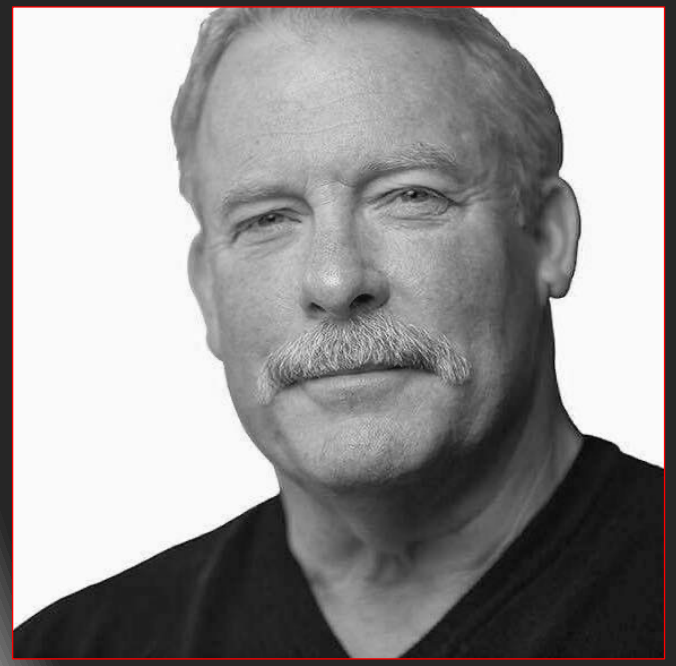
HP-CPR

(An Insider's Story)

High-Performance CPR

(An Insider's Story)



- Senior FF/Paramedic, Seattle/King County Medic One
- Division Chief - EMS Training, Seattle/King County Medic One (ret.)
- Faculty – Seattle/King County Resuscitation Academy
- 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*

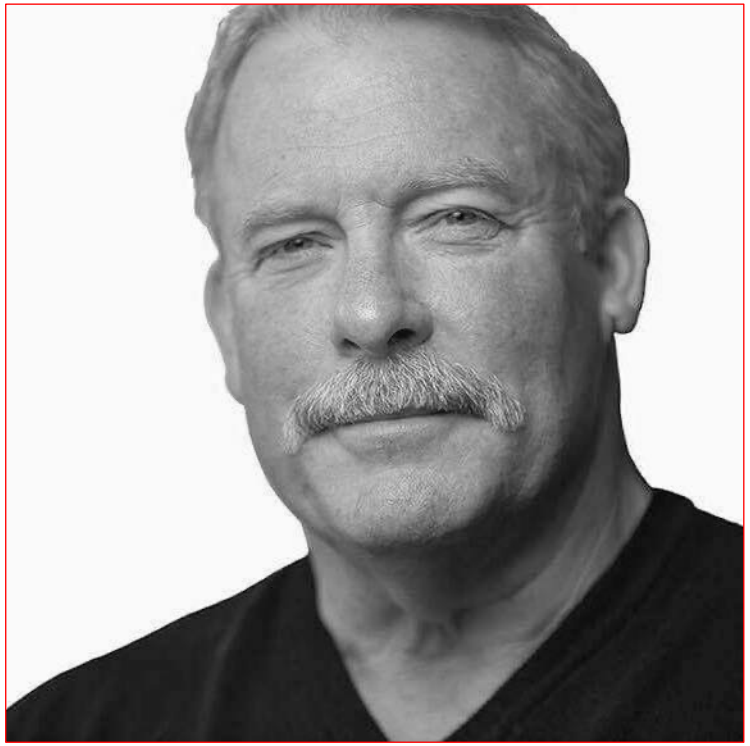
Mike Helbock, M.I.C.P, NR-P

Faculty – Seattle Resuscitation Academy

Presenter Disclosure Information

Mike Helbock M.I.C.P., NR-P
Faculty-Seattle Resuscitation Academy

HP-CPR
An Insider's Story



FINANCIAL DISCLOSURE

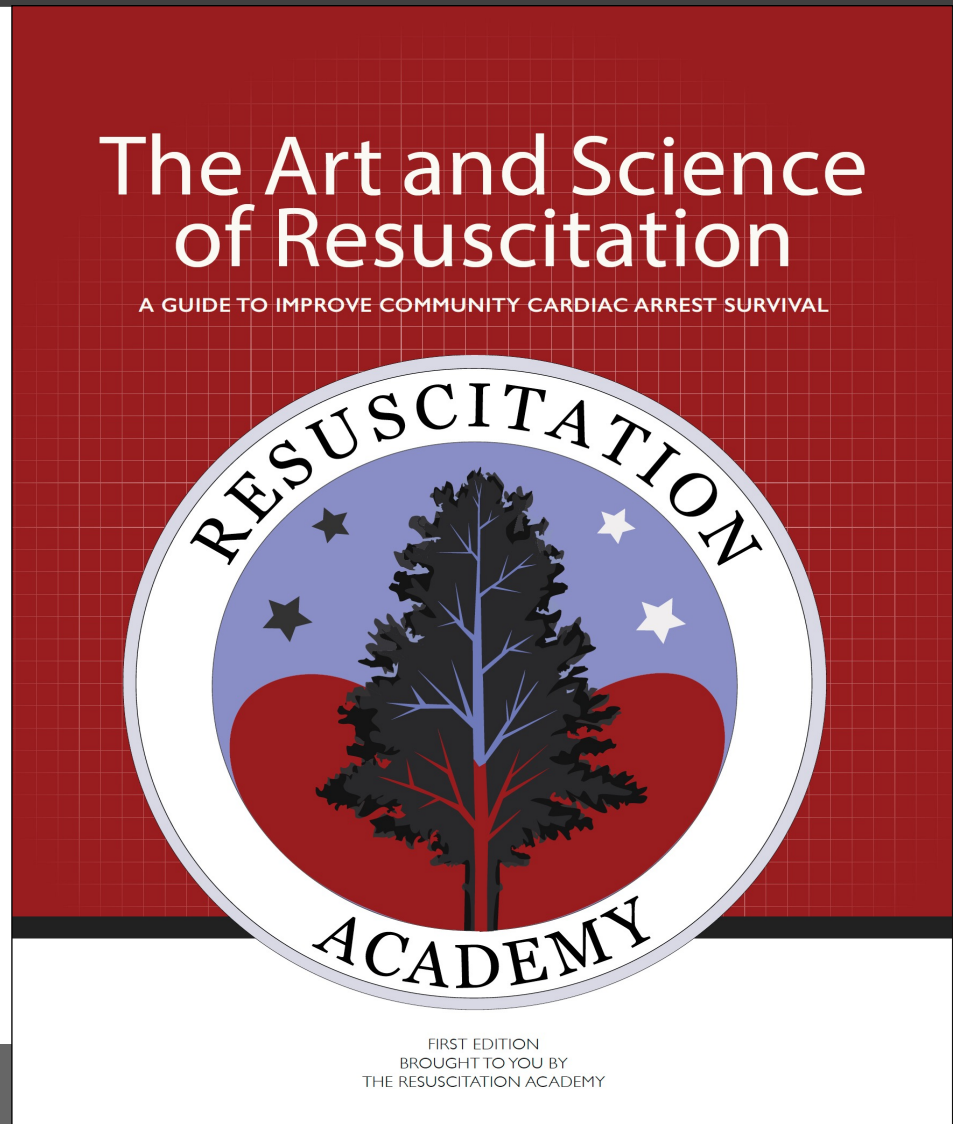
- ✓ Speaker's Bureau-Stryker
- ✓ No further financial relationships


It takes a
SYSTEM
to save a LIFE

The Art and Science of Resuscitation

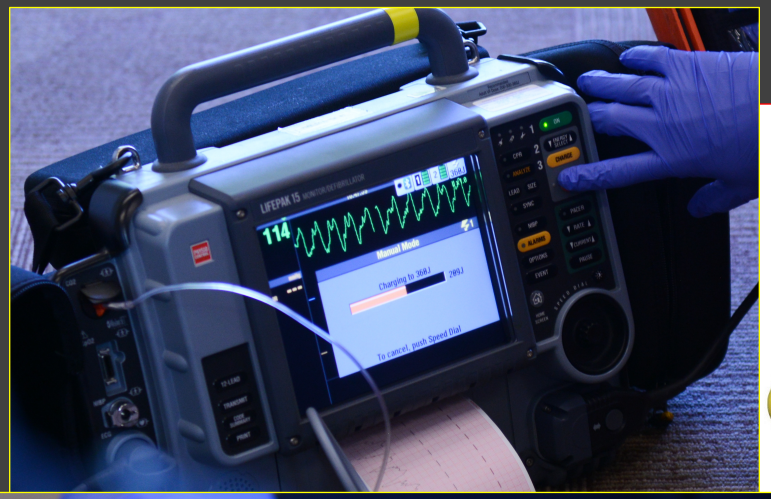
resuscitationacademy.org

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



Question…

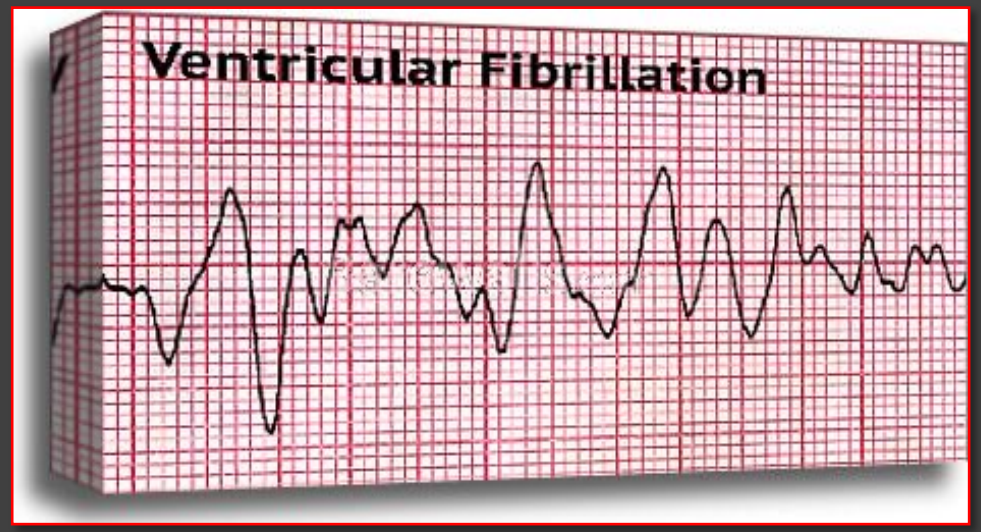
What do you think *might* be the *MOST important* piece of equipment that *WE* bring into a CA?

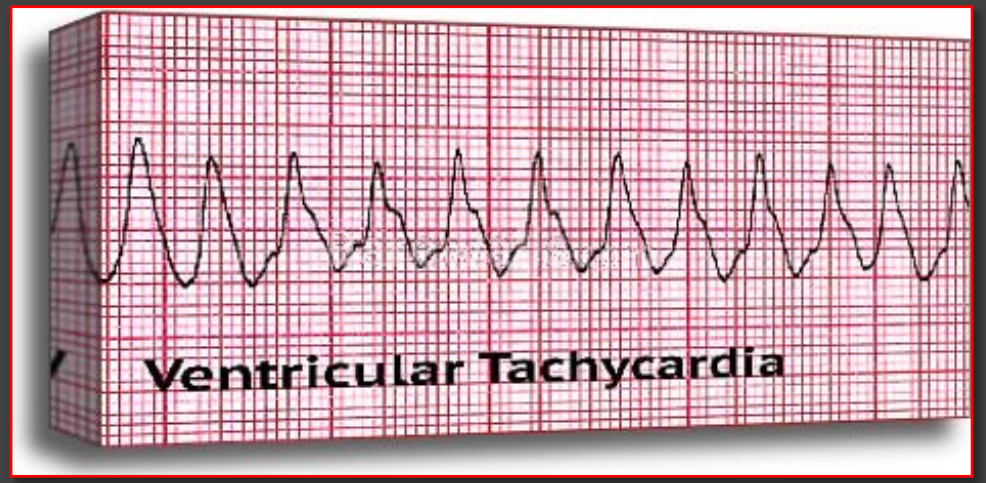


Build a Culture…

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!

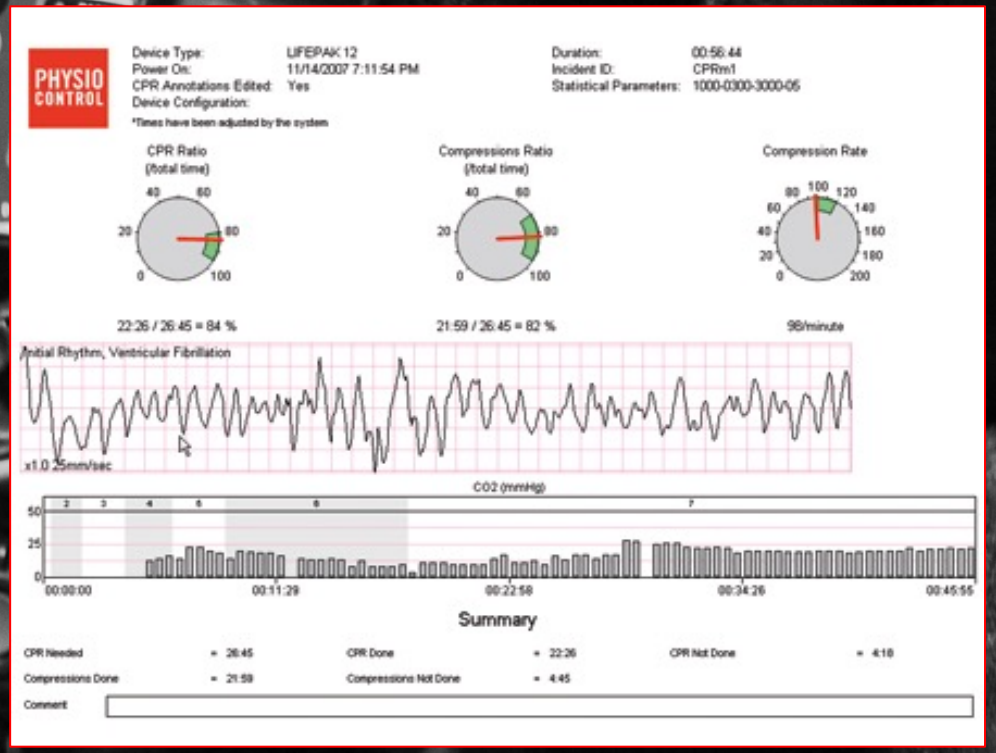

Manage the SECONDS…
by eliminating
ALL unnecessary pauses!
16 JEWELS

MASTER performance

by continued:

✓ measurement

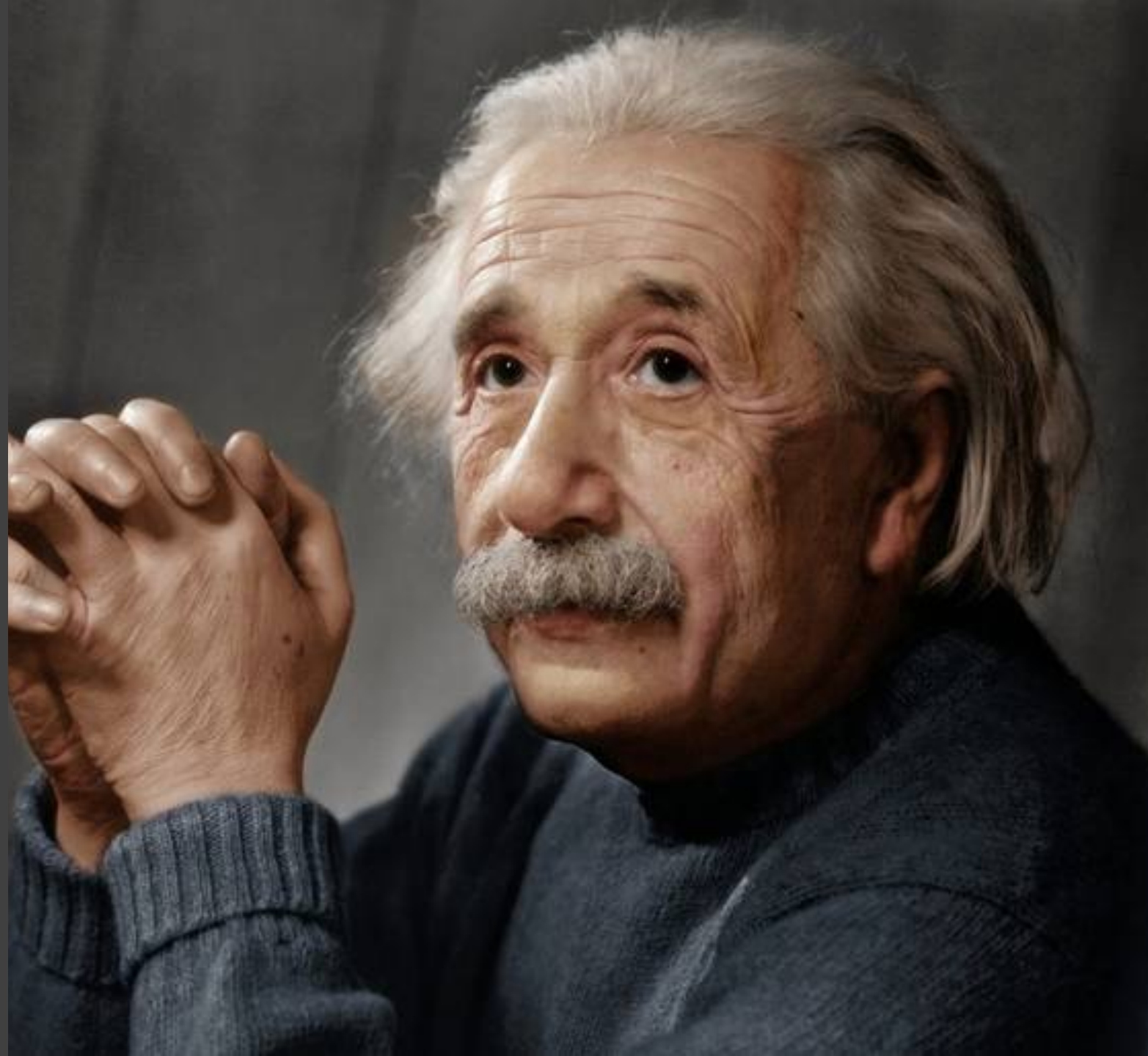
✓ improvement

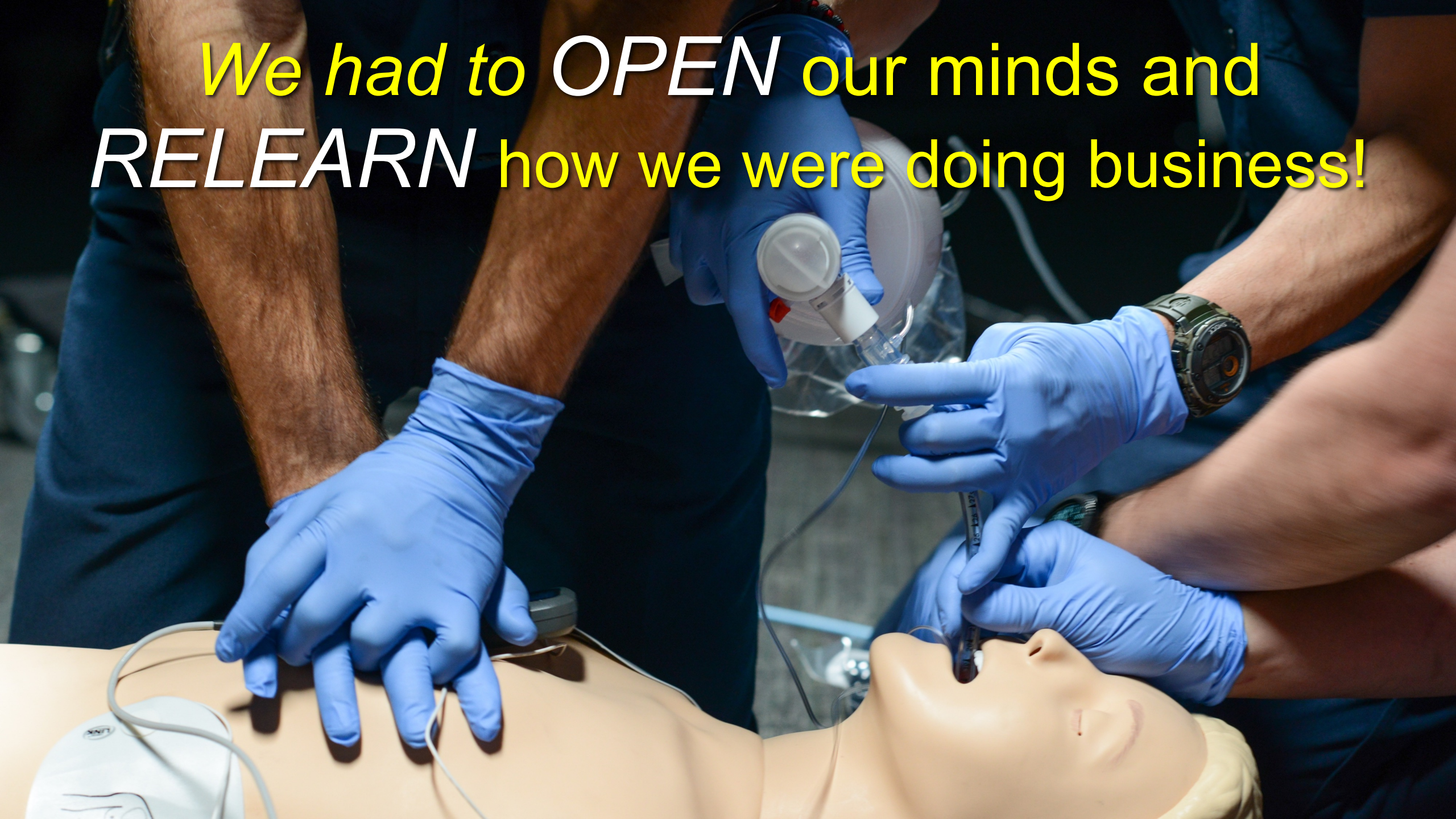


First things first…

The Science!

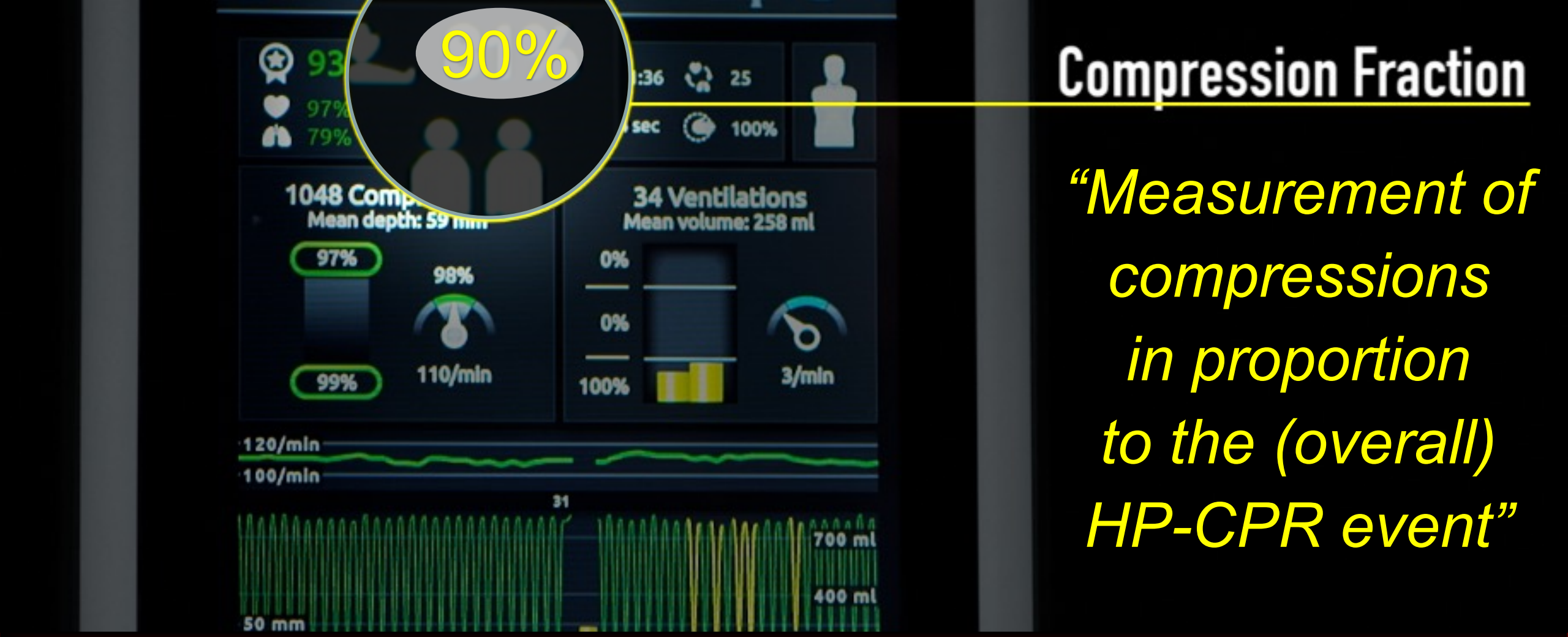
Operationalize it…!



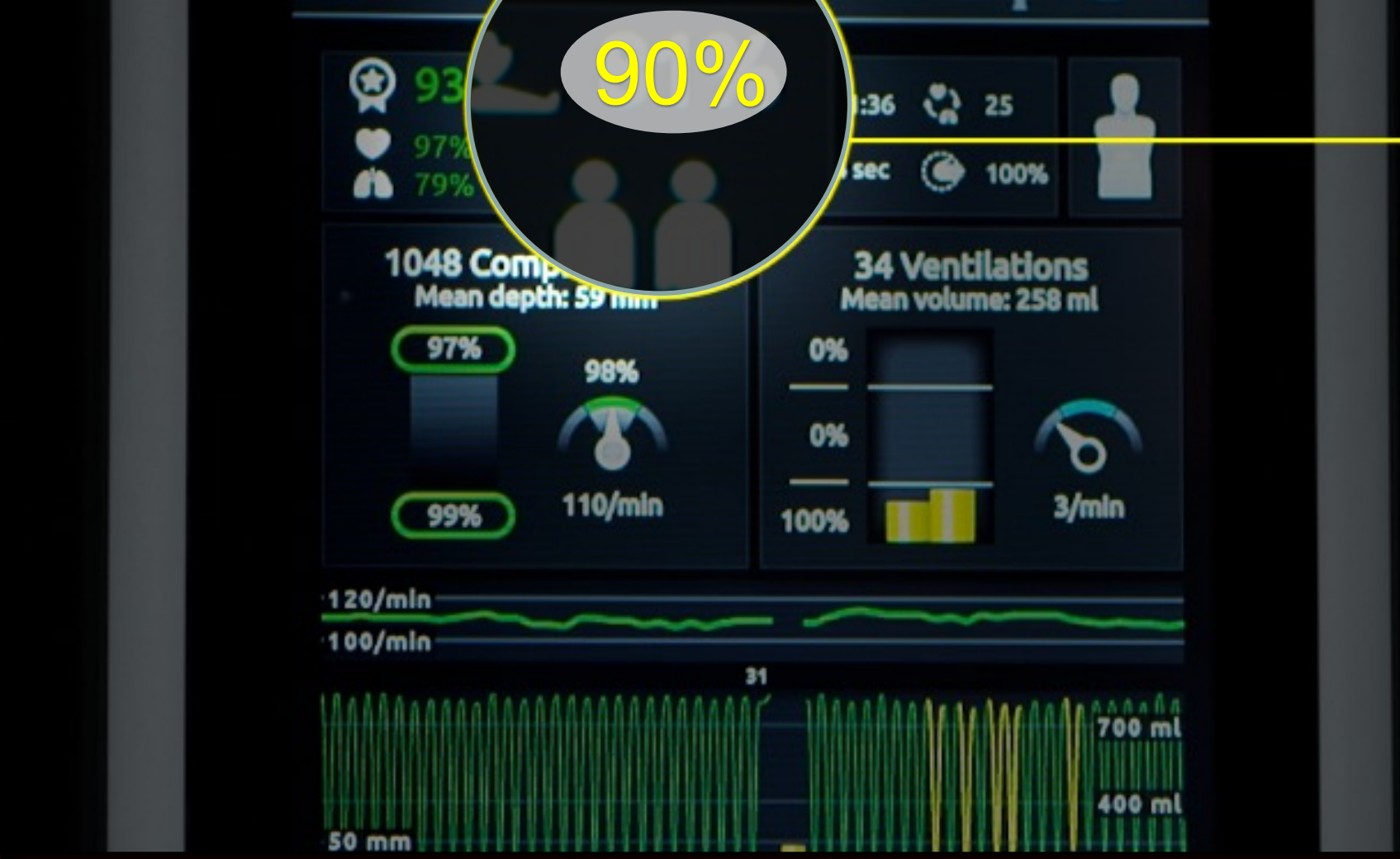

We had to OPEN our minds and
RELEARN how we were doing business!


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



Compression Fraction

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

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

Compression Fraction

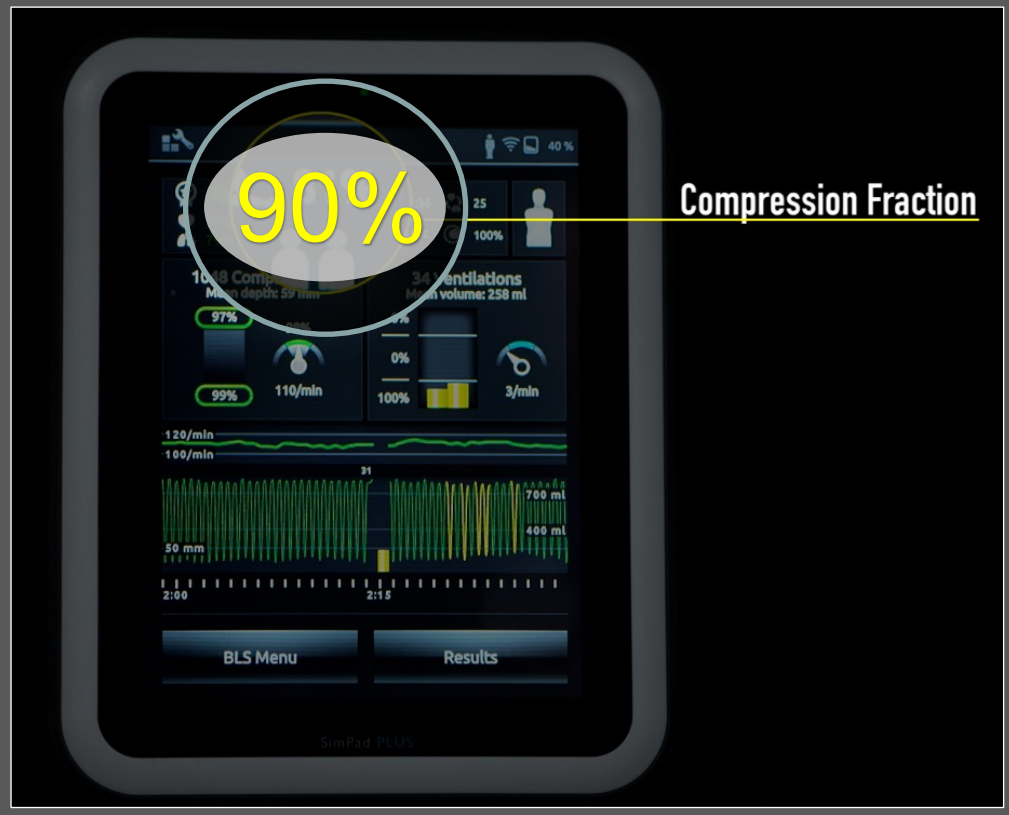
Compression Fraction

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?

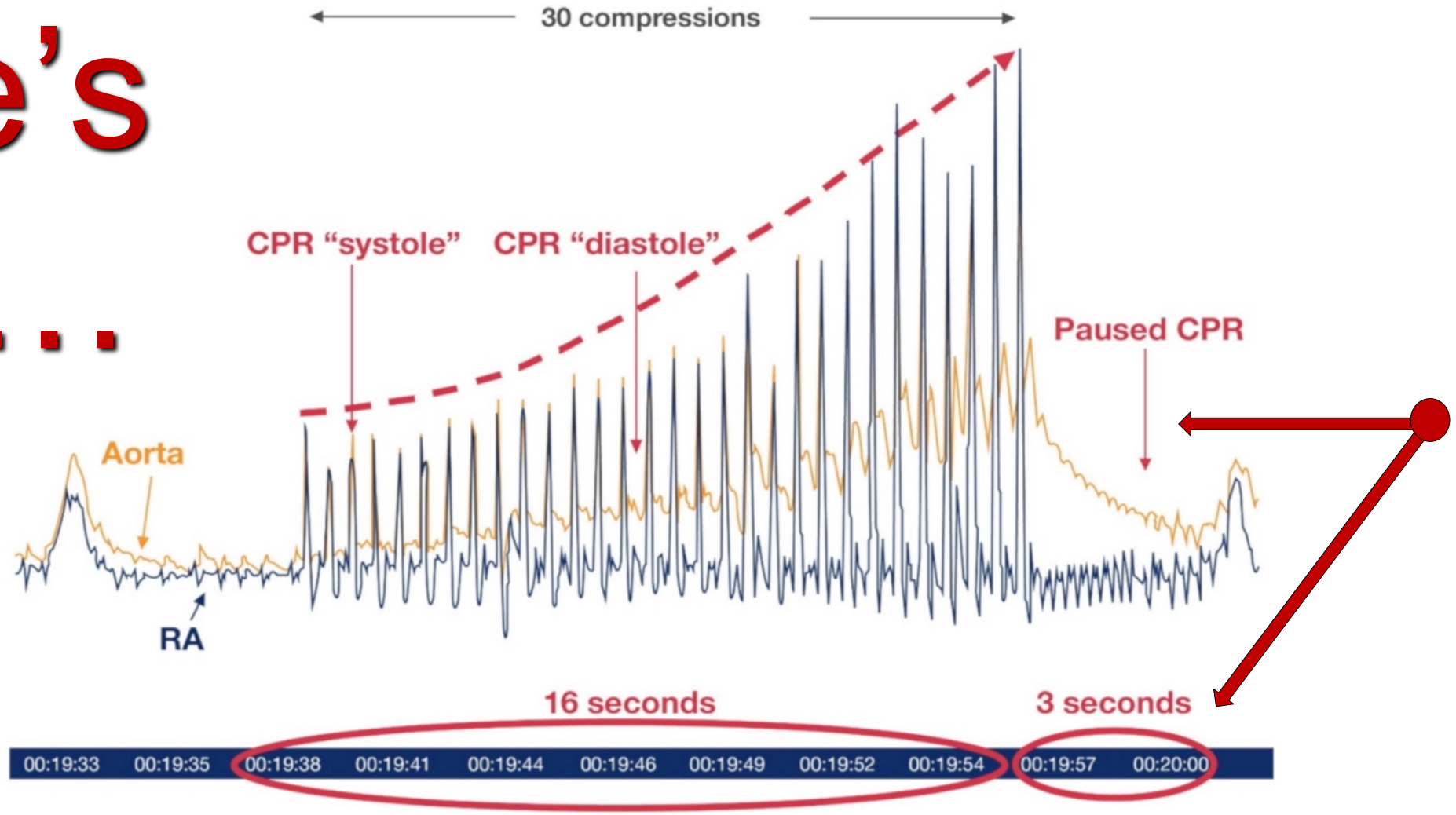
A pause is a pause…right?

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…



Data from Berg et al. *Circulation*. 2001.[12]
Data from Ewy et al. *Circulation*. 2007.[13]

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..!

Data from ROC 2013

The bottom LINE…

YOUR performance counts!!!

How do we know?

We track EVERY quantitative aspect of the resuscitation…

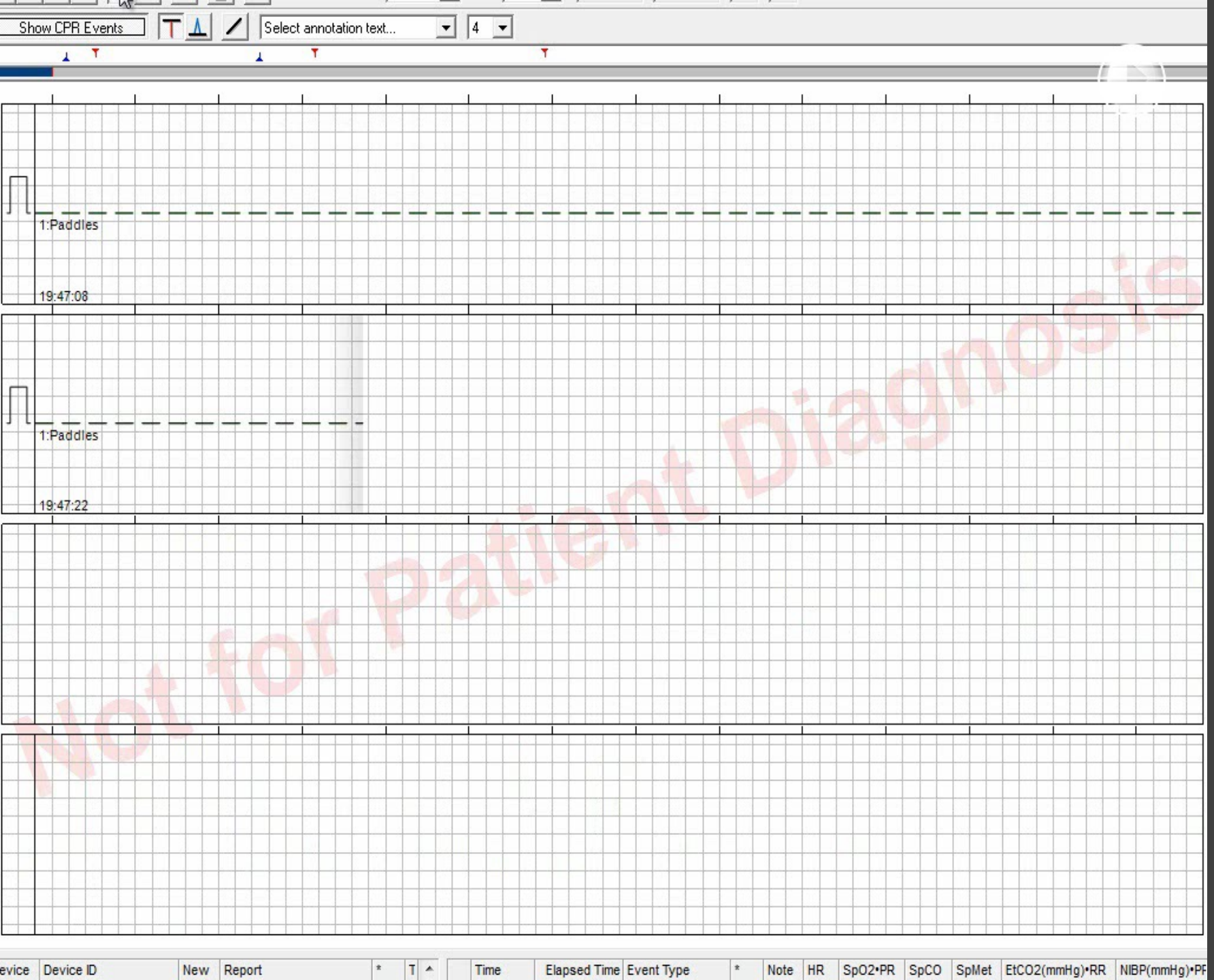
including audio!

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

Utstein Template

Pauses **COUNT**…!

DON’T be a “pause-causer”

My recommendations:

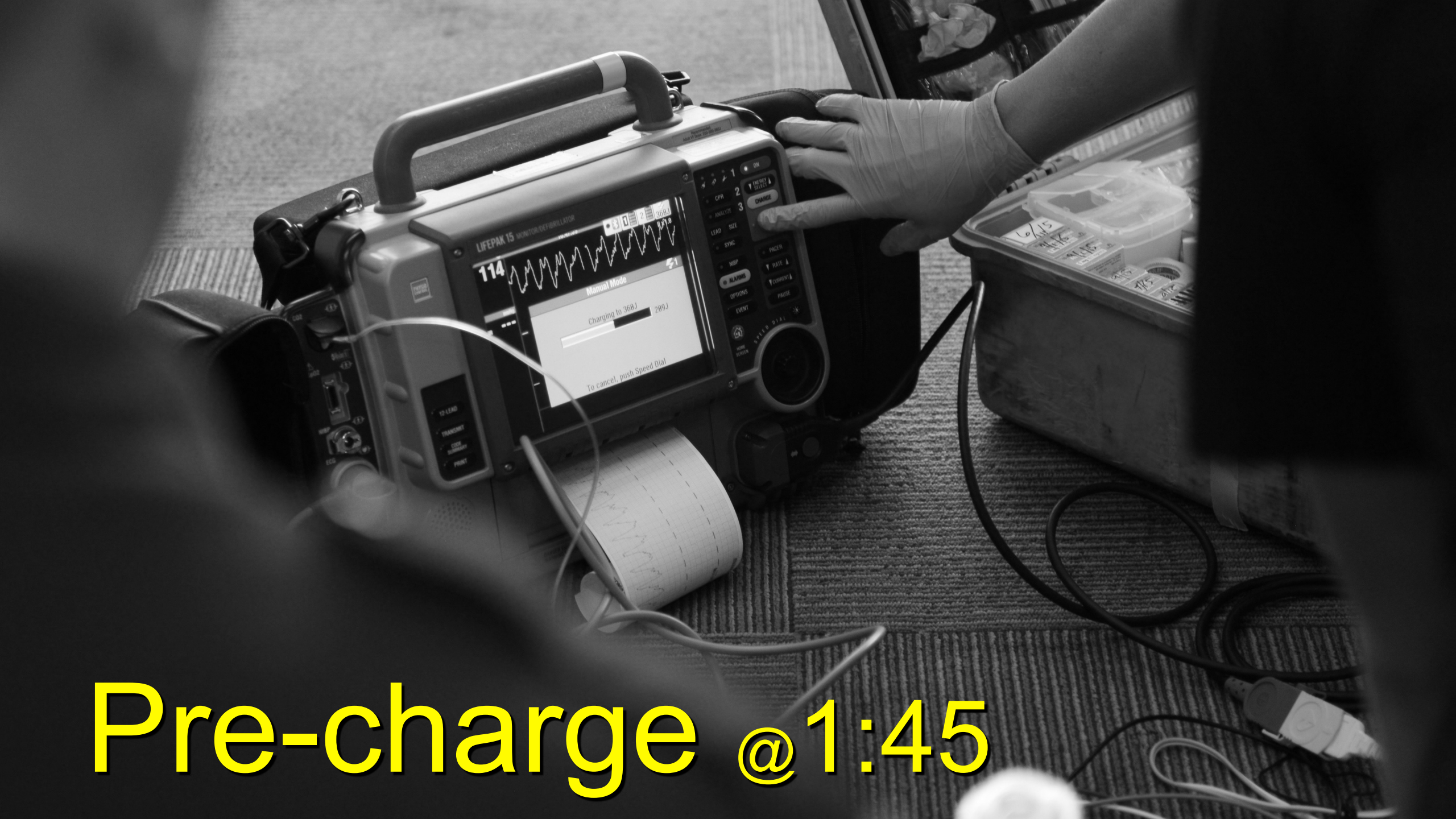
Move toward a HIGH PERFORMACE response to cardiac arrest in YOUR system!

LEARN

to eliminate
ALL unnecessary
pauses!

A Few
EXAMPLES:


Rotation with
Hover!



Pre-charge @1:45

Pre-Charge @1:45

Question…

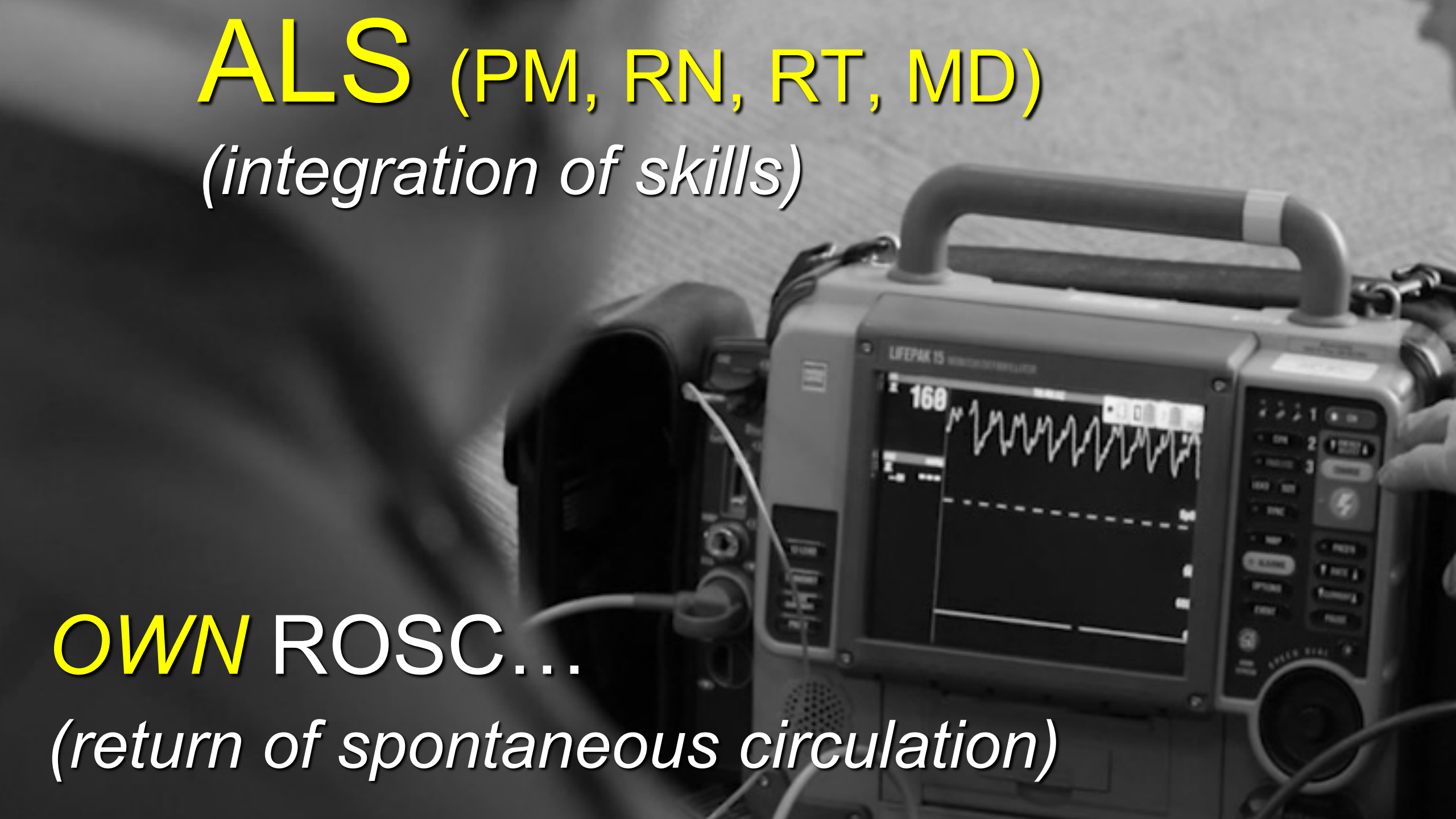
Do you pre-charge your manual devices at 1:45?

- ✓ 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!
FIRE DEPARTMENT
SEATTLE



ALS (PM, RN, RT, MD)

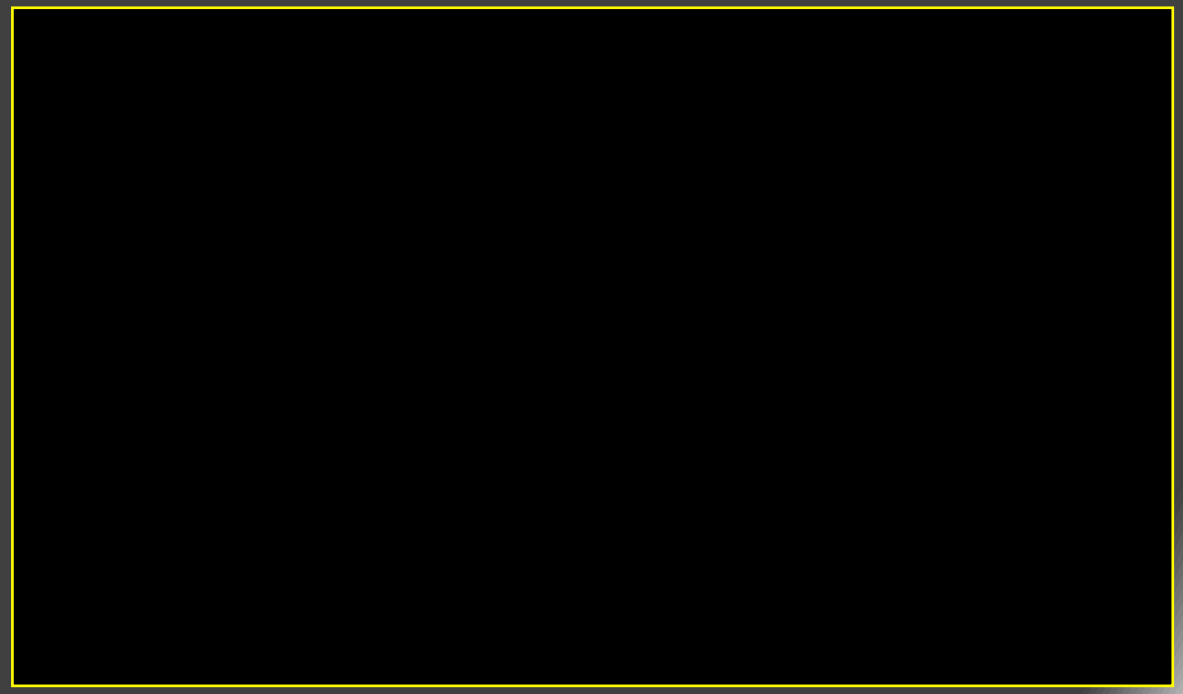
(integration of skills)

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)*

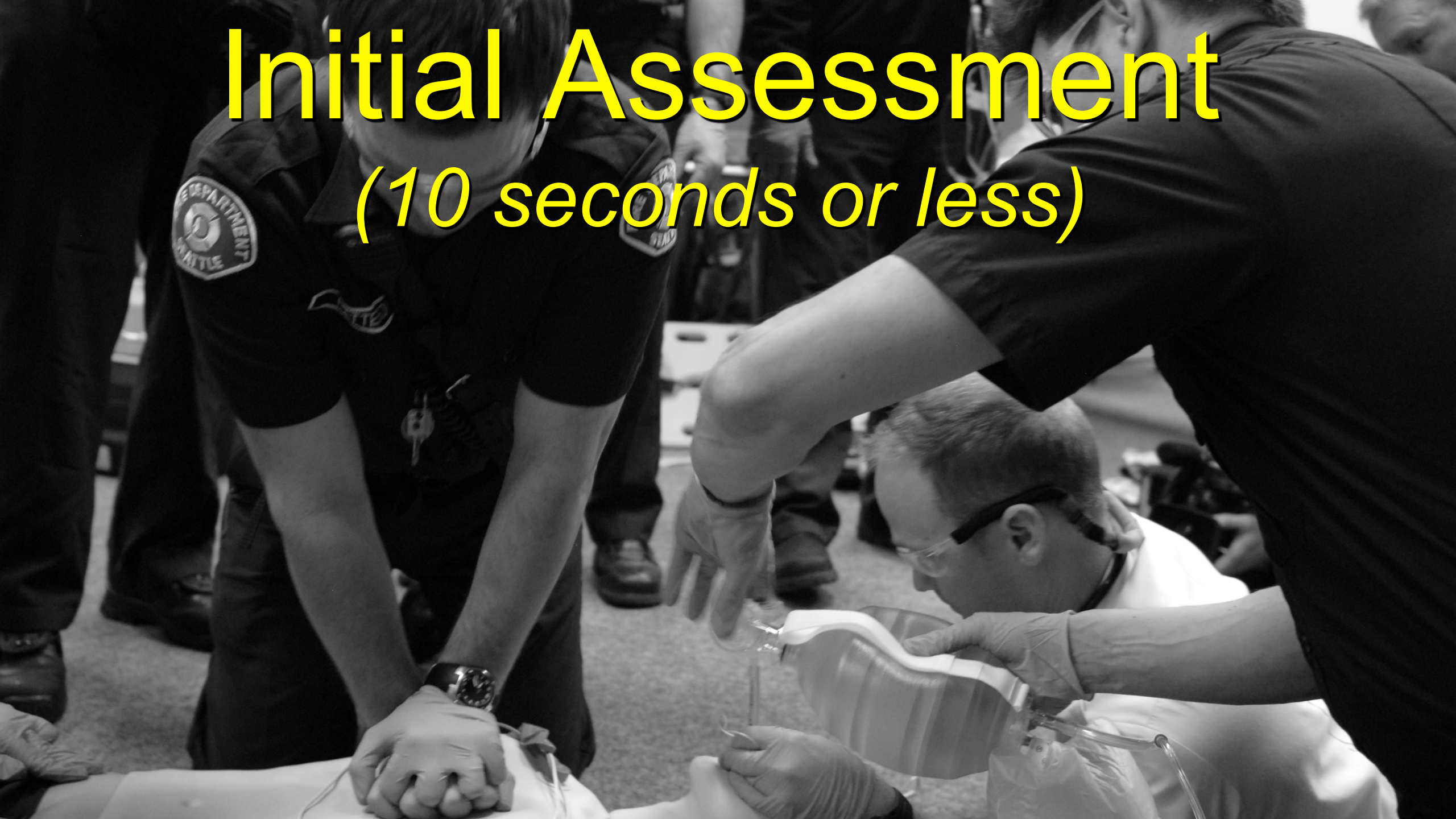
Crew Positions

HP-CPR Triangle

HP-CPR Triangle

Initial Assessment

(10 seconds or less)



Body Mechanics

Complete Body Mechanics

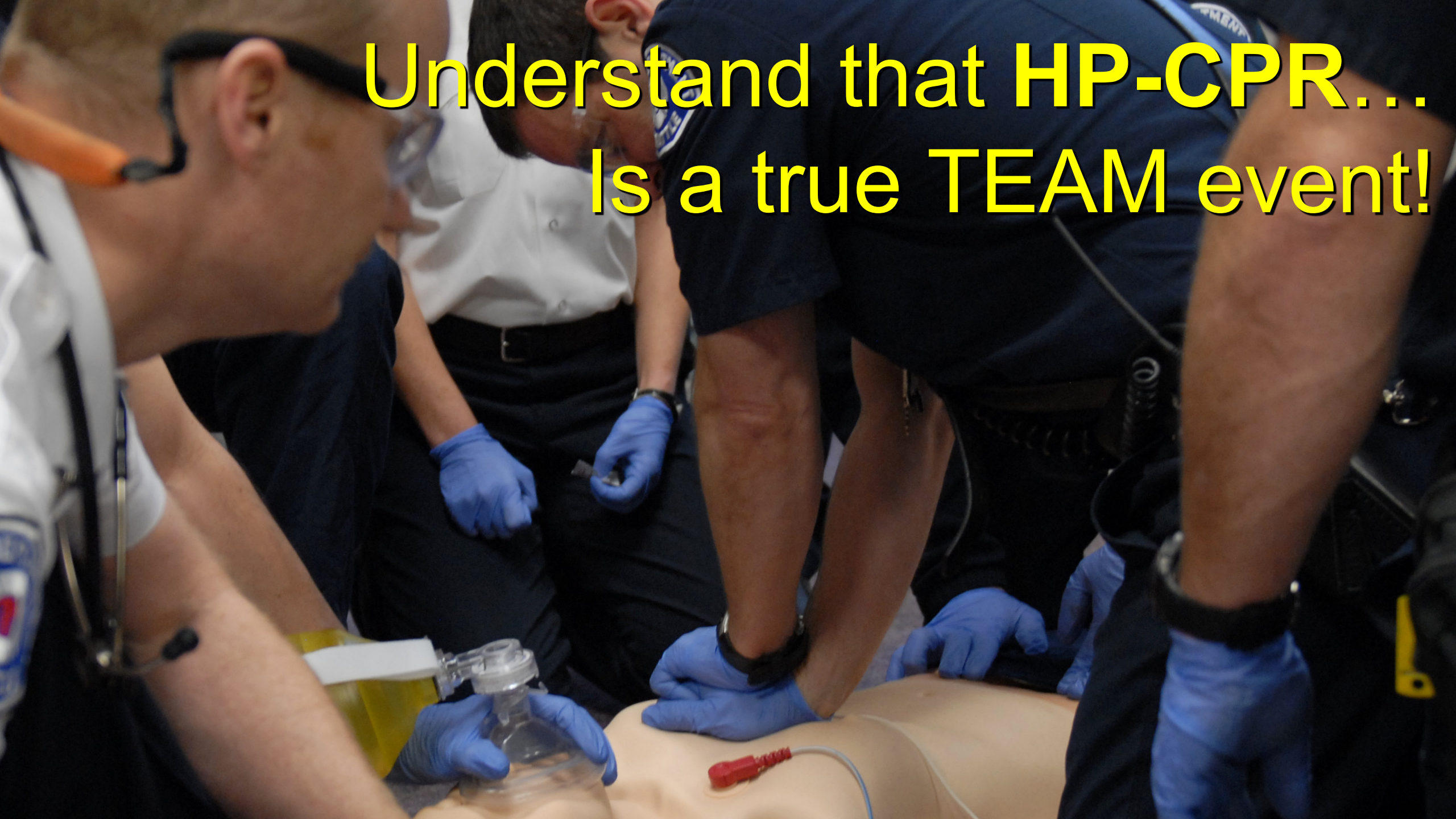
with Compression/Decompression

3 Finger Technique

(Controlled Ventilation)

Controlled Ventilation (3-Finger Technique)

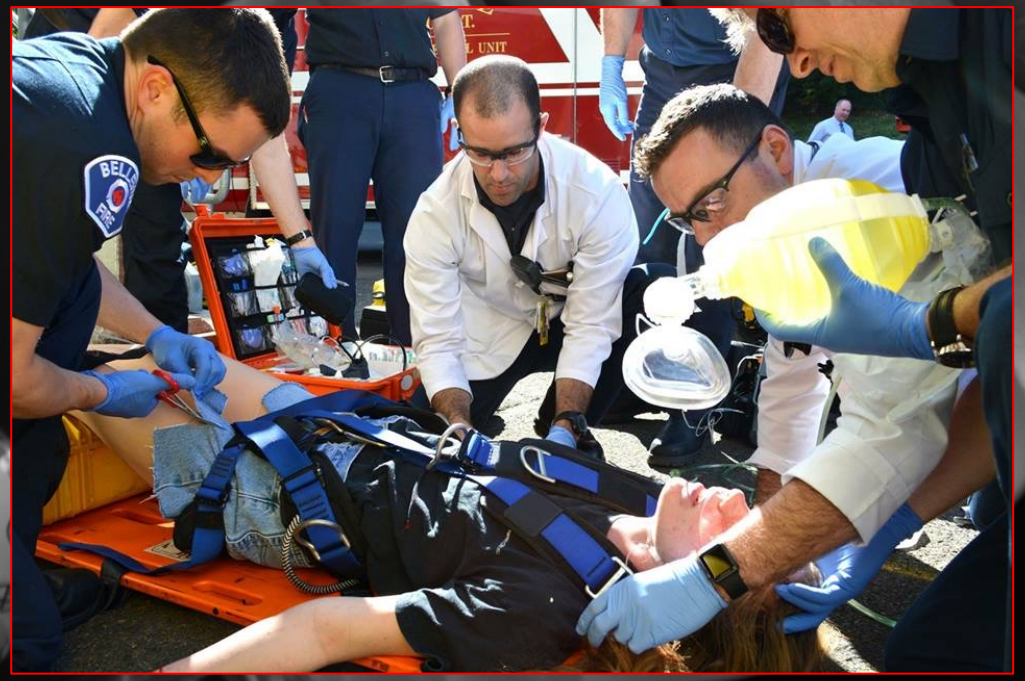
LASTLY…


Understand that **HP-CPR**…
Is a true TEAM event!

Full BLS/ALS Cardiac Arrest Scenario

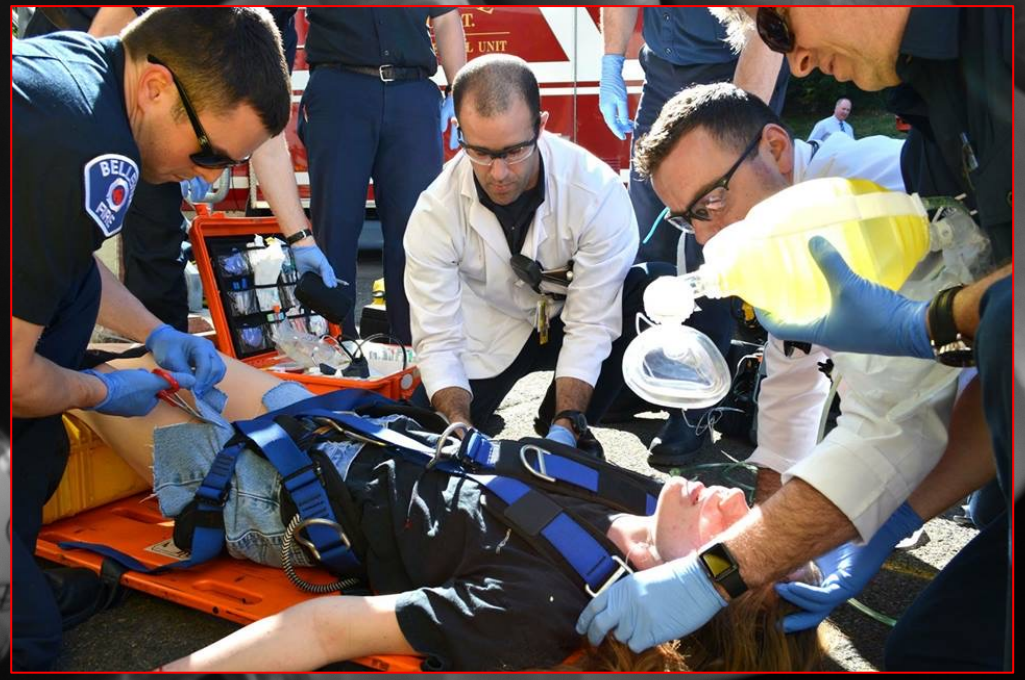
- Northshore Fire Department, WA
- Shoreline Fire Department, WA

Although our environments are COMPLETELY different…



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

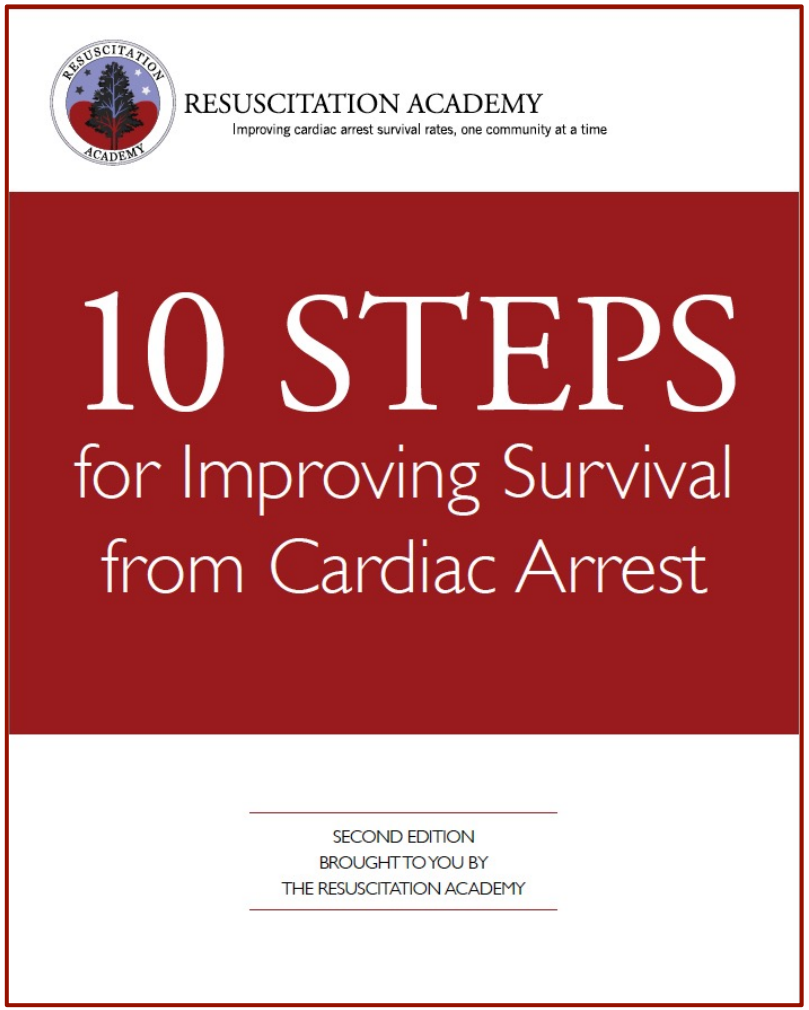
There MUST be a continuation of care once your patient reaches the ED

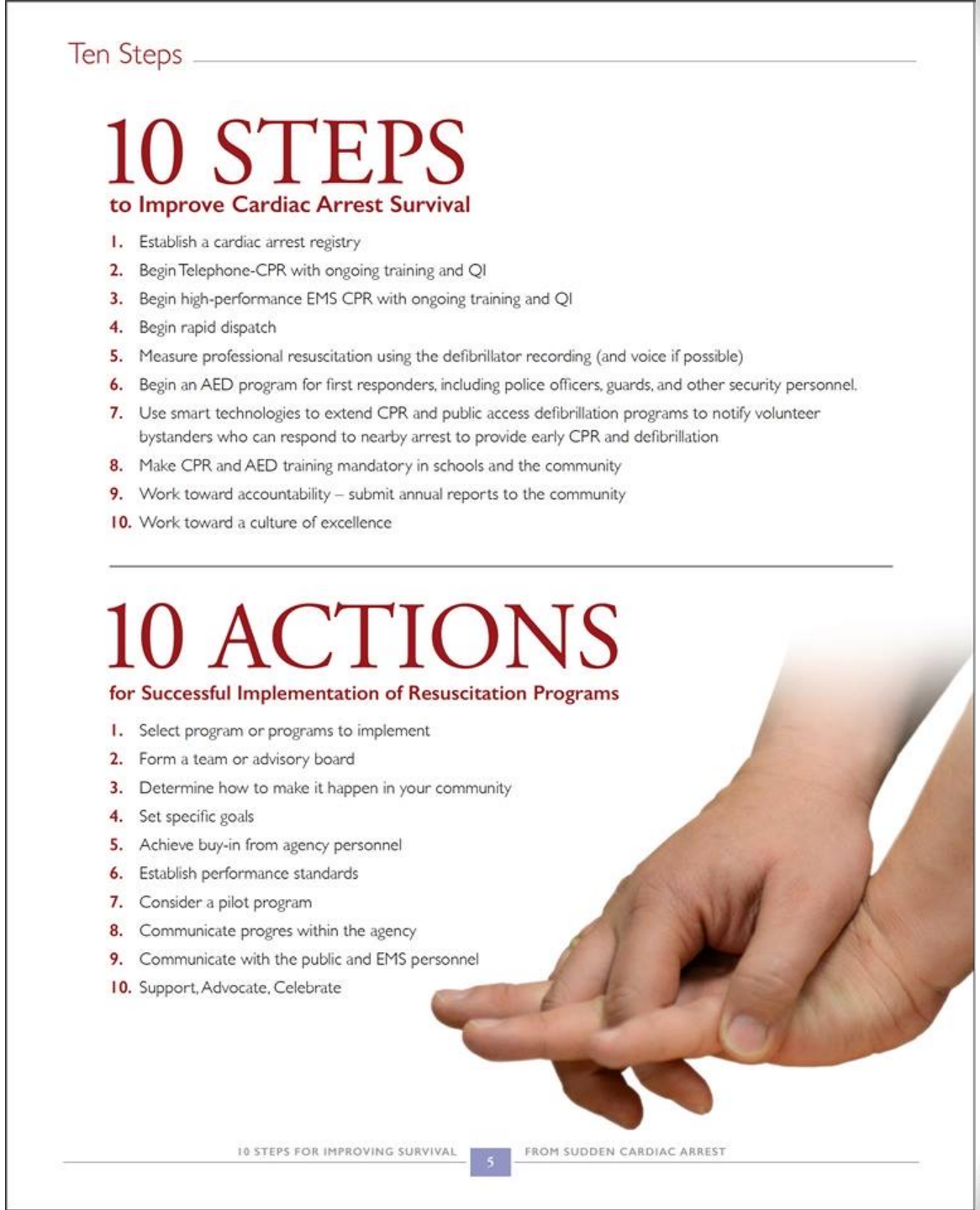


- ✓ Share HP-CPR strategies with local hospital
- ✓ Consider joint training with hospital staff


Helbock's
TOP FIVE
places to start

Resuscitation Academy





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

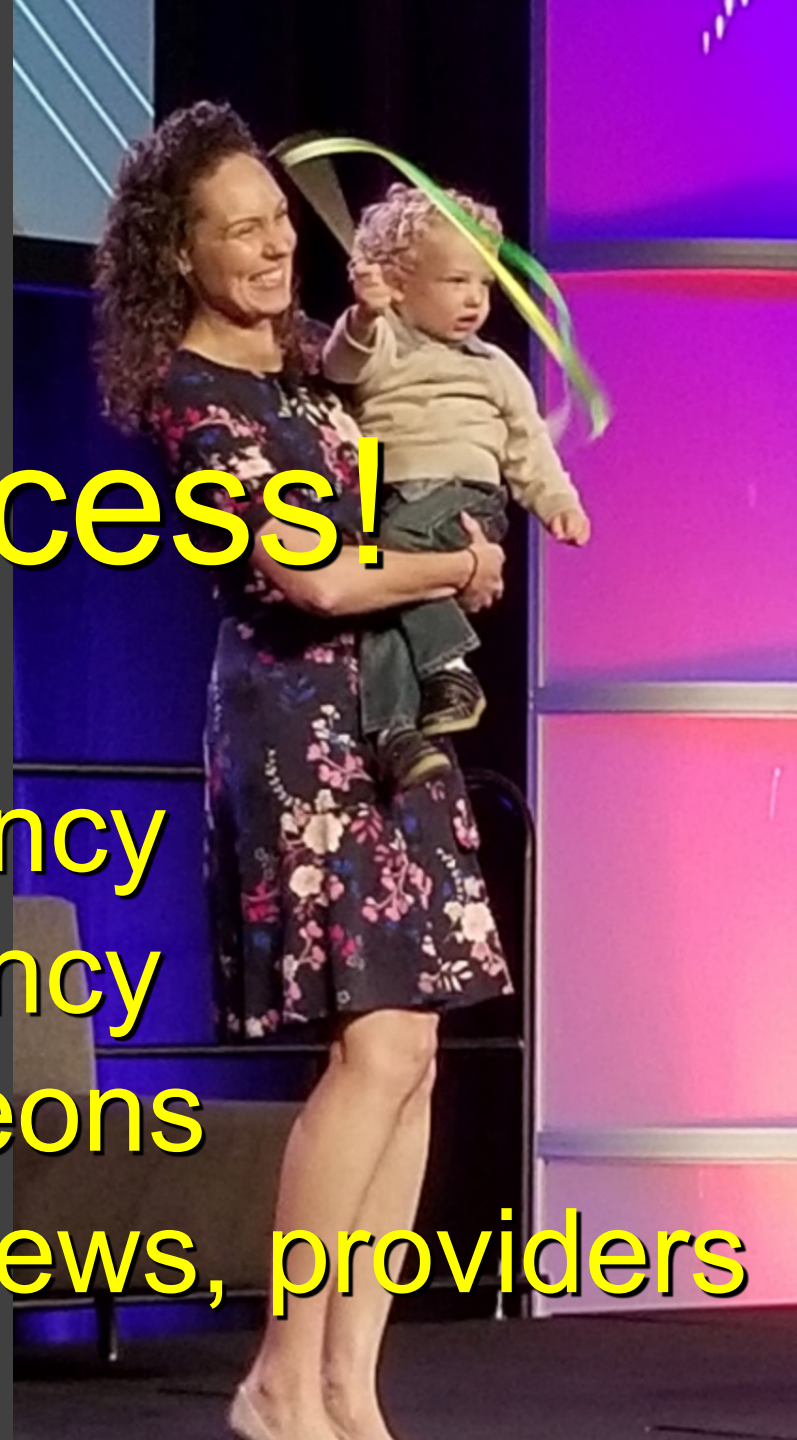
- ✓ Training performance with instrumented manikins
- ✓ Field performance by utilizing post-event analytics *(download the data)*
- ✓ Develop a feedback loop for ALL responders *(BLS/ALS)*

4. COLLECT / REPORT your DATA

- ✓ 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



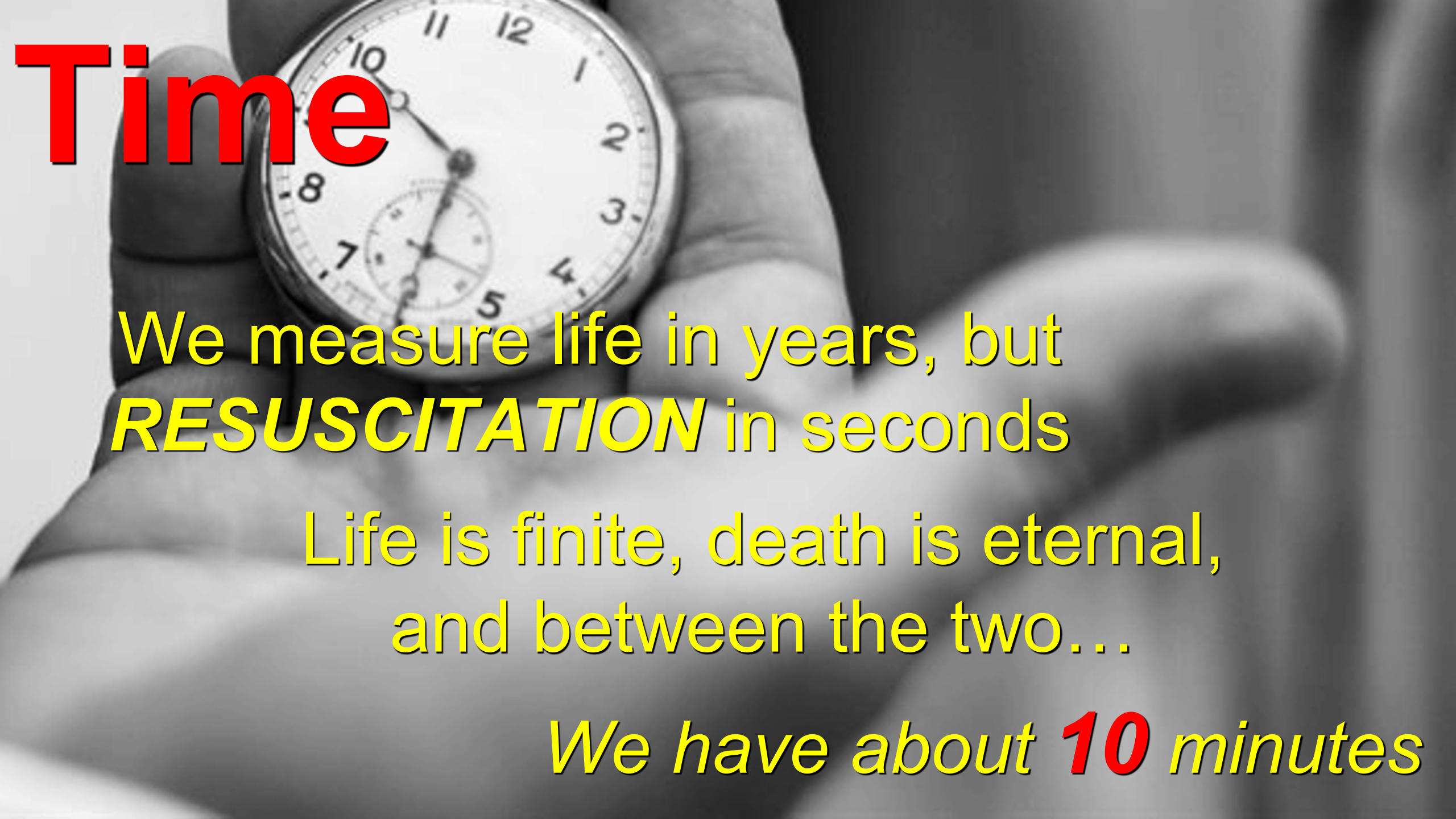

Work hard and continue to build your program around…
LIFEPAK 15 MONITOR/DEFIBRILLATOR
114
Manual Mode
Charging to 360J
289J
To cancel, push Speed Dial
ON
ENERGY SELECT
CHARGE
CPR
ANALYZE
LEAD
SIZE
SYNC
NIBP
ALARMS
OPTIONS
EVENT
PACER
RATE
CURRENT
PAUSE
A Culture of Excellence!

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

We measure life in years, but
RESUSCITATION in seconds

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

*We have about **10** minutes*


Mike Helbock M.I.C.P.
An Insider's Story
HP-CPR
LIFEPAK 15
Manual Mode
Charging to 360J
To cancel, push Speed Dial
QUESTIONS?
Thank you for everything you do…