input type="checkbox"/>	Direct visualization	<input type="checkbox"/>	Disposable colormetric ET/CO ₂				
<input type="checkbox"/>	Electronic Capnography	<input type="checkbox"/>	Esophageal Detection Device	<input type="checkbox"/>	Chest X-Ray				
Complications (check all that apply):									
<input type="checkbox"/>	Dental trauma	<input type="checkbox"/>	Oropharyngeal trauma	<input type="checkbox"/>	Right mainstem intubated				
<input type="checkbox"/>	Emesis aspiration	<input type="checkbox"/>	Accidental extubation	<input type="checkbox"/>	Other				
Person at ED confirming placement					Title				

Details of Arrest



Tech Details:									
Participation:									
<input type="checkbox"/>	EMS-BLS	<input type="checkbox"/>	EMS-ALS	<input type="checkbox"/>	PD	<input type="checkbox"/>	PAD		
Location of arrest:									
<input type="checkbox"/>	Home	<input type="checkbox"/>	Public place						
<input type="checkbox"/>	Vehicle	<input type="checkbox"/>	Healthcare facility	<input type="checkbox"/>	Ambulance				
Arrest witnessed by:									
<input type="checkbox"/>	Family/Friend	<input type="checkbox"/>	Bystander	<input type="checkbox"/>	PD	<input type="checkbox"/>	EMS		
<input type="checkbox"/>	Healthcare provider								
Time of collapse ____ : ____ Time CPR initiated ____ : ____									
Initial CPR by:									
<input type="checkbox"/>	Family/Friend	<input type="checkbox"/>	Bystander	<input type="checkbox"/>	PD	<input type="checkbox"/>	EMS		
<input type="checkbox"/>	Healthcare provider								
Resuscitation not attempted by EMS due to:									
<input type="checkbox"/>	DNR	<input type="checkbox"/>	Obvious death	<input type="checkbox"/>	Pulse present				
Prehospital status:									
<input type="checkbox"/>	ROSC	Time ____ : ____	<input type="checkbox"/>	CPR continued					
<input type="checkbox"/>	Field pronouncement	Time ____ : ____							
Status at ED:									
<input type="checkbox"/>	ROSC	<input type="checkbox"/>	CPR continued	<input type="checkbox"/>	Expired				
CPR assist devices									
<input type="checkbox"/>	Lucas	<input type="checkbox"/>	Autopulse						
<input type="checkbox"/>	Manual CPR								

Follow-up with Hospital

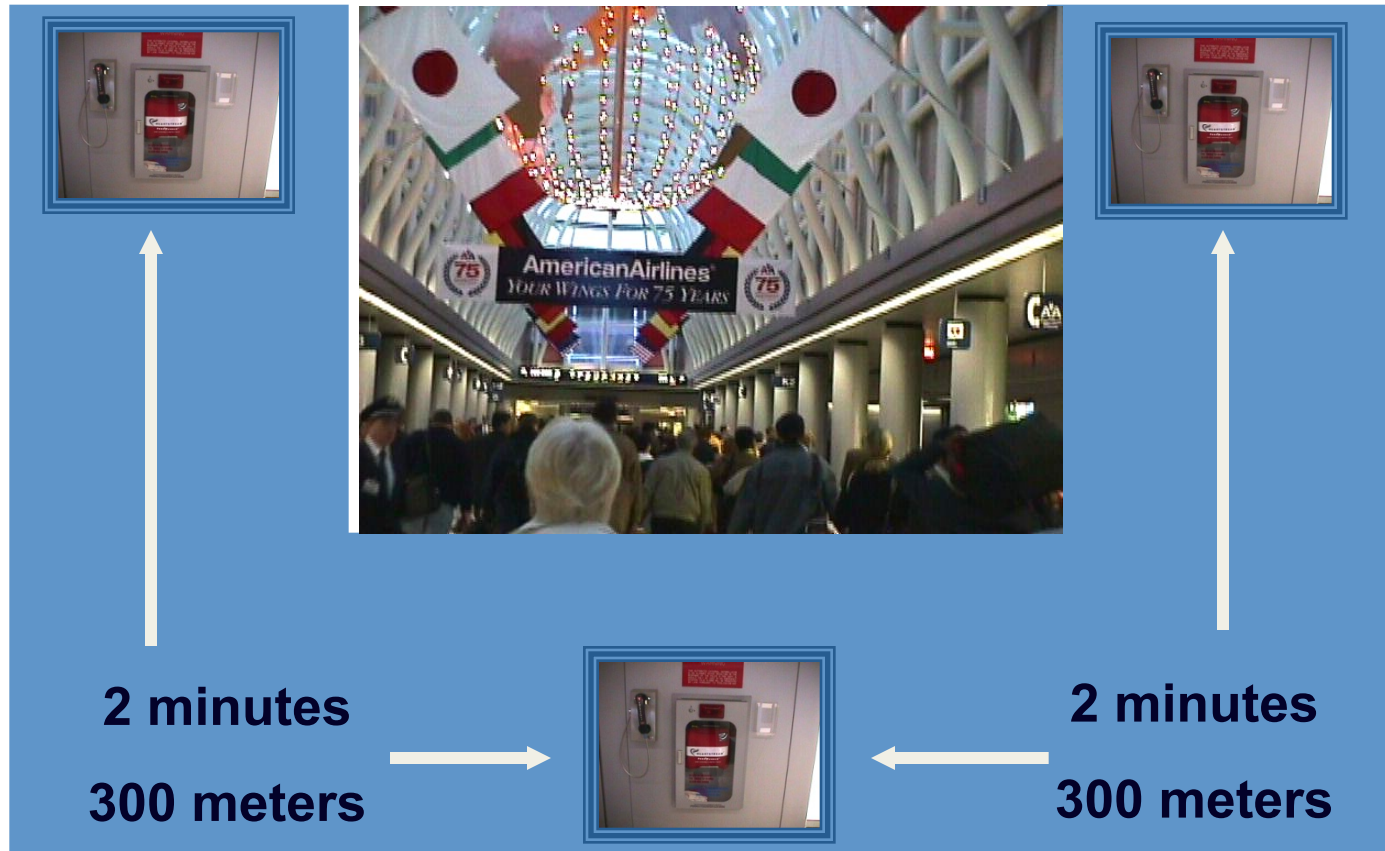




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Sample Floor Plan

“O’ Hare Model”



Pulse Point



- ✓ Recently added it to our system
- ✓ Rescuer registers with program
- ✓ GPS Tracks location
- ✓ Notifies if you are nearby
- ✓ Advises you where AEDs are located



WELCOME TO

AED and

CPR In The Schools

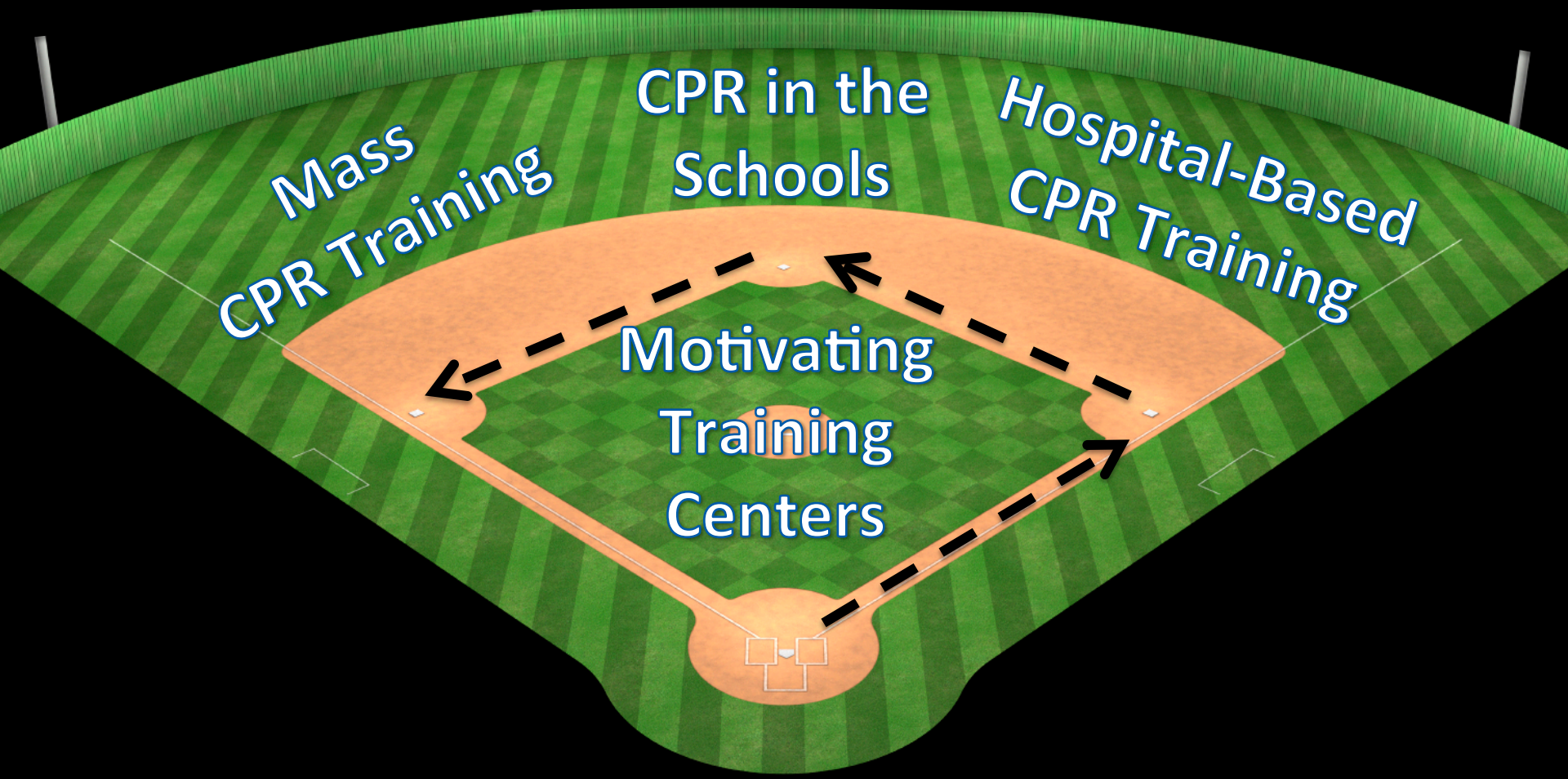


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CPR Triple Play: Building a CPR Education System for 1.5 Million People



What is the CPR Triple Play?



HEART HEALTHY EVENT AT THE WANG CENTER MAY 6, 2015



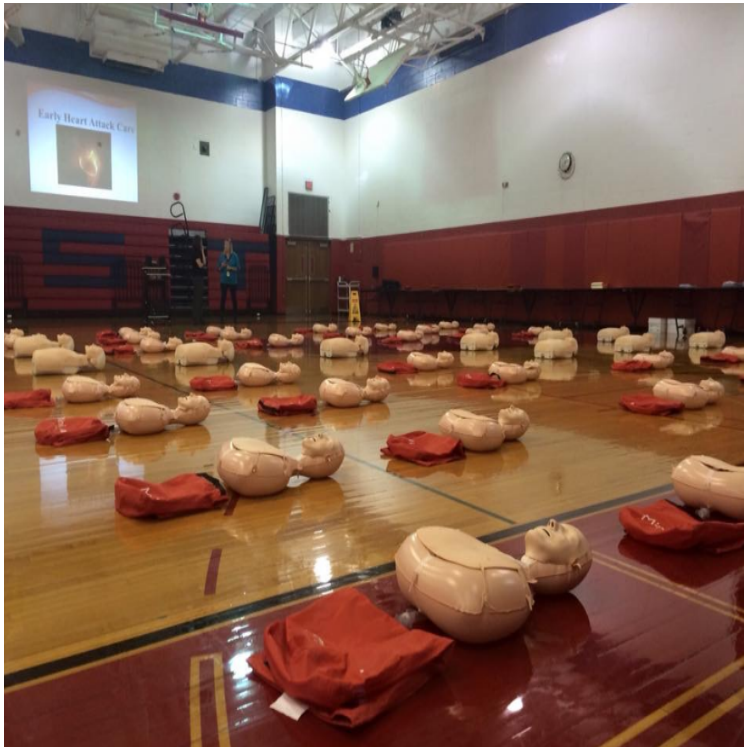
Mass Hands-only CPR/AED training for entire Senior Class at Local Community High Schools on Long Island.





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As of October 2015, legislation has made CPR education mandatory for graduating Seniors. Since 2014 Stony Brook Educators have been ahead of legislation and trained approximately 1400 high school students.





St
Me



Stony Brook Heart Institute Team at Smithtown East High School 2014



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The Setauket Fire Department and Stony Brook Medicine





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Medicine



Lindenhurst Fire



Setauket Fire Department



<First Name> <Last Name>
To attest to completion of the
CPR and AED Lifesaver Program

<date>

A handwritten signature in black ink, appearing to read "David Sterne".

David Sterne, EMT-P
District Manager
Setauket Fire District

A handwritten signature in black ink, appearing to read "Edward R. Stapleton".

Edward R. Stapleton, EMT-P
Associate Professor
Stony Brook Medicine



Mass CPR Training

LaValle Stadium

September 7, 2014



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Mass CPR

- **Trained almost 1,000 rescuers in 6 hours**
 - Hands Only CPR
 - Use of an AED
 - Early Heart attack care
- **60 Facilitator Volunteers**
- **250 Manikins**

Gold Medal Award Institutional Motivation!

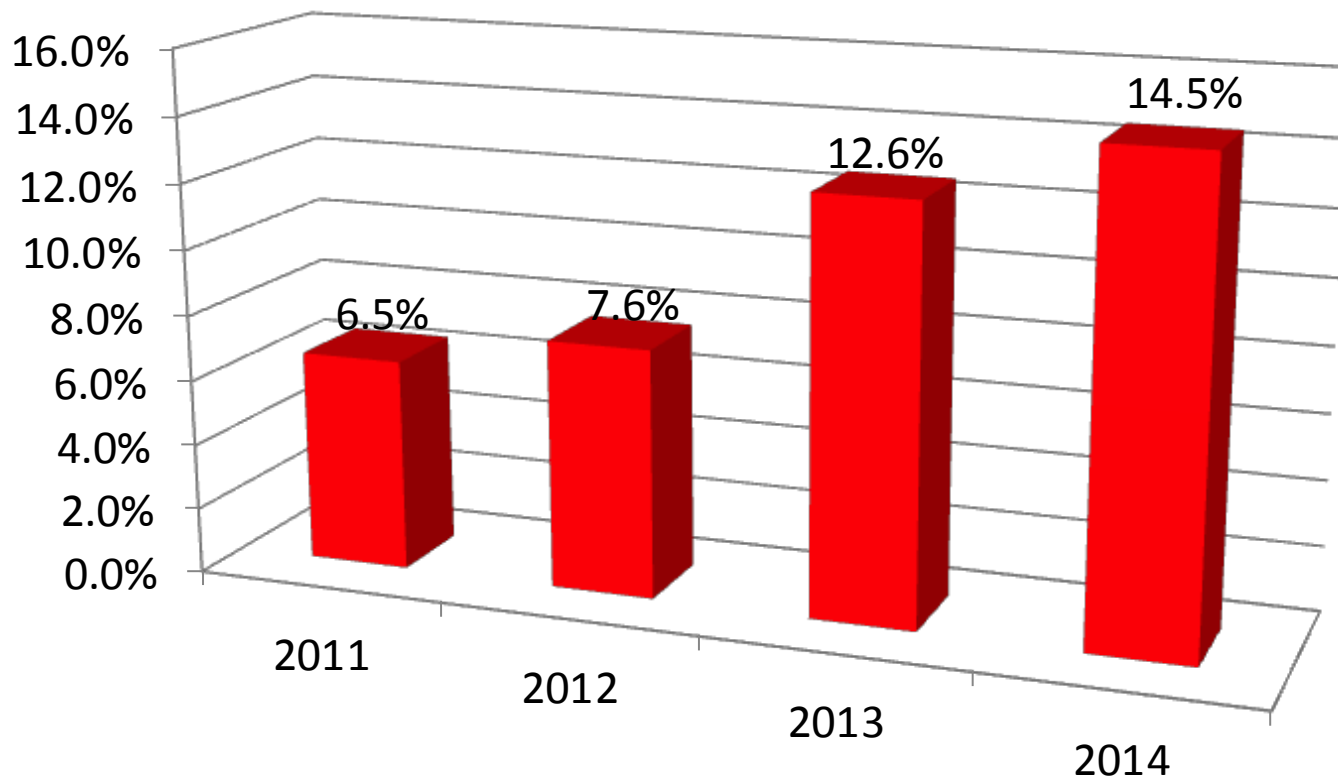
- [http://www.suffolkremsco.com/
clientuploads/CPR/Gold%20Medal%20CPR
%20Award.pdf](http://www.suffolkremsco.com/clientuploads/CPR/Gold%20Medal%20CPR%20Award.pdf)



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Out of Hospital Cardiac Arrest Survival to Discharge Stony Brook

From 1991 to 2010
3-4%



Look to the Future



**CPR
SELF-LEARNING**

**Learn to Save a Life
in
5 minutes
... and earn a
free coffee**



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Mohamed Shah

A Case History of Effective Public Access Defibrillation





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Mohamed



- Sudden collapse at school
- CPR started

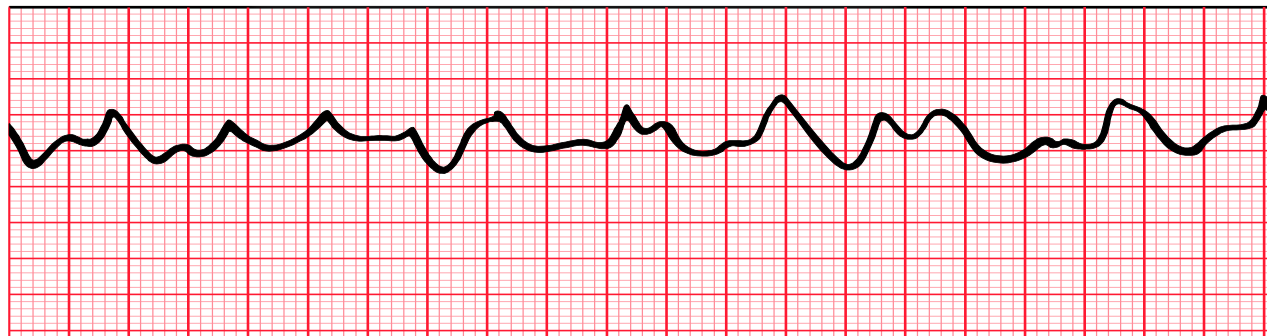




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Mohamed

AED at the school





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Mohamed



Mohamed was Shocked within 3 minutes



Mohamed



Rhythm present with pulse return





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Mohamed

