



HP-CPR

(An Insider's Story)

High-Performance CPR

(An Insider's Story)



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- Clinical Educator – Prehospital Medicine
- Nationally/Internationally published author
- National/International Speaker- Prehospital Medicine
- Original design/development team *HP-CPR* Program
- Originator/Author – The *Sick/Not Sick Approach to Patient Care*

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Presenter Disclosure Information


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HP-CPR *An Insider's Story*



FINANCIAL DISCLOSURE

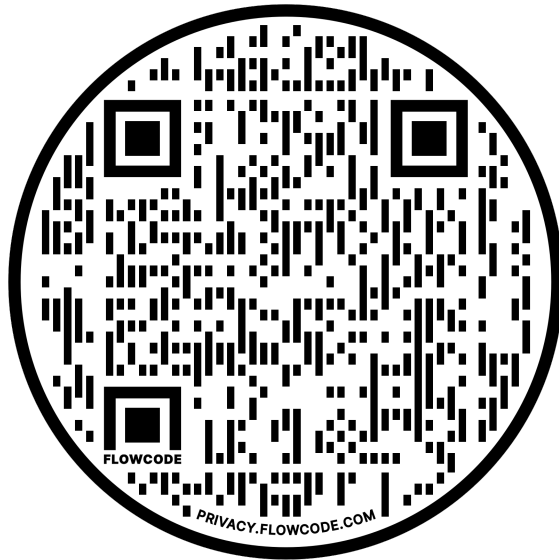
- ✓ Speaker's Bureau-Stryker
- ✓ No further financial relationships



It takes a
SYSTEM
to save a LIFE

The Art and Science of Resuscitation

resuscitationacademy.org



Developed and written by:
Seattle/King County Resuscitation Academy Team

The Art and Science of Resuscitation

A GUIDE TO IMPROVE COMMUNITY CARDIAC ARREST SURVIVAL



FIRST EDITION
BROUGHT TO YOU BY
THE RESUSCITATION ACADEMY

Question...

What do you think *might* be the ***MOST*** important piece of equipment that ***WE*** bring into a CA?

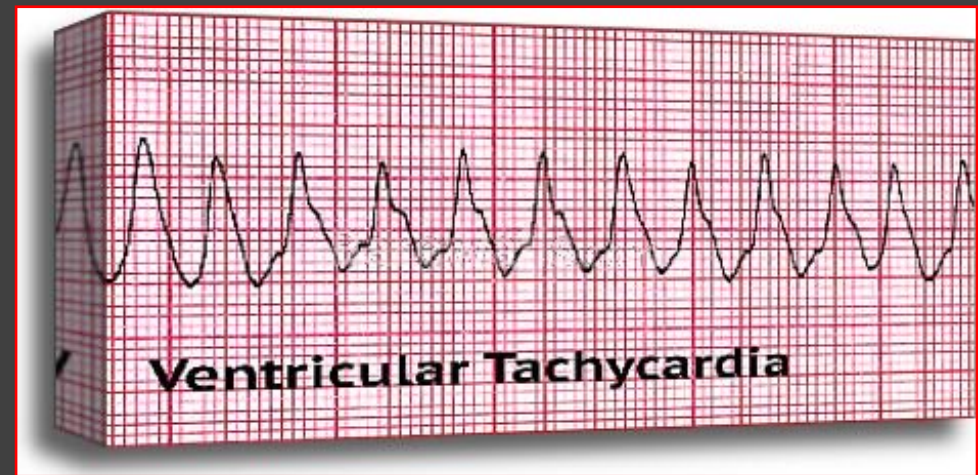
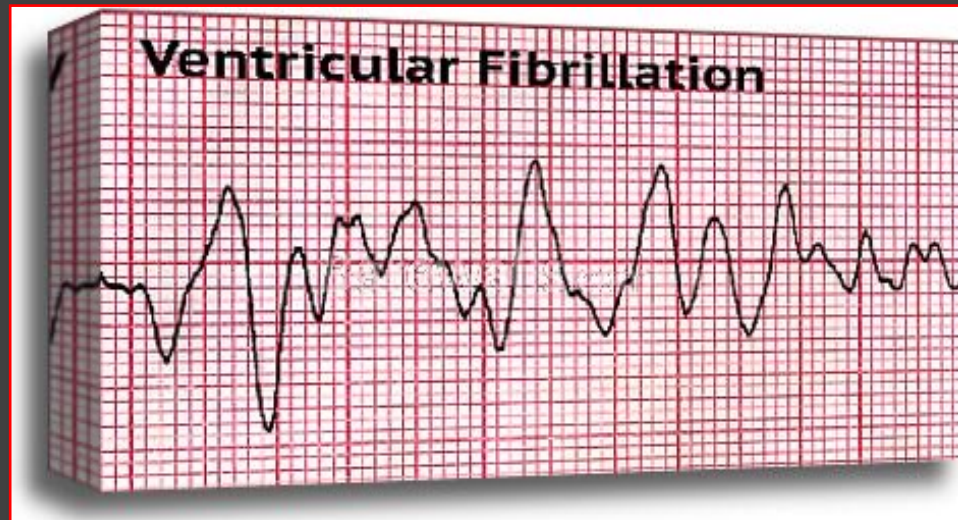




Build a Culture...

where everyone in VF/pVT

SURVIVES!



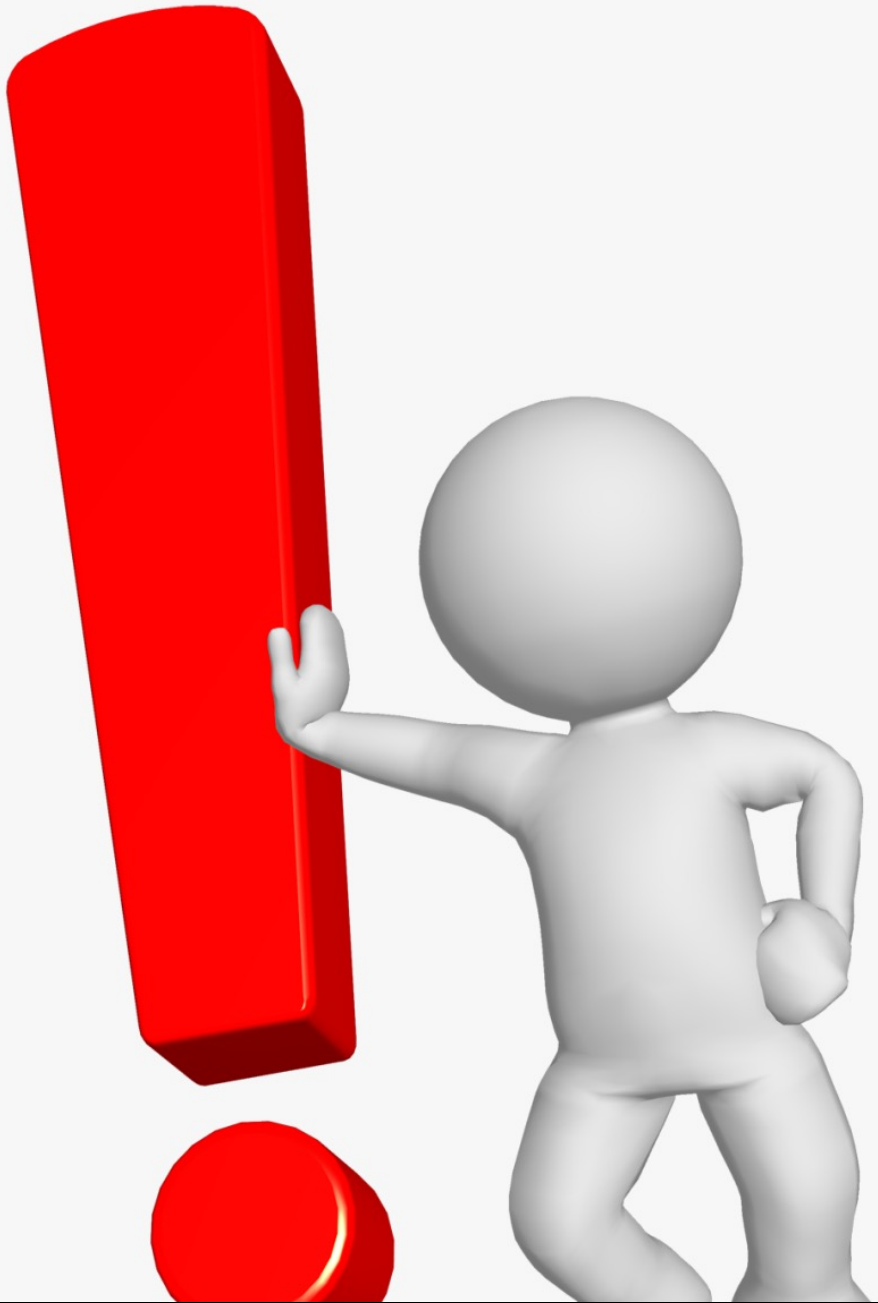
These **ARE** survivable rhythms!

What's the plan for the next 60 minutes

The Journey...

- ✓ What we know for SURE!
- ✓ HP-CPR defined
- ✓ The Science / Metrics
- ✓ TOP (5) places to start





What **DO** we
know for **sure?**



- EARLY chest compressions
- EARLY defibrillation



American
Heart
Association®



HIGHLIGHTS

of the 2020 AMERICAN HEART ASSOCIATION

GUIDELINES FOR CPR AND ECC

Early / Immediate
chest compressions can
DOUBLE or even
TRIPLE a victim's
chance of survival!

HP-CPR / Defibrillation
within 3-5 minutes of
arrest can achieve
survival rates as high as
49-75%!



HP-CPR

What is it?



HP-CPR: defined

A highly **refined, choreographed and measured CPR event**
built around
‘mastery-level’ individual skills
with
fully integrated ALS procedures
incorporating current
evidence-based performance metrics!

HP-CPR

Qualitative and Quantitative

The event is choreographed

- ✓ Minimal interruptions, increased efficiency
- ✓ Calm, concise communication
- ✓ Predefined roles, interchangeable positions
- ✓ Use of a “TEAM” lead & checklist



HP-CPR

Qualitative and *Quantitative*

A measured performance

- ✓ High compression fraction...(90%, 95%)
- ✓ Mastery-level (measured) performance metrics (**DVD-R**)
- ✓ COMPLETE integration of skills (timed and measured)
- ✓ COMPLETE scene coordination (timed and measured)



TWO

Key Points!



Manage the
SECONDS...

✓ by eliminating
ALL unnecessary pauses!

MASTER performance

by continued:

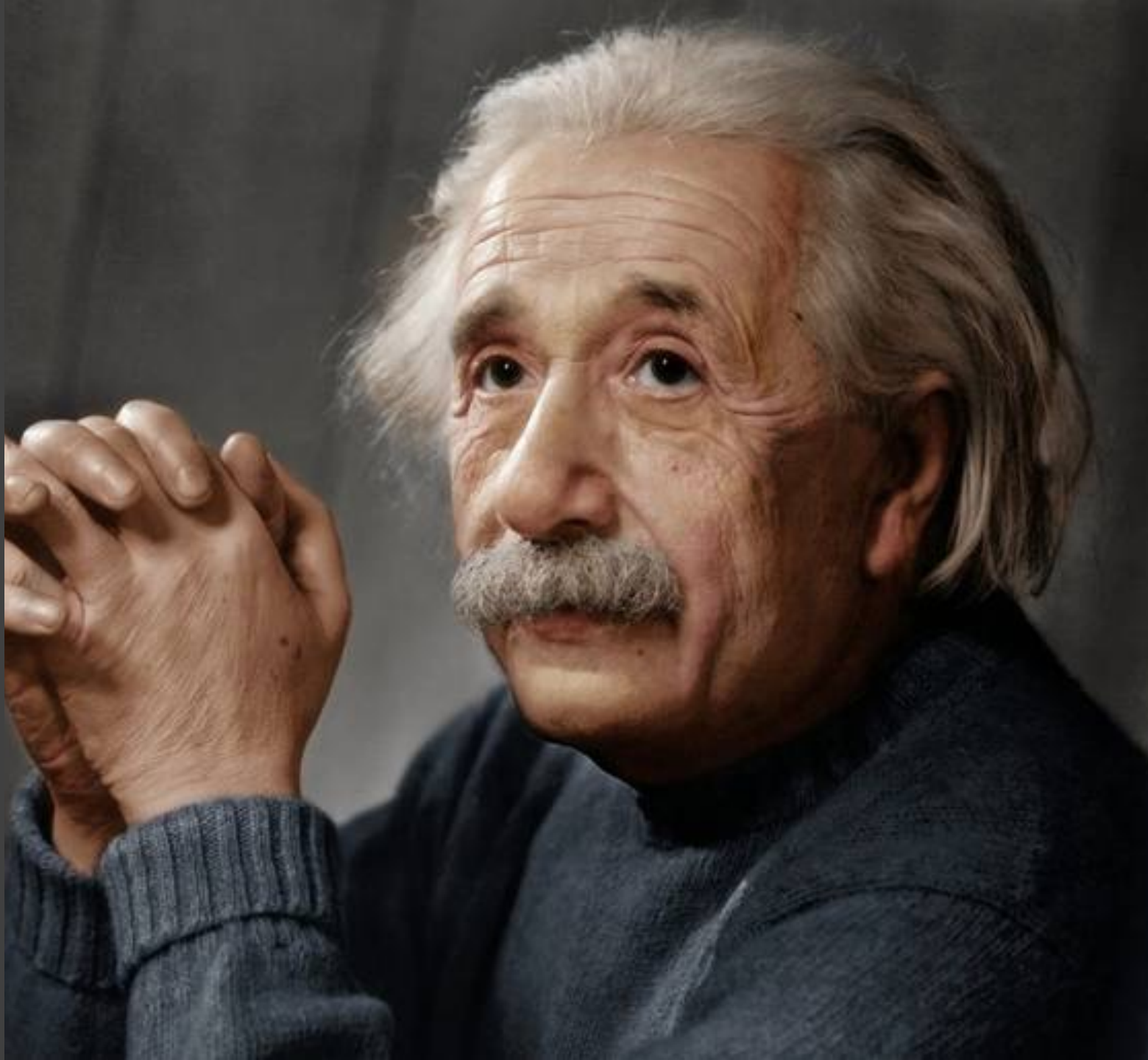
✓ measurement
✓ improvement



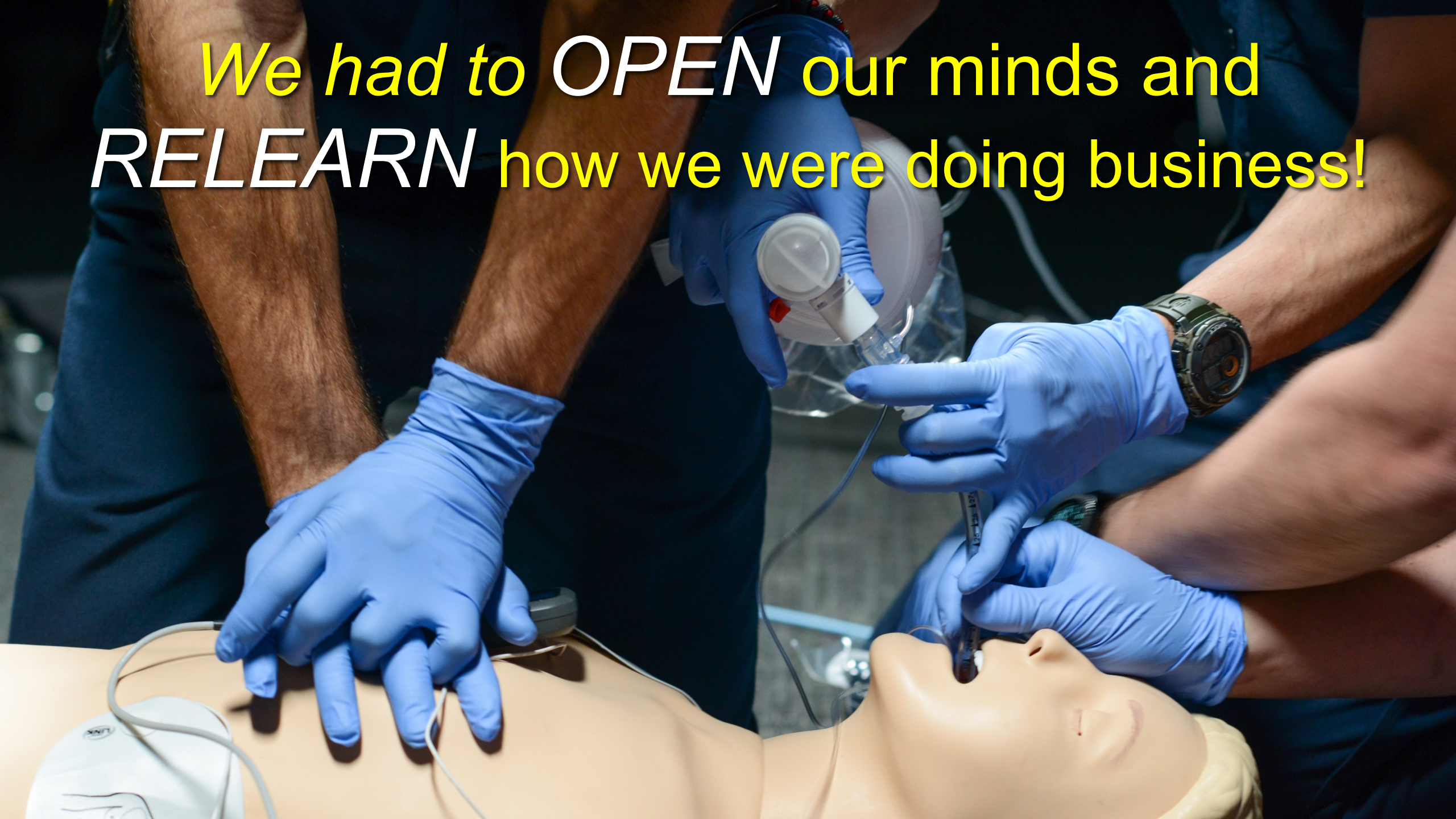
First things
first...

The Science!

Operationalize
it...!



*We had to OPEN our minds and
RELEARN how we were doing business!*





Embrace the meaning and value of
“MEASURE and IMPROVE”



OK,
let's slow the
pace down a bit
and discuss a
VERY
important term
(and concept)!



Compression Fraction

“Measurement of compressions in proportion to the (overall) HP-CPR event”

Compression Fraction



Compression Fraction

CF of **90%** with 30:2

CF of **95%** with
-continuous compressions
-advanced airway
-manual defibrillation

Compression Fraction

Compression Fraction

EXAMPLE:

A (CF) of **90%**
in a 120 sec. / 2-minute time period:

Requires **108** seconds of compression!

Only **12** seconds of total interruptions!





DO a few pauses
here and there...
really make a
difference?

A pause is a
pause...right?

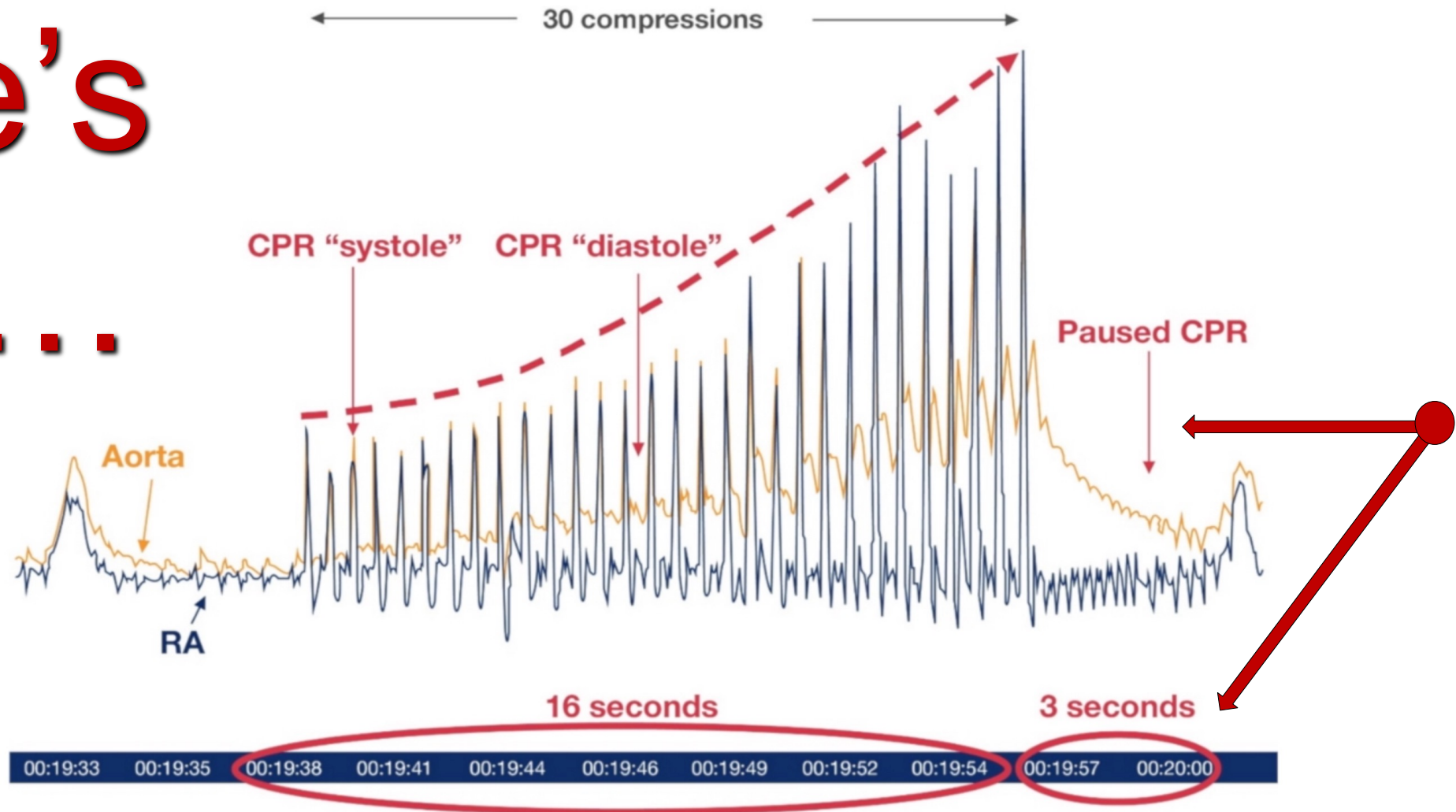
How long do you think it takes
to get that “pause” back?

Hint: It's a LOT longer than you might think!



The Price for CPR pauses

Here's
why...



Pauses COUNT!

That **3-4** second
pause in
compressions

Is a ~**20** second
pause in quality
PERFUSION!



*When ALL components of
HP-CPR have been met:*

*- 1% **increase** in
compression fraction*

EQUALS



*~ 1% **increase** in Survival..!*



The bottom LINE...

YOUR performance counts!!!

How do we know?

We track **EVERY**
quantitative aspect
of the resuscitation...

including audio!

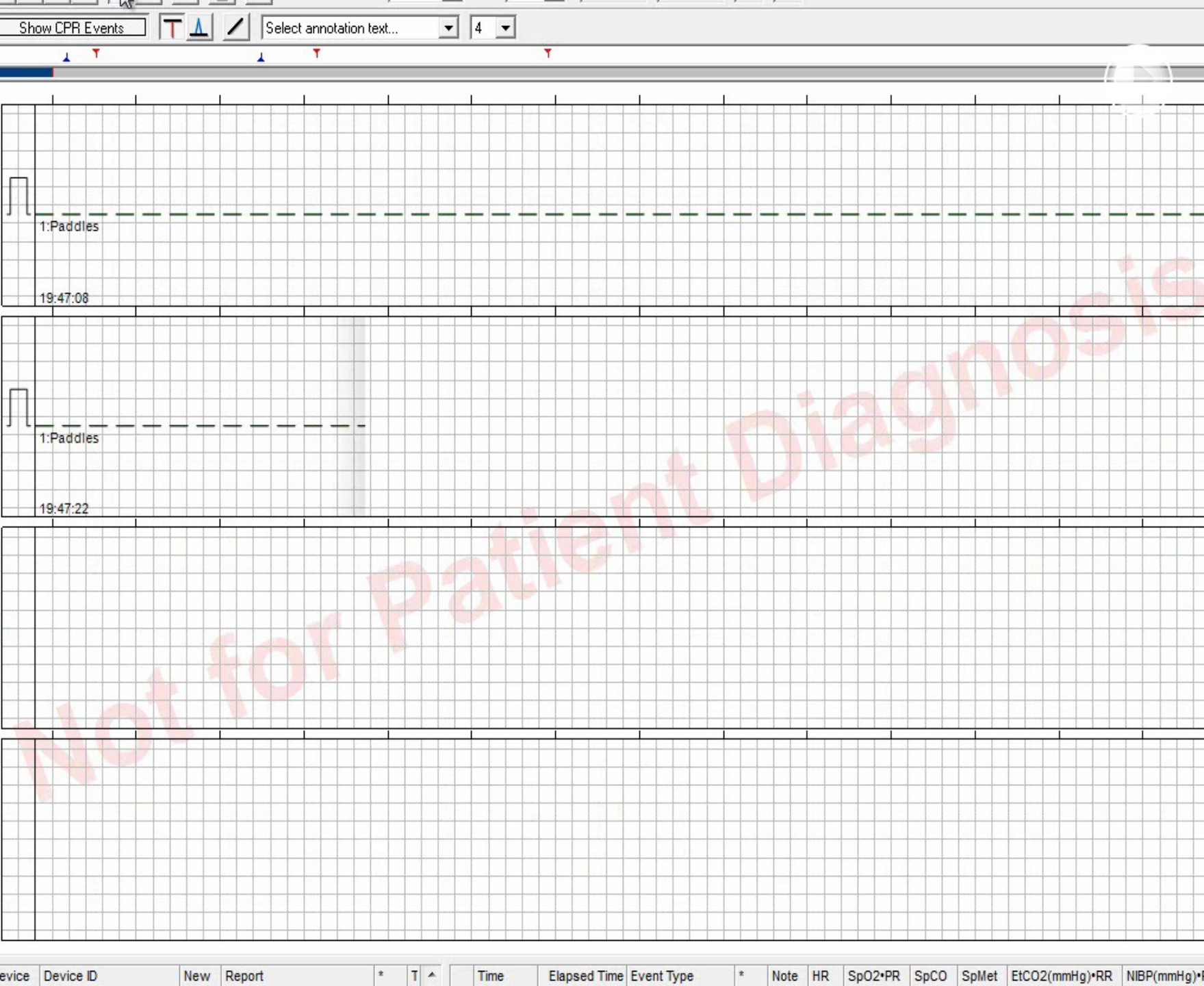


Actual Case Review

Case Study

68 male found by wife
unconscious, pulseless with
agonal breathing

(3) EMTs with LP 12 in AED mode!



3 EMTs operating
a LP12 in
‘AED mode’

Performing
BLS Continuous
HP-CPR

30 compressions during
the charge function!

Ventilating once
(~350-500mL)
on the
“upstroke” of the
10th compression

The first year we
introduced **HP-CPR**

Immediate increase in
survival by **13%**
(using the Utstein Template)

- no new equipment
- no additional personnel
- no new drugs

CHANGED the CULTURE...

how we perform a resuscitation!



Utstein Template

within the next 2-3 years
survival increased
to over **50%**



Pauses COUNT...!



**DON'T be a
“pause-causer”**

My recommendations:



Move toward a
HIGH
PERFORMANCE
response to
cardiac arrest in
YOUR system!

LEARN

to eliminate
ALL unnecessary
pauses!



A Few

EXAMPLES:

Rotation with Hover!





Pre-charge @1:45

Pre-Charge @1:45

Question...

Do you pre-charge
your manual devices
at 1:45?

✓ Yes

✓ No

WORK toward building
mastery-level individual skills
and a complete

TEAM Approach!

BLS Providers

(initial providers)

OWN the compression and ventilation portion of HP-CPR!

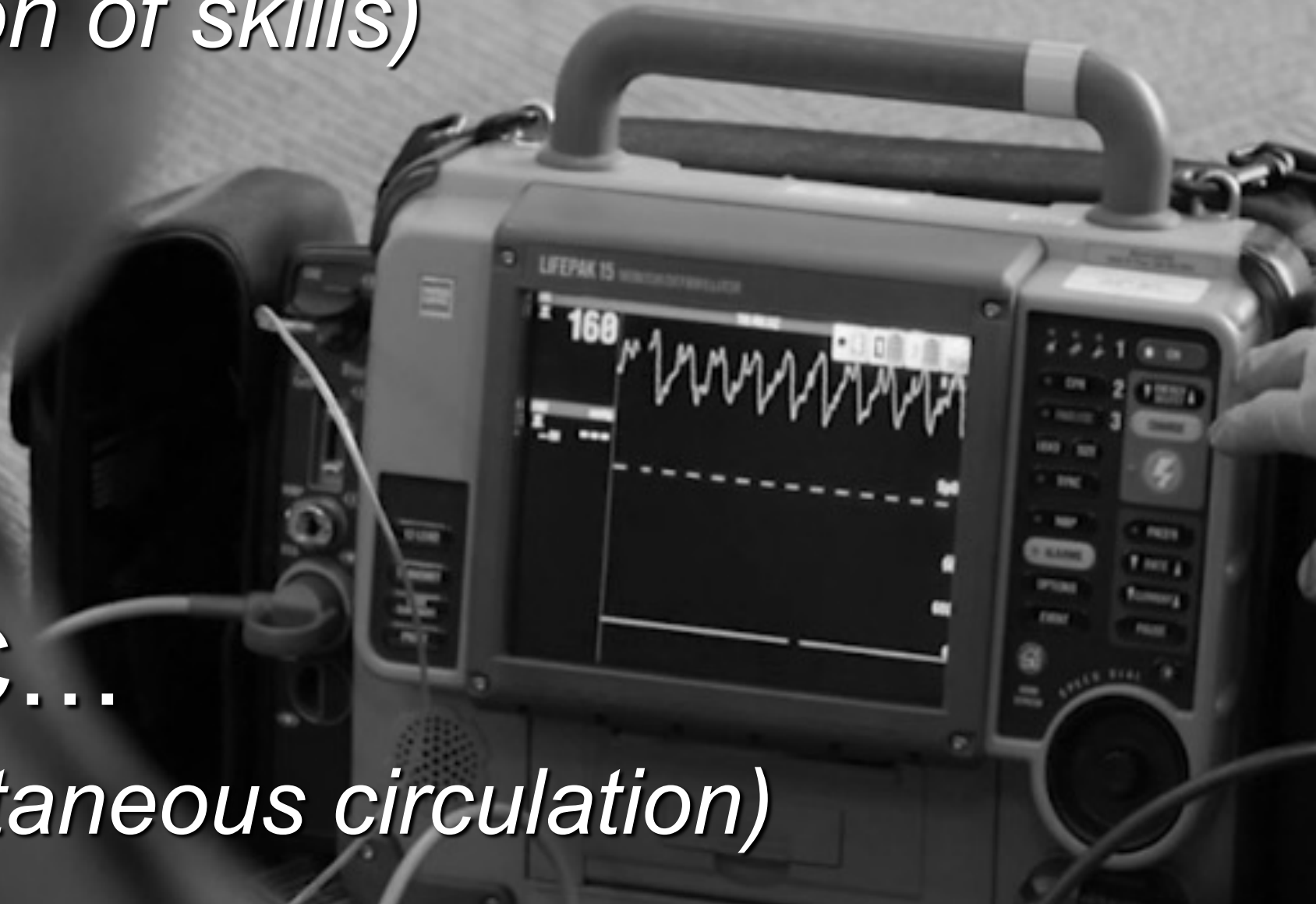


ALS (PM, RN, RT, MD)

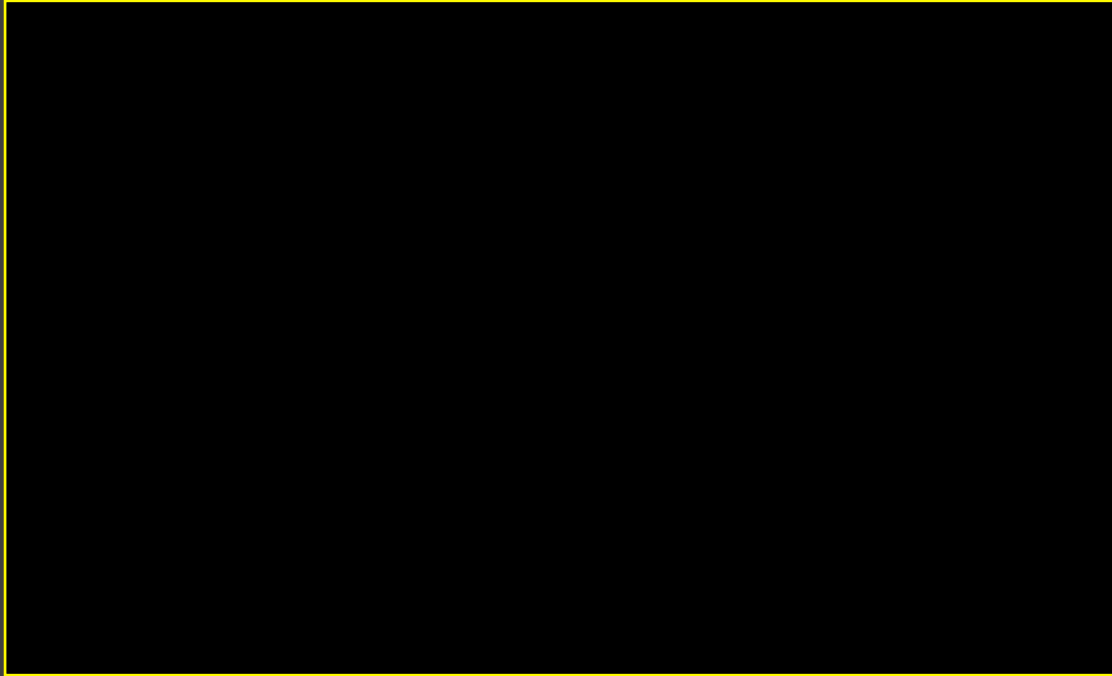
(integration of skills)

OWN ROSC...

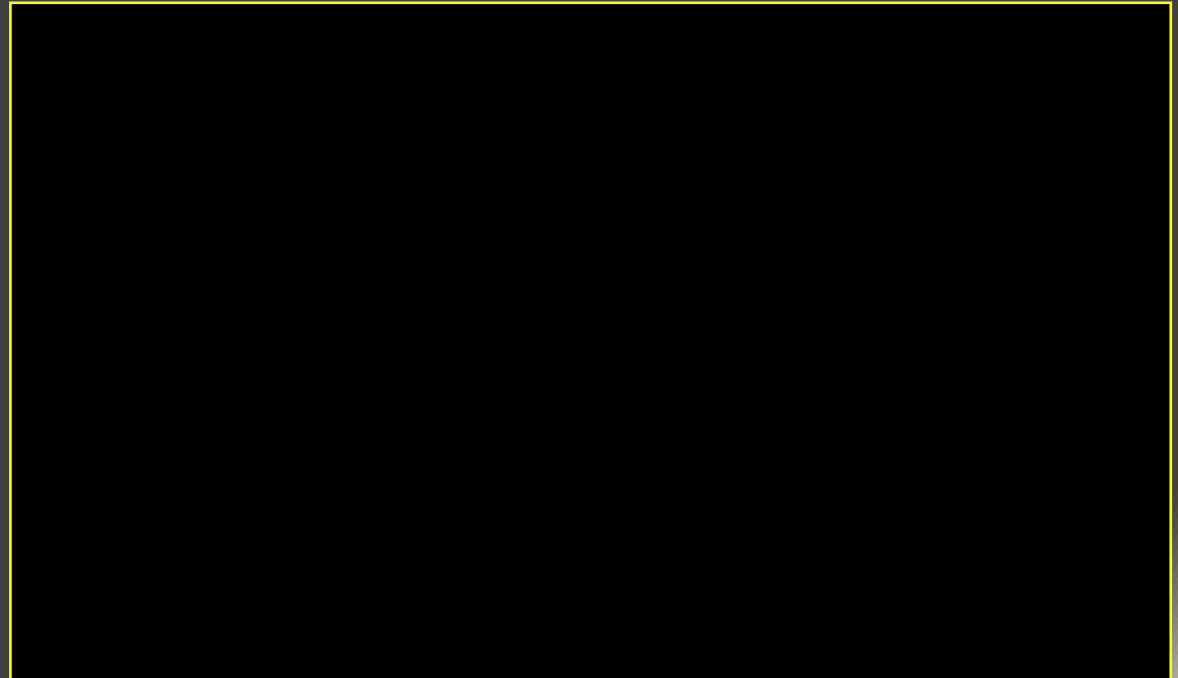
(return of spontaneous circulation)



All **ALS** skills are integrated



ETI / SGA



IV/IO

NEXT...

HIGHLY recommend

- ✓ identified HP-CPR metrics
- ✓ pre-arranged crew positions

Then train, measure...repeat!

HP-CPR!

(the METRICS)

D – Depth of compression

V – Ventilation *(350-500ml or initial chest rise)*

D – Decompression *(full recoil)*

R – Rate of compression *(100-120)*



High Compression
Fraction!
90%



Crew Positions

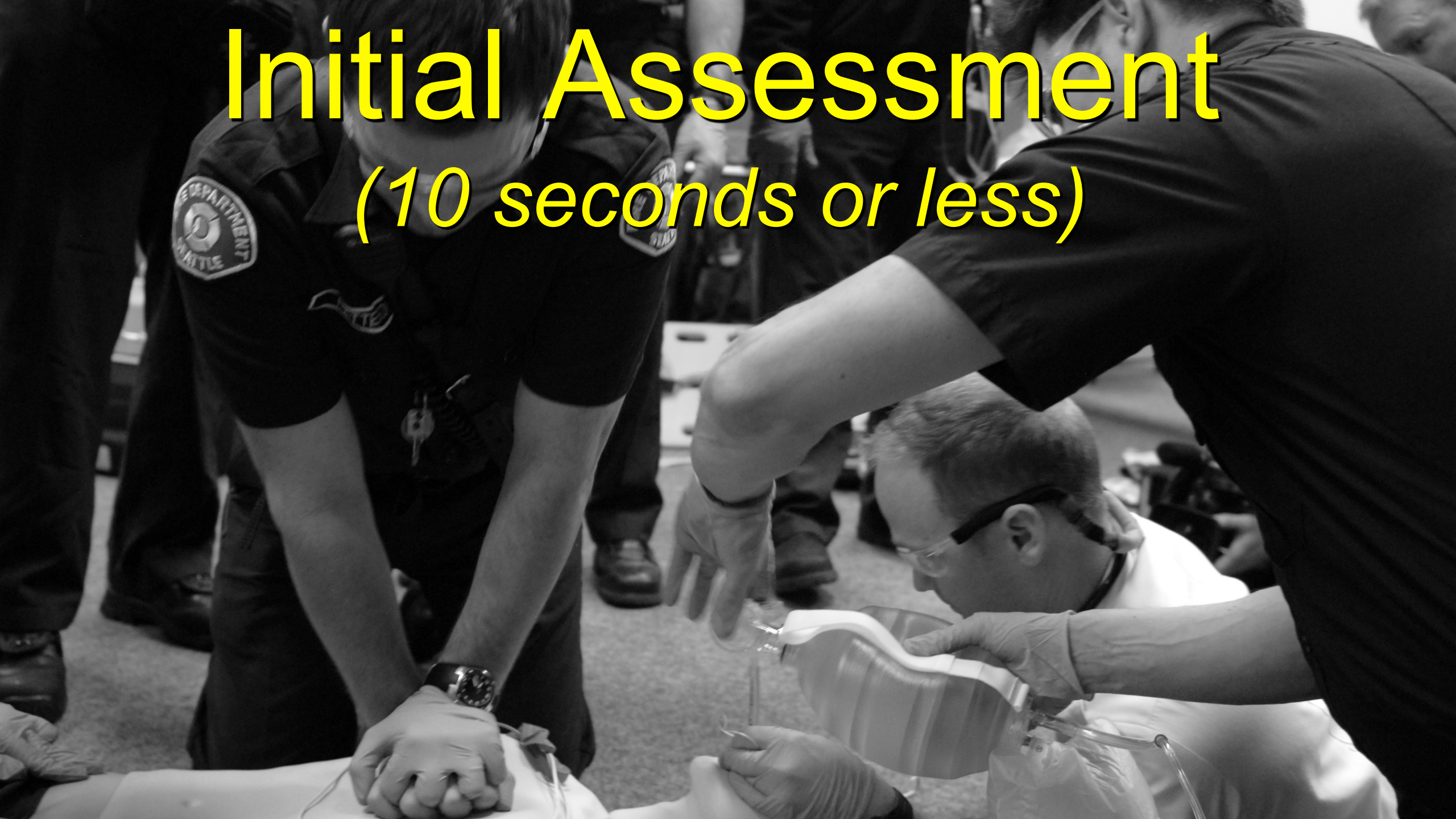
A black and white photograph showing four Seattle Fire Department crew members in a triangle formation around a patient on a gurney. One member is operating a medical device, while the others observe. A fifth person is lying on the gurney.

HP-CPR Triangle

HP-CPR Triangle

Initial Assessment

(10 seconds or less)



Body Mechanics



Complete Body Mechanics

with **Compression/Decompression**



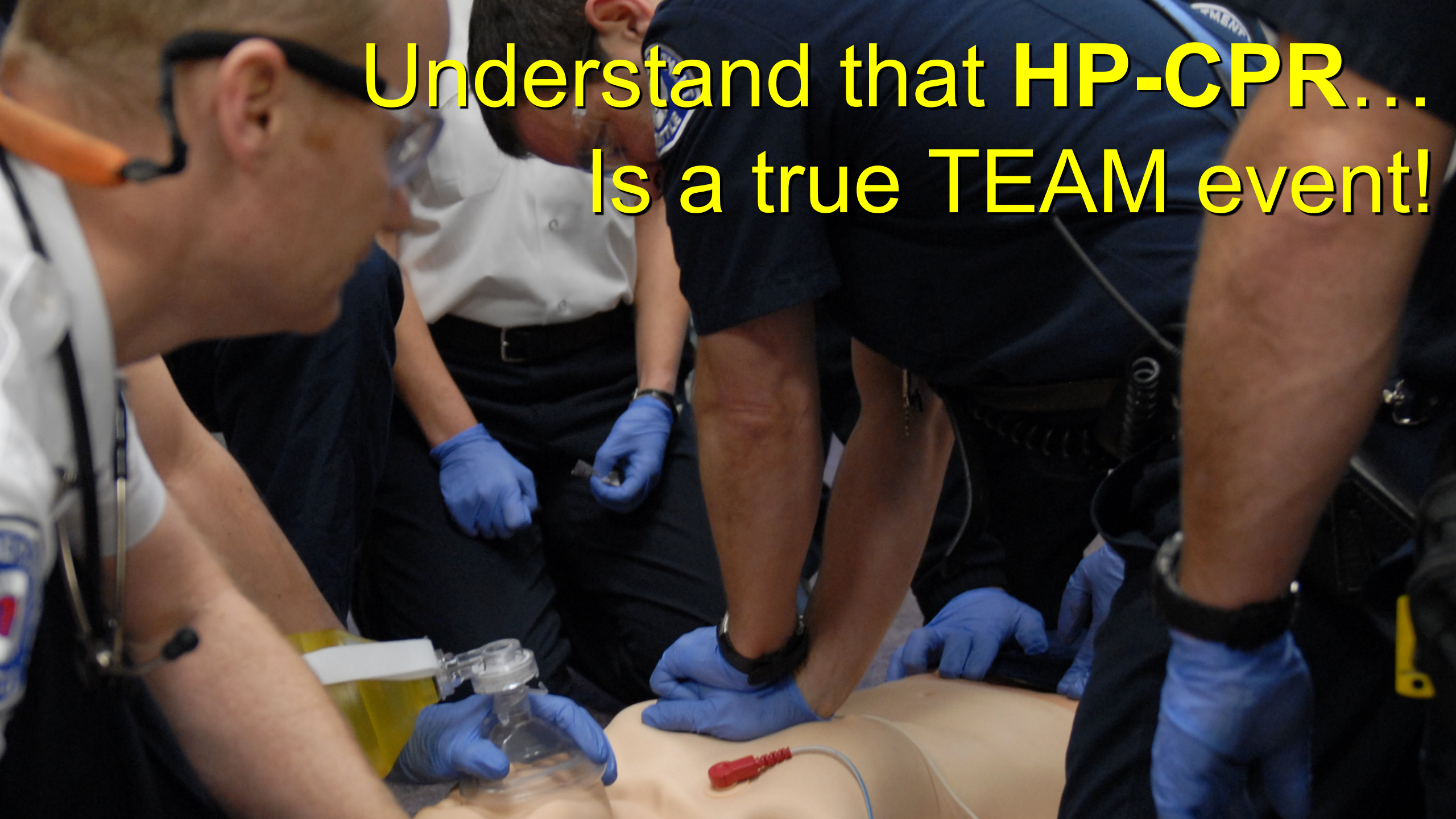


3 Finger Technique *(Controlled Ventilation)*

Controlled Ventilation (3-Finger Technique)

LASTLY...

Understand that HP-CPR...
Is a true TEAM event!



Full BLS/ALS Cardiac Arrest Scenario



- Northshore Fire Department, WA
- Shoreline Fire Department, WA

Although our environments are
COMPLETELY different...



The performance metrics for
HP-CPR are **EXACTLY** the same!

There MUST be a continuation of care once your patient reaches the ED



- ✓ Share HP-CPR strategies with local hospital
- ✓ Consider joint training with hospital staff

A close-up photograph of a hand in a dark suit jacket and white shirt, pointing the index finger upwards. The hand is the central focus, with the background blurred. The lighting is dramatic, highlighting the texture of the skin and the fabric of the suit.

Helbock's
TOP FIVE
places to start

Resuscitation Academy



RESUSCITATION ACADEMY

Improving cardiac arrest survival rates, one community at a time

10 STEPS for Improving Survival from Cardiac Arrest

SECOND EDITION
BROUGHT TO YOU BY
THE RESUSCITATION ACADEMY

Ten Steps

10 STEPS to Improve Cardiac Arrest Survival

1. Establish a cardiac arrest registry
2. Begin Telephone-CPR with ongoing training and QI
3. Begin high-performance EMS CPR with ongoing training and QI
4. Begin rapid dispatch
5. Measure professional resuscitation using the defibrillator recording (and voice if possible)
6. Begin an AED program for first responders, including police officers, guards, and other security personnel.
7. Use smart technologies to extend CPR and public access defibrillation programs to notify volunteer bystanders who can respond to nearby arrest to provide early CPR and defibrillation
8. Make CPR and AED training mandatory in schools and the community
9. Work toward accountability – submit annual reports to the community
10. Work toward a culture of excellence

10 ACTIONS for Successful Implementation of Resuscitation Programs

1. Select program or programs to implement
2. Form a team or advisory board
3. Determine how to make it happen in your community
4. Set specific goals
5. Achieve buy-in from agency personnel
6. Establish performance standards
7. Consider a pilot program
8. Communicate progress within the agency
9. Communicate with the public and EMS personnel
10. Support, Advocate, Celebrate



1. IDENTIFY and ENLIST

“Team of CHAMPIONS”



2. TRAIN

- ✓ Identify strengths and gaps within your current performance model
- ✓ Develop a plan to validate and remediate
- ✓ Master individual skills *(through feedback)*
- ✓ Integrate BLS/ALS into one TEAM



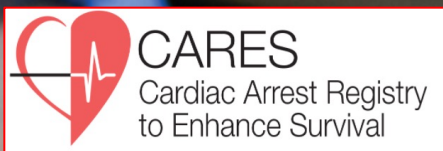
3. MEASURE

- ✓ Training performance **with instrumented manikins**
- ✓ Field performance **by utilizing post-event analytics** (*download the data*)
- ✓ Develop a feedback **loop for ALL responders** (*BLS/ALS*)



4. COLLECT / REPORT your DATA

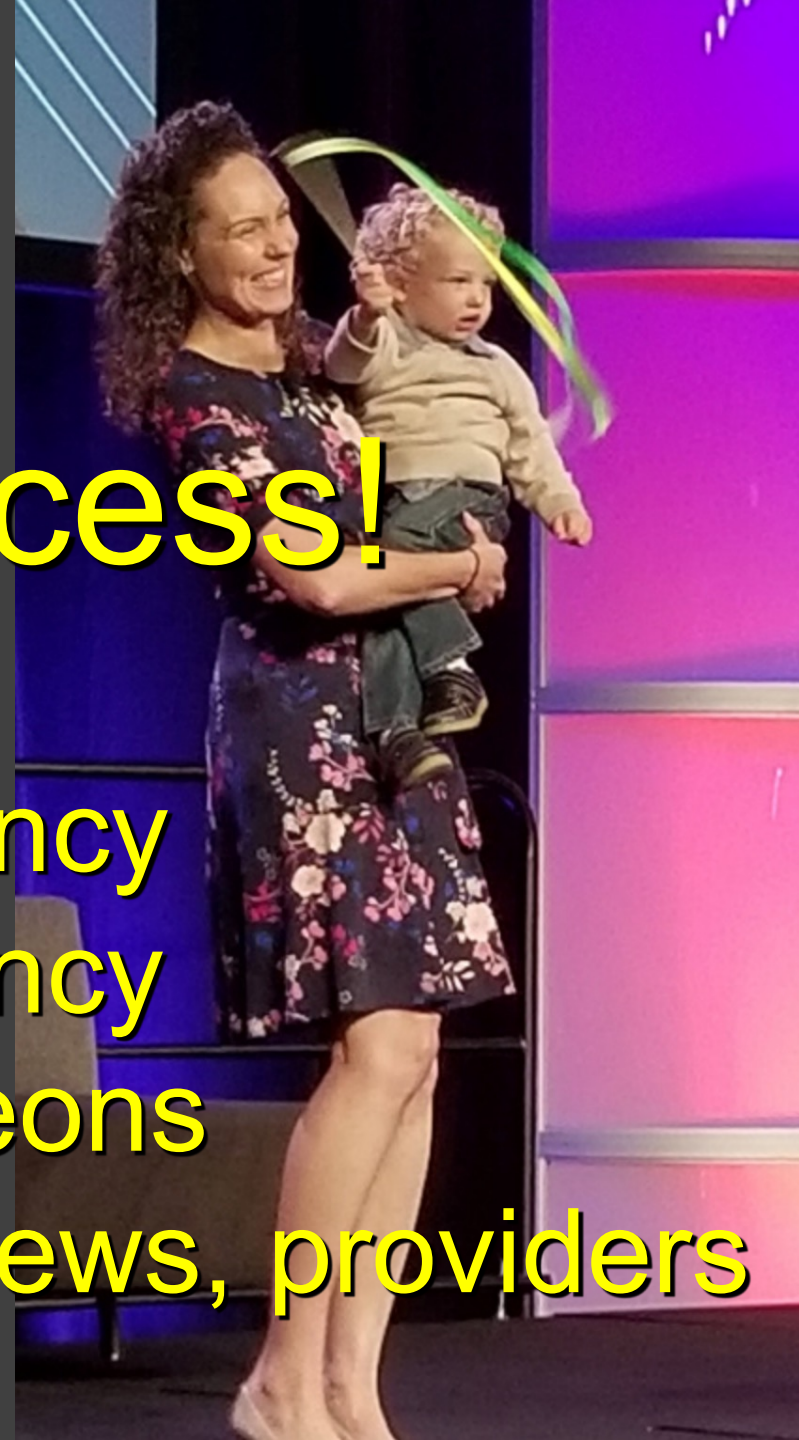
Measuring Outcomes.
Improving Care.
Saving Lives.



- ✓ CARES reporting
- ✓ GWTG database (hospital)
- ✓ Agency database
- ✓ State database

5. EMBRACE and SHARE your success!

- ✓ 'Survivor' coins for crews/agency
- ✓ Share updates within the agency
- ✓ Cardiac arrest survivor luncheons
- ✓ Invite survivors to meet the crews, providers



Work hard and continue to build
your program around...



A Culture of Excellence!

In
CLOSING...

Increasing survival from cardiac arrest takes **WORK!**



- ✓ **It's not easy**, but it's not complicated
- ✓ **Don't underestimate** the value and culture of *"measure and improve"*
- ✓ **Identify** strengths and gaps – develop a plan to validate and remediate
- ✓ **Develop** mastery-level individual skills, then incorporate a **TEAM** approach
- ✓ **A piece of equipment** is just a tool...**PERFORMANCE** is what counts!



REMEMBER, if you're
NOT measuring...

You're
NOT improving!

Time

A black and white photograph of a hand holding a pocket watch. The watch face is visible, showing numbers 1 through 12 and a small sub-dial. The hand is positioned in the upper left, with the watch held between the thumb and index finger. The background is blurred, showing another hand.

We measure life in years, but
RESUSCITATION in seconds

Life is finite, death is eternal,
and between the two...

*We have about **10** minutes*



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An Insider's Story
HP-CPR

QUESTIONS?

Thank you for everything you do....