





# Improving Cardiac Arrest Survival ... in your community

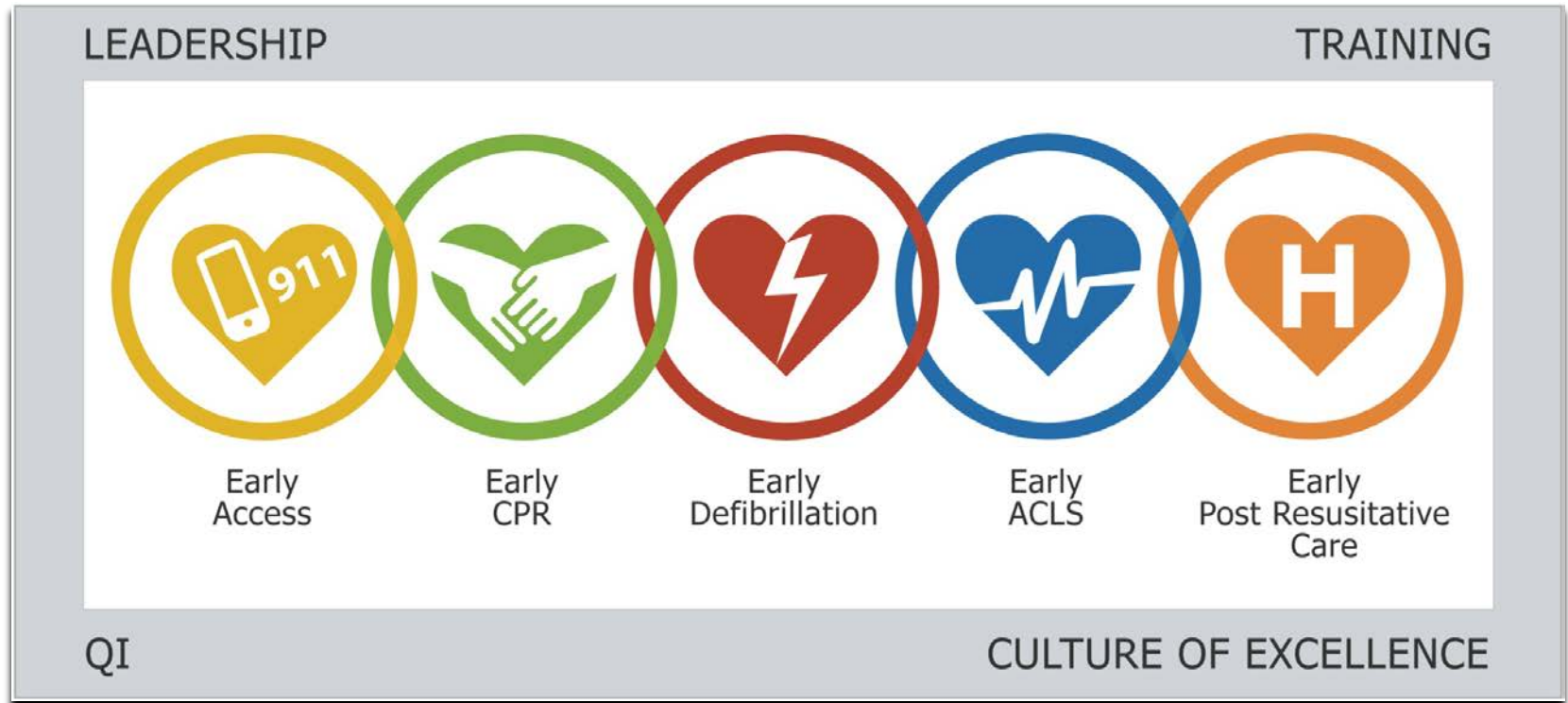


Global  
Resuscitation  
Alliance





# Ten Programs to Improve Cardiac Arrest Survival



# What programs?

BROUGHT TO YOU BY  
THE RESUSCITATION ACADEMY



## 10 Programs Steps for Improving Survival from Sudden Cardiac Arrest

based on the book "Resuscitate! How Your Community Can Improve Survival from Sudden Cardiac Arrest" by Mickey Eisenberg, M.D. and inspired by the Faculty of the Resuscitation Academy

# Part 1 : Low Hanging Fruit

- 
- A hand is shown reaching towards a single red apple hanging from a tree branch. The background is a blurred, grayscale image of other branches and leaves, emphasizing the apple as the 'low hanging fruit'.
- Cardiac Arrest Registry
  - Dispatcher Assisted CPR
  - High Performance CPR
  - Rapid Dispatch



# Why a Registry?

- Requires work (data collection/retrieval)
- Describes EMS & hospital outcomes
- Foundation of “measure to improve”
  - Performance feedback
  - Can itself improve outcome

## 1. Cardiac Arrest Registry



# DIRTY JOBS

## CARDIAC ARREST TRACKING SYSTEM

EVENT VARIABLES	OUTCOME VARIABLES
Demographic information	Died at scene
Age, sex	Admitted to hospital
Collapse before EMS arrival	Discharged alive
Witnessed collapse	Discharge location <i>(optional)</i>
Time of call to 911	CPC score on discharge <i>(optional)</i>
Resuscitation stopped because of DNR orders	
Rhythm on arrival <i>(or shockable rhythm on arrival)</i>	
PAD shock	
Dispatcher-assisted CPR	
Bystander CPR without dispatcher-assisted CPR	
Estimated time from call to 911 and bystander CPR <i>(half of interval from 911 call to scene arrival)</i>	
Time from call to 911 to time to dispatcher-assisted CPR <i>(first compression)</i>	
Time from call to 911 to time to EMS CPR	
Time from call to 911 to time to first shock	

# 1. Cardiac Arrest Registry



1. INCIDENT NUMBER: 2. PT # 3. STATE TRAUMA # 4. BLOOD STUDY # 5. MEDIC NUMBER 6. MAJ. 7. DAY 8. YEAR

9. INCIDENT ADDRESS

10. LOCATION: 1. Home 2. Other Res. 3. Pub. Indoor 4. Pub. Outdoor 5. Nursing Home 6. Group Home 7. Other

11. SPECIAL LOCATION / EVENT

12. PATIENT NAME (LAST, FIRST) 13. AGE 14. SEX

15. PATIENT HOME ADDRESS (Include City, State, Zip if not in Seattle) 16. PATIENT'S PHONE NO. 17. DOB

16. RACE 17. HISPANIC 18. NEAREST RELATIVE NAME 19. ADDRESS 20. PHONE #

21. RELATION 22. PHYSICIAN NAME 23. SPIC# OF HOSPITAL 24. Group Health

25. MEDICAL PROBLEM OR APT 26. EPD ARRIVAL BY: 27. EPD UNIT

28. GONADIC ARREST AFTER 29. FIRST GONADIC ARREST BY 30. POSTURAL BP

31. INITIAL ECG GLOSSOW SCHEMA CODES (A) (SEE CODES ABOVE) 32. INITIAL TRAUMA CODE TEST, (B) (SEE CODES ABOVE) 33. INITIAL (A-B)

34. HOSPITAL ADMISSION (Using GLOSSOW CODES) (C) 35. HOSPITAL TRAUMA CODE TEST, (D) (SEE CODES ABOVE) 36. HOSPITAL (A-B)

37. EMT ACTION TAKEN (check all that apply) 38. ACCIDENT INFO (check all that apply)

39. BEST EMT RESPONSE (check all that apply) 40. HOSPITAL RECEIVING DEPT



EMS

Data Gathering

Incident Report

Print Report

INCIDENT # F050000582  
INCIDENT DATE: 1/2/2005 16:49:51 hrs

Agency: SFD  
Jurisdiction: SFD

Incident Overview

Location: 12739 39th Av Ne

City: Seattle, WA 98125

Initial Problem: MED7 - Medic 7 Person Rule  
Type:

Final Problem: MED7 - Medic Resp, 7 Mem. Rule

Initial Alarm Level: 1

Final Alarm Level: 1

Units Assigned: E39 E40 M16

Response Area: Battalion 6

Disposition:

Location Information

Location Name:

Map Reference:

Call-Taking Information

Taken By:

REF

Dispatcher Code:

1.56/M UNC UNR



Units Assigned (\* Primary Unit)

Unit	Assigned	Enroute	Arrived	Transport	Trans. Complete	Complete	Cancel Reason	ETA
E39	16:50:28	16:51:29	16:55:02*			17:21:01		2:52
E40	16:50:28	16:51:39	16:55:03			17:19:50		6:54
M16*	16:50:28	16:51:41	17:00:06			17:33:32		10:40

By: REF

Unit Line-Up Info

Unit	SFD	Name	Rank

Dispatch

Hospital(s)







**Part A : Demographic Information**

**1 - Street Address (Where Arrest Occurred)**

**2 - City**  **3 - State**  **4 - Zip Code**

**5 - First Name**  **6 - Last Name**

**7 - Age**   Days  Months  Years **9 - Date of Birth**   
 DOB Unknown

**10 - Gender**  **11 - Race/Ethnicity**  
 American-Indian/Alaska  Hispanic/Latino  Unknown  
 Asian  Native Hawaiian/Pacific Islander  
 Black/African-American  White

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**12 - Medical history**  
 No  Unknown  Cancer  Diabetes  Heart Disease  Hyperlipidemia  
 Hypertension  Renal Disease  Respiratory Disease  Stroke  Other

**Part B : Run Information**

**13 - EMS Agency ID** **14 - Date of Arrest** **15 - Incident #**  
 00000000012345

**First Responding Agency**

**16 - Fire/First Responder**  sort **17 - Destination Hospital**  sort

**Part C : Arrest Information**

**18 - Location Type**  Home/Residence  Healthcare Facility  Other: Specify   
 Public/Commercial Building  Place of Recreation   
 Street/Hwy  Industrial Place

**19 - Arrest Witnessed**  Witnessed Arrest  Unwitnessed Arrest **20 - Arrest After Arrival of 911 Responder**  Yes  No

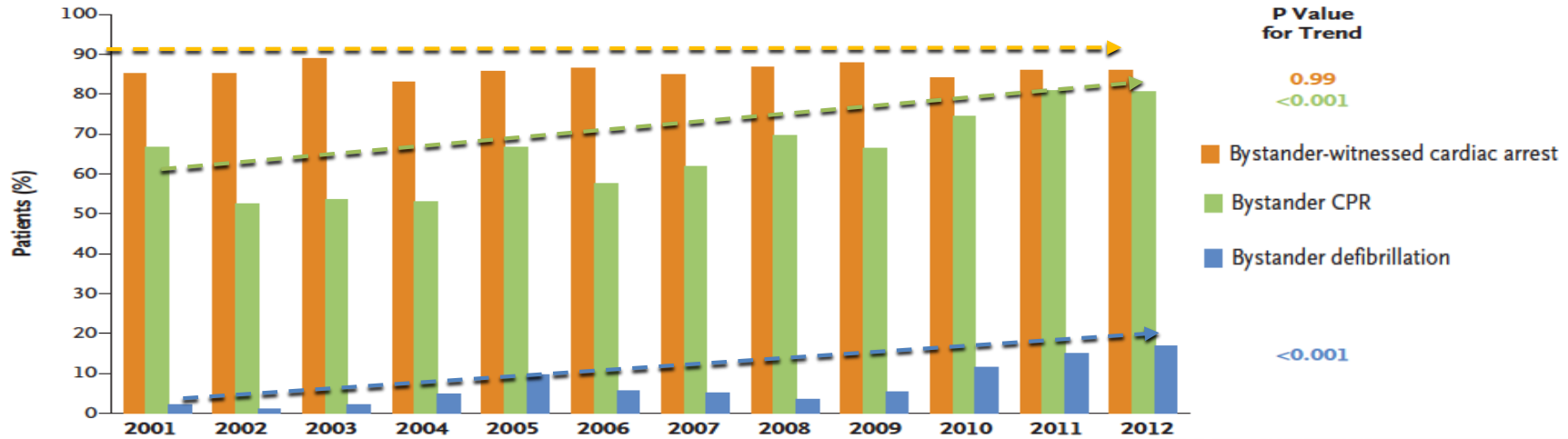
**21 - Presumed Cardiac Arrest Etiology**  
 Presumed Cardiac Etiology  
 Trauma  
 Respiratory

# 1. Cardiac Arrest Registry

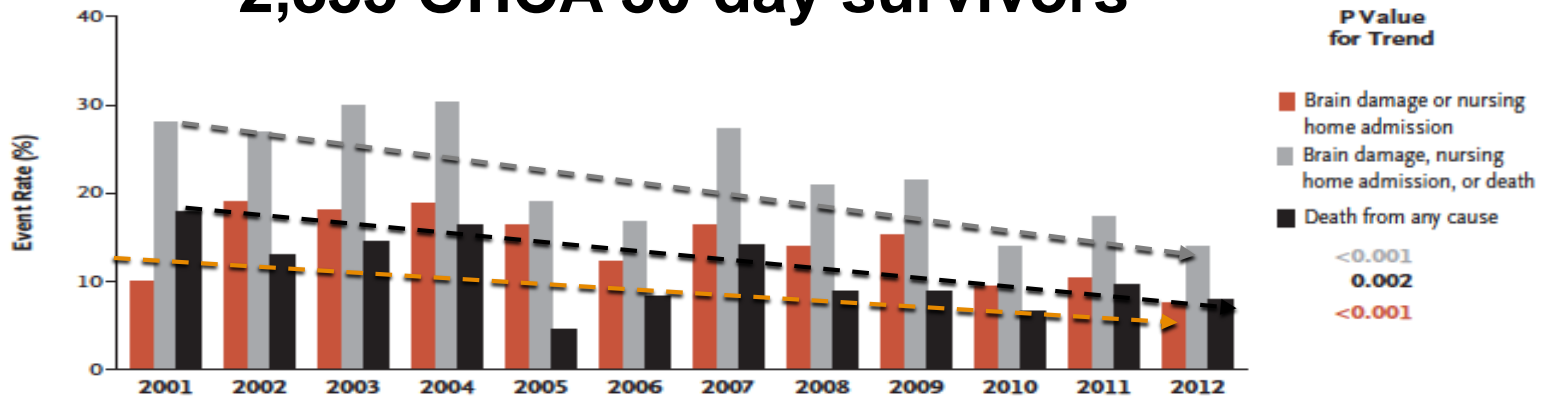
# Bystander Efforts and 1-Year Outcomes in Out-of-Hospital Cardiac Arrest

Kristian Kragholm, M.D., Ph.D., Mads Wissenberg, M.D., Ph.D., et al ...

## 34,459 non-nursing home OHCA - Denmark



## 2,855 OHCA 30-day survivors



# Measure . . .



and Improve

1. Cardiac Arrest Registry





## 2. Dispatch Assisted / Telecommunicator CPR

### Emergency Medical Service Dispatch Cardiopulmonary Resuscitation Prearrival Instructions to Improve Survival From Out-of-Hospital Cardiac Arrest

A Scientific Statement From the American Heart Association

*Endorsed by the Association of Public-Safety Communications Officials International, International Academies of Emergency Dispatch, National Academies of Emergency Dispatch, National Association of Emergency Medical Technicians, National Association of EMS Physicians, and National Association of State EMS Officials*

E. Brooke Lerner, PhD, Chair; Thomas D. Rea, MD, MPH; Bentley J. Bobrow, MD; Joe E. Acker III, EMT-P, MPH; Robert A. Berg, MD, FAHA; Steven C. Brooks, MD, MHSc, FRCPC; David C. Cone, MD; Marc Gay, BA, EMT-P; Lana M. Gent, PhD; Greg Mears, MD, FACEP; Vinay M. Nadkarni, MD, FAHA; Robert E. O'Connor, MD, MPH, FAHA; Jerald Potts, PhD; Michael R. Sayre, MD, FAHA; Robert A. Swor, DO; Andrew H. Travers, MD, MSc, FRCPC; on behalf of the American Heart Association Emergency Cardiovascular Care Committee and the Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation



## 2. Dispatch Assisted / Telecommunicator CPR



- Prioritize critical questions
- Performance standards
  - % recognition of cardiac arrest
  - % delivering instructions
  - Time to CA recognition
  - Time to first compression
- Quality feedback essential

Is he/she conscious (awake) and responding?



Is he/she breathing normally?

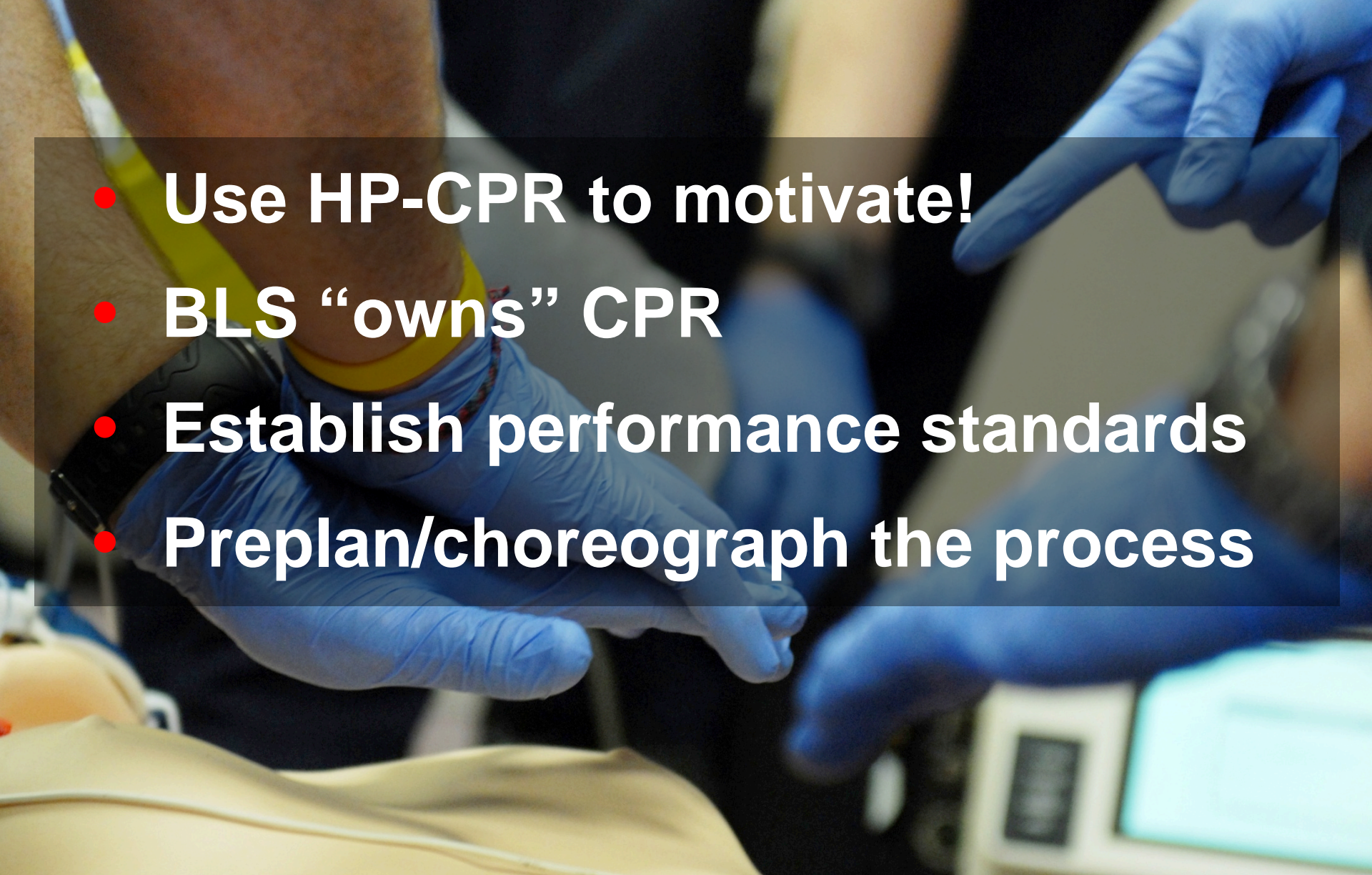


Probable cardiac arrest

- Send maximum help
- Begin telephone CPR

## 2. Dispatch Assisted / Telecommunicator CPR



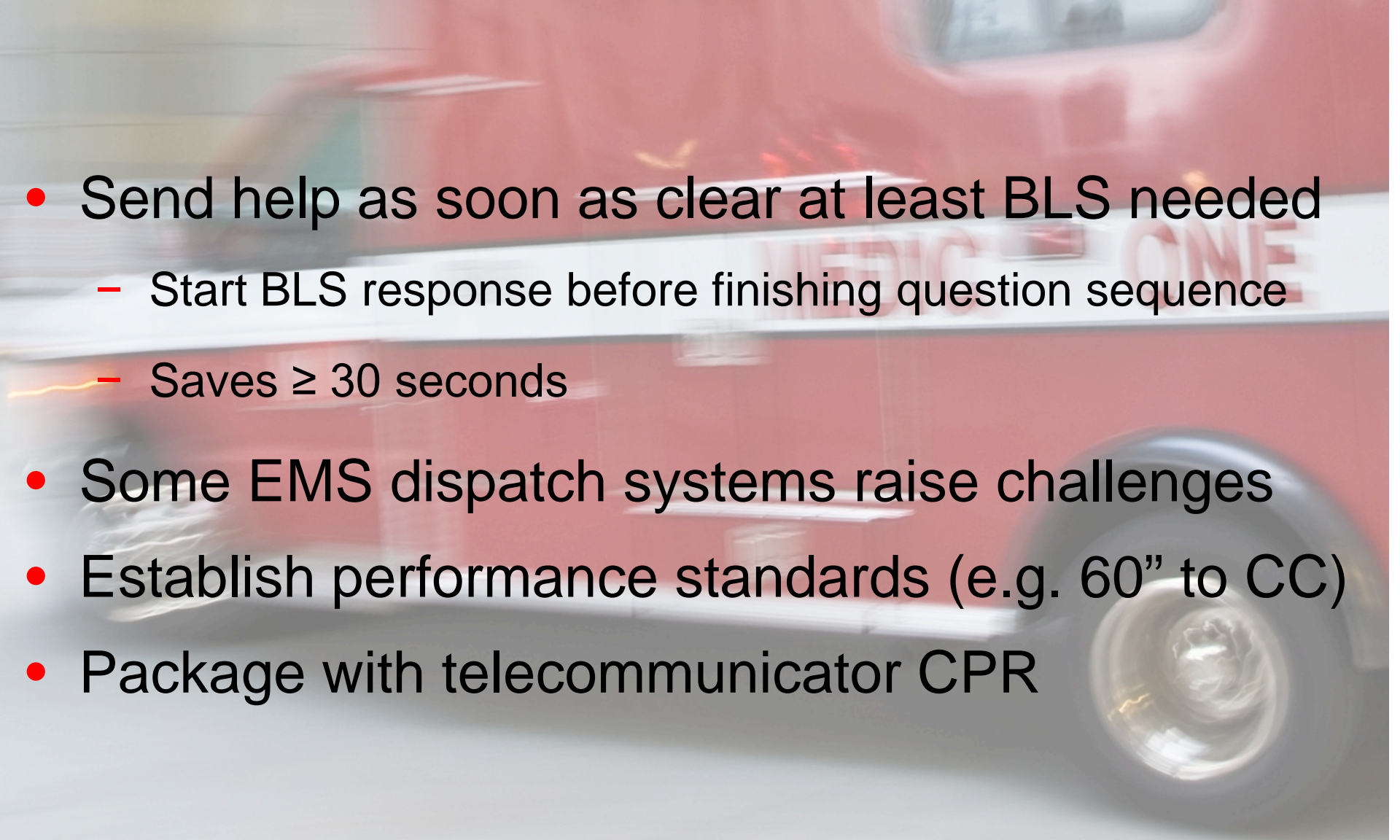
- 
- **Use HP-CPR to motivate!**
  - **BLS “owns” CPR**
  - **Establish performance standards**
  - **Preplan/choreograph the process**

### 3. High Performance CPR





## 4. Rapid Dispatch

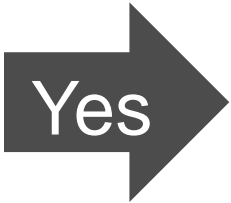
- 
- Send help as soon as clear at least BLS needed
    - Start BLS response before finishing question sequence
    - Saves  $\geq 30$  seconds
  - Some EMS dispatch systems raise challenges
  - Establish performance standards (e.g. 60" to CC)
  - Package with telecommunicator CPR

## 4. Rapid Dispatch



1

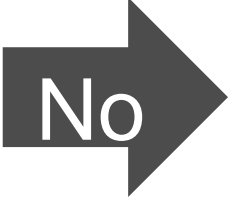
Is help needed?



Dispatch BLS

2

Is he/she **conscious**?



Probable Cardiac Arrest

3

Is he/she breathing **normally**?

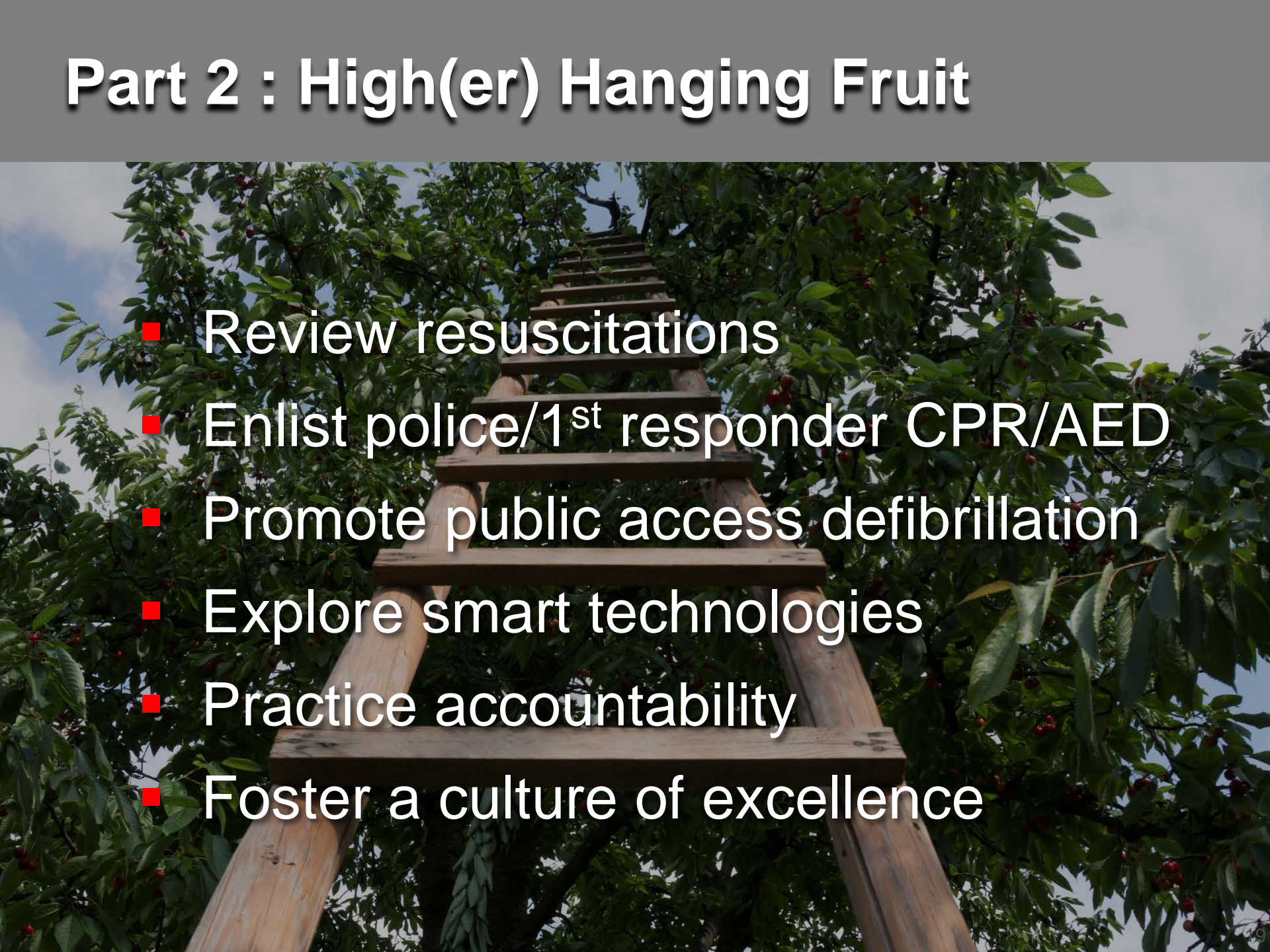


Send Maximum Help Begin T-CPR

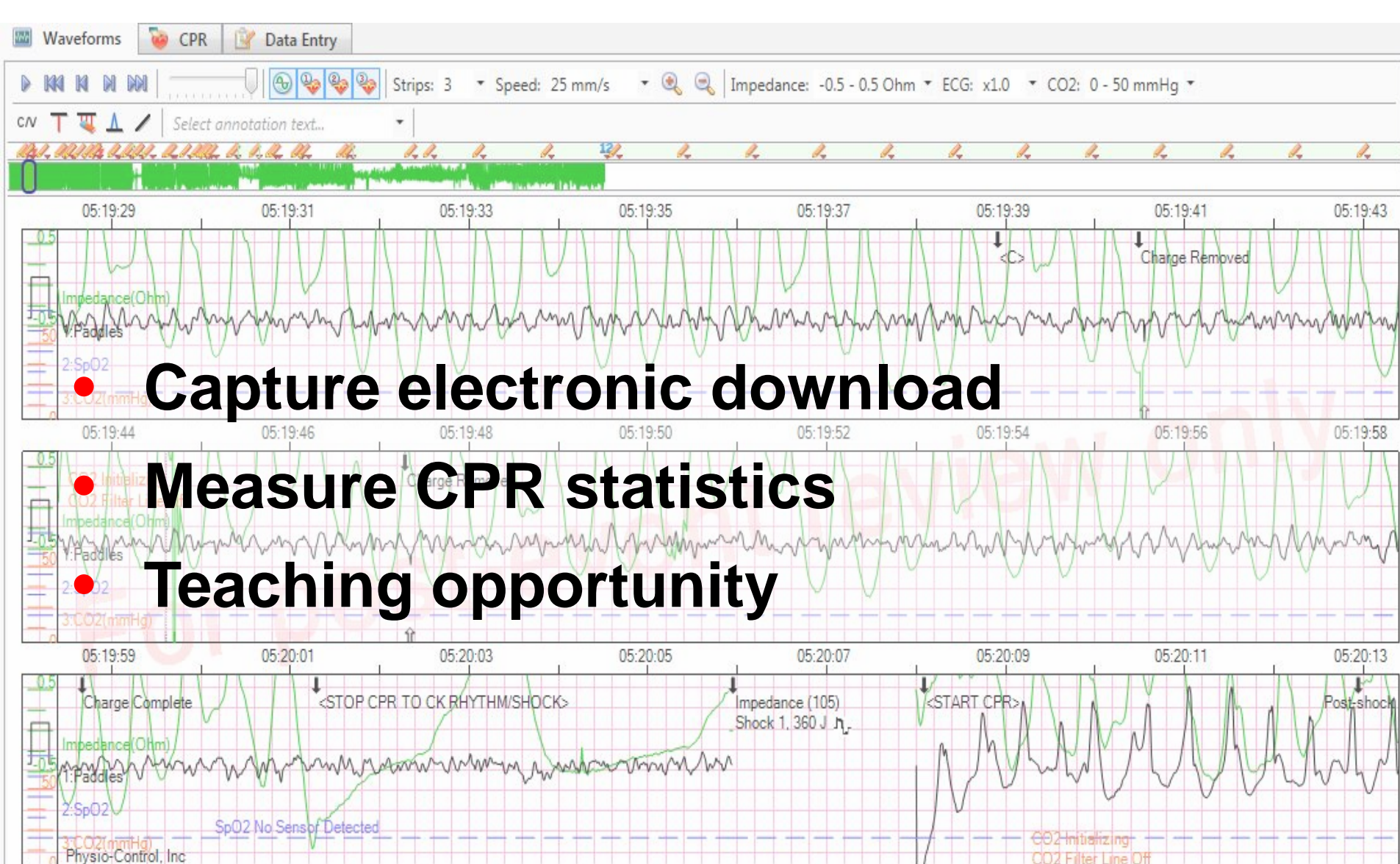


4. Rapid Dispatch

# Part 2 : High(er) Hanging Fruit

- 
- Review resuscitations
  - Enlist police/1<sup>st</sup> responder CPR/AED
  - Promote public access defibrillation
  - Explore smart technologies
  - Practice accountability
  - Foster a culture of excellence





## 5. Resuscitation Review





**Voice**



...the next best thing to  
being there.



**5. Resuscitation Review**



Can explain ... gaps in chest compression  
... special circumstances  
... scene control & choreography

## 5. Resuscitation Review



# Defib Review: Feedback

## Summary CPR Performance



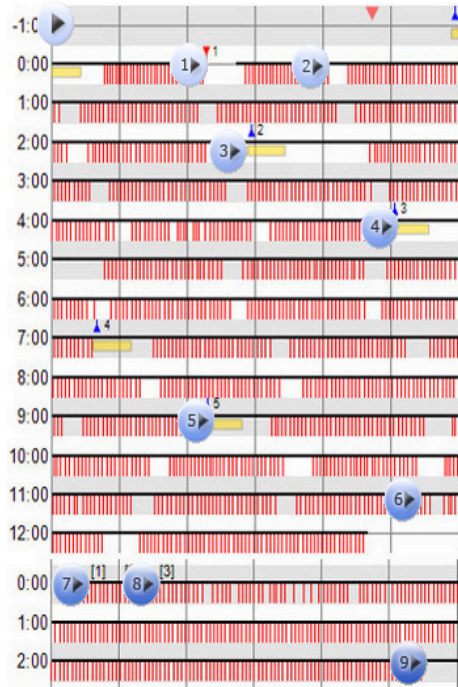
[Overall CPR Fraction](#)  
[Average Chest Compression Rate](#)  
[Average Peri-Shock Pause](#)

Current Case	KC Average	Goal
89%	87%	90%
101 cpm	110 cpm	100-110 cpm
5 sec	18 sec	<15 sec



## Case Summary

[Click buttons below to play video at select points](#)

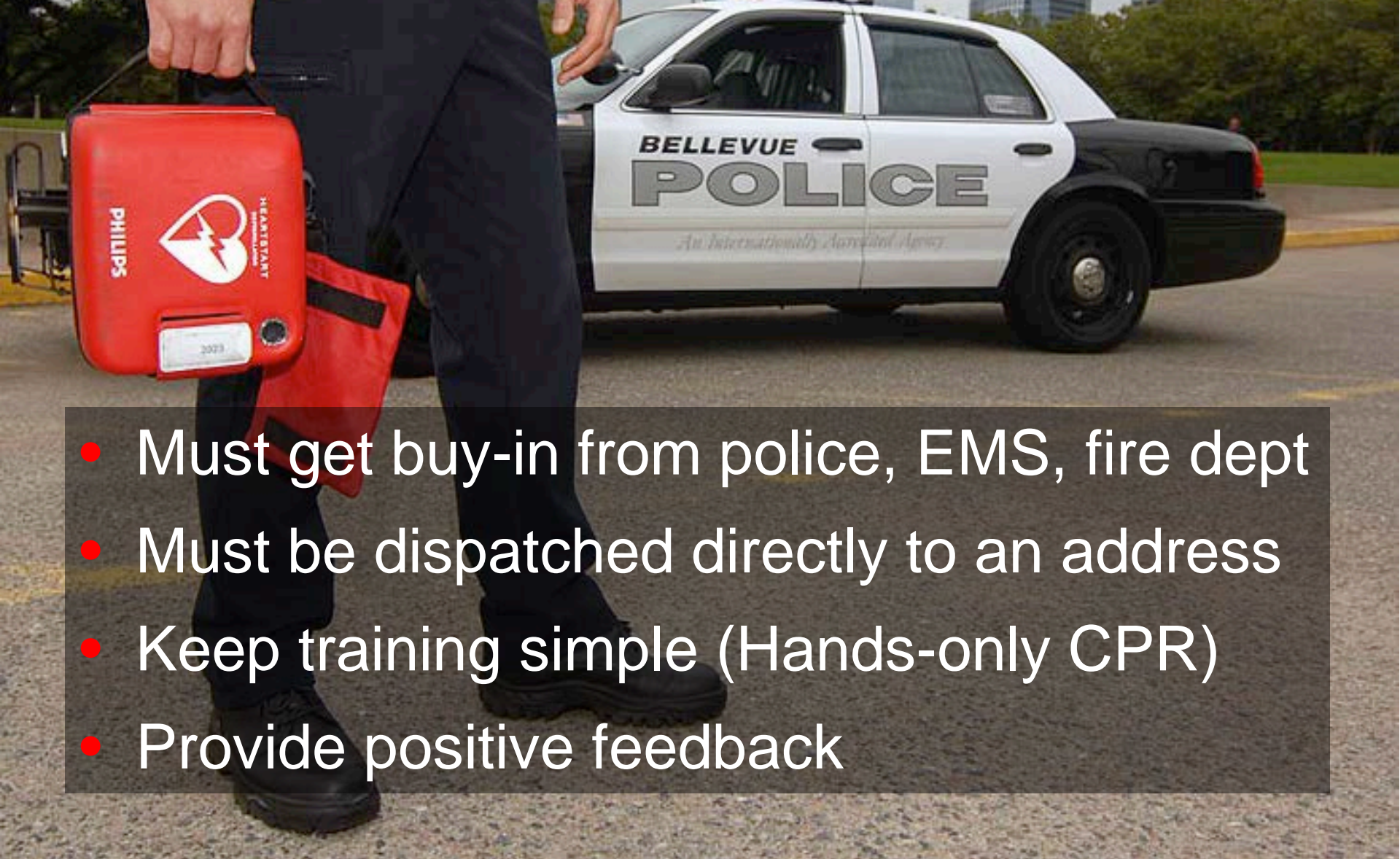


- ▶ Play case from beginning
- ▶ Shock 1 chest compression interruptions  
*pre-shock = 1 seconds post-shock = 4 seconds total = 5 seconds*
- ▶ EMT/FF properly identifies: self, agency, arrest circumstances
- ▶ Other interruption in chest compression  
Greater than 19 seconds
- ▶ Other interruption in chest compression  
Greater than 18 seconds
- ▶ Medics on scene
- ▶ Time to vascular access  
2.5 minutes
- ▶ Verbalized first medication administration
- ▶ Time to intubation  
4.5 minutes



## 5. Resuscitation Review



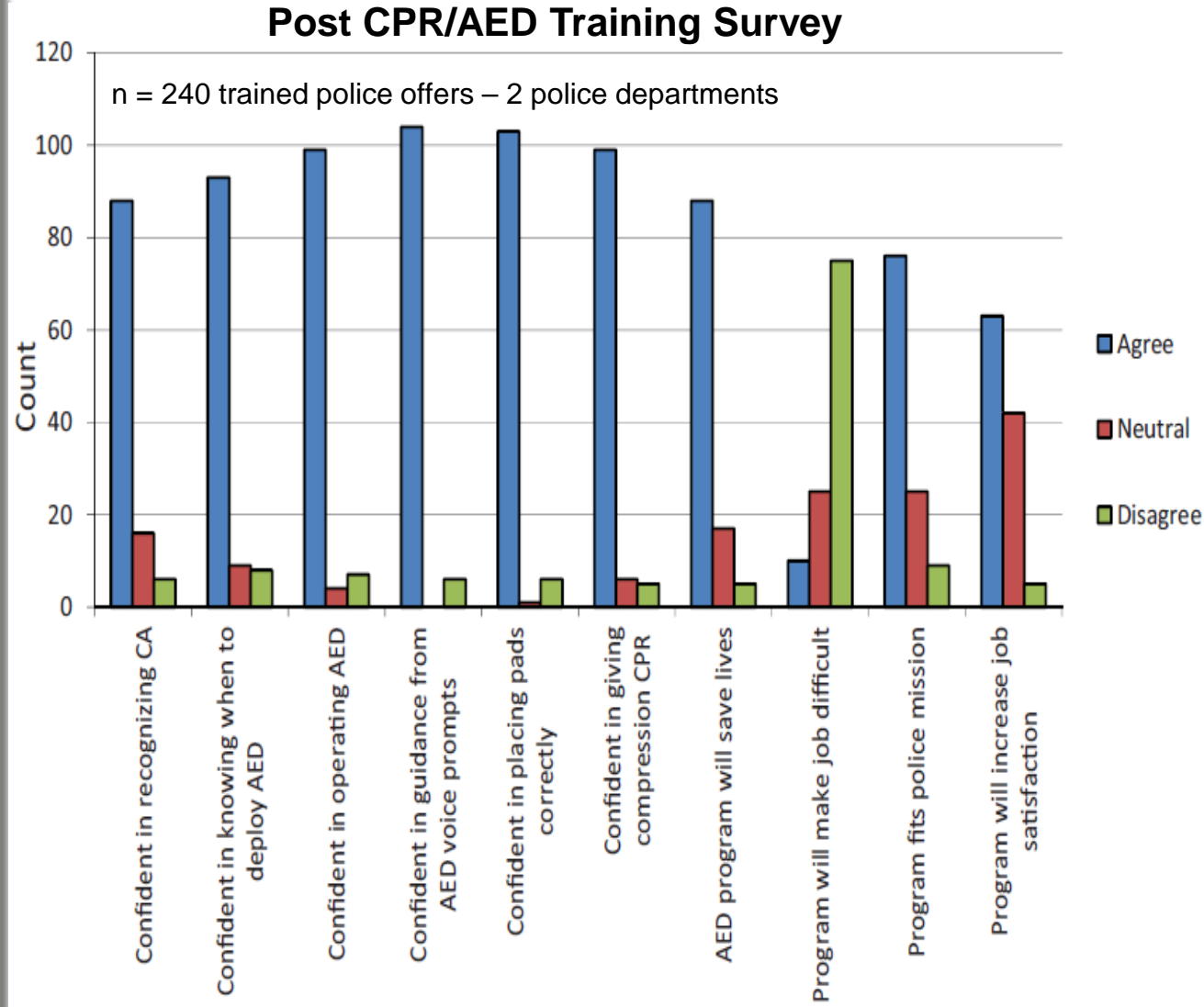
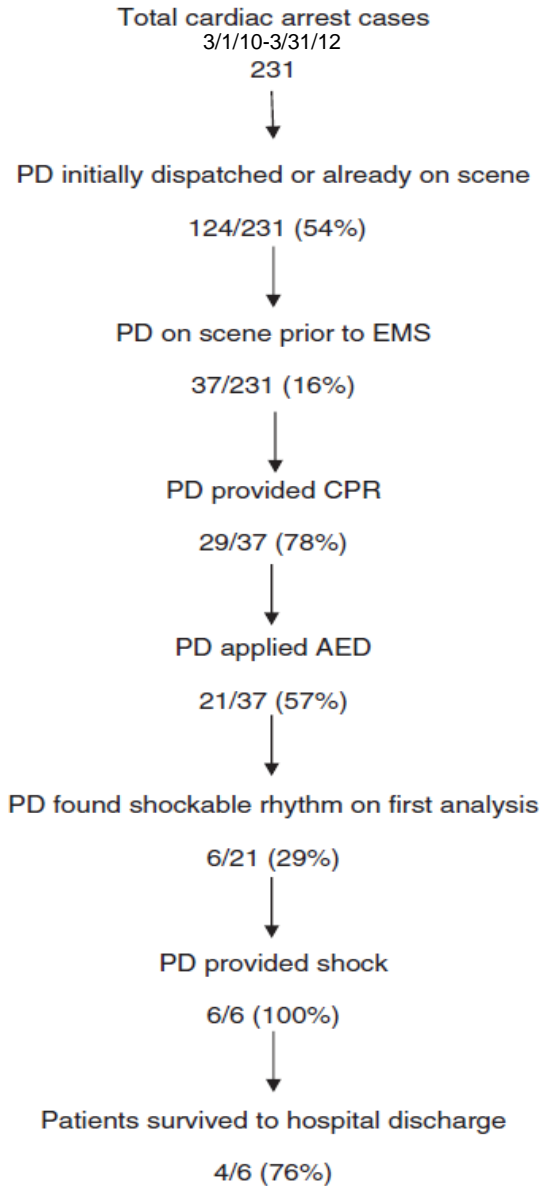


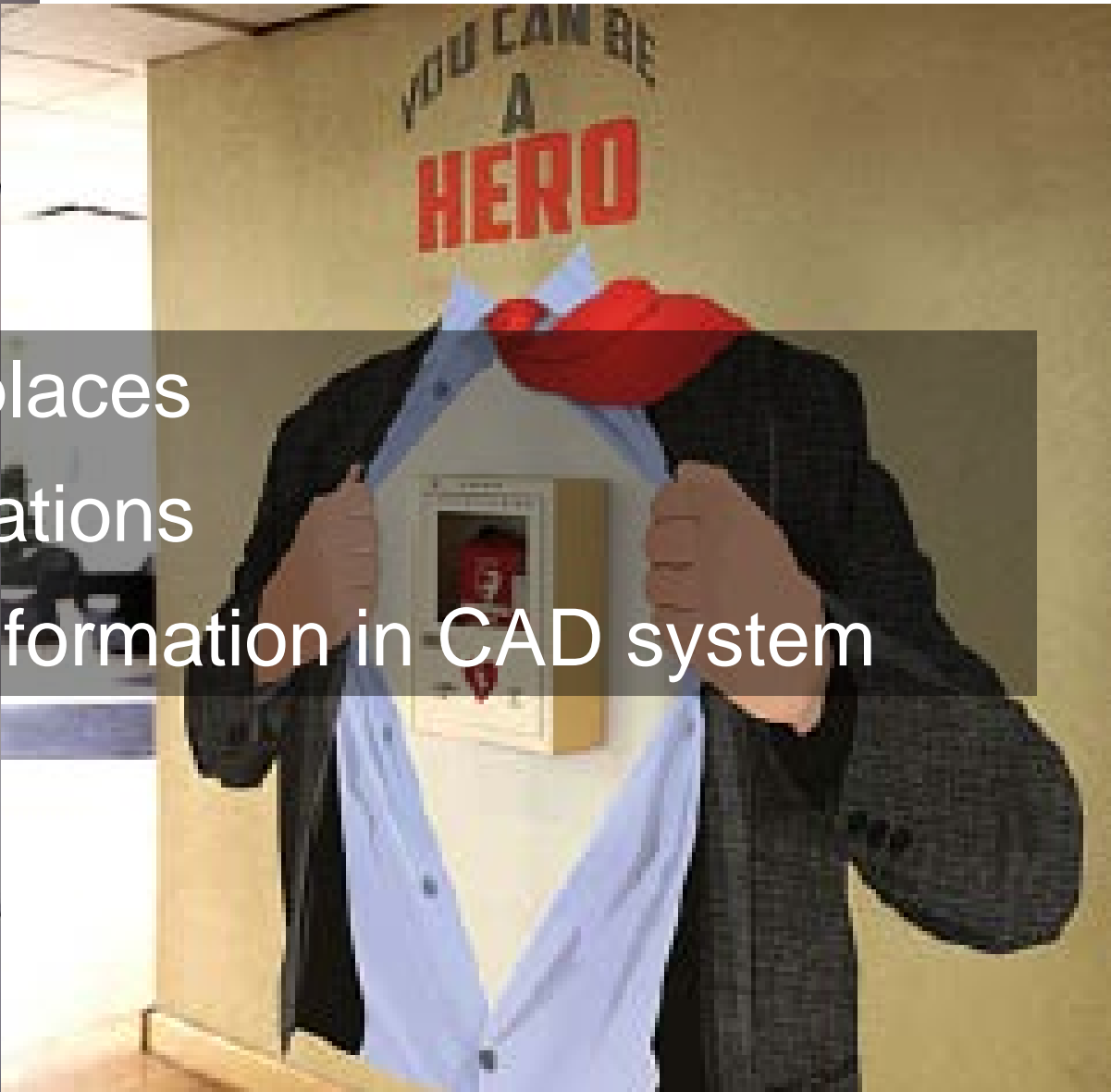
- Must get buy-in from police, EMS, fire dept
- Must be dispatched directly to an address
- Keep training simple (Hands-only CPR)
- Provide positive feedback

## 6. Police – 1<sup>st</sup> Responder CPR/AED Programs

# TREATMENT OF CARDIAC ARREST WITH RAPID DEFIBRILLATION BY POLICE IN KING COUNTY, WASHINGTON

Linda Becker, MA, Sofia Husain, MPH, Peter Kudenchuk, MD, Ann Doll, BA, Tom Rea, MD,  
MPH, Mickey Eisenberg, MD, PhD





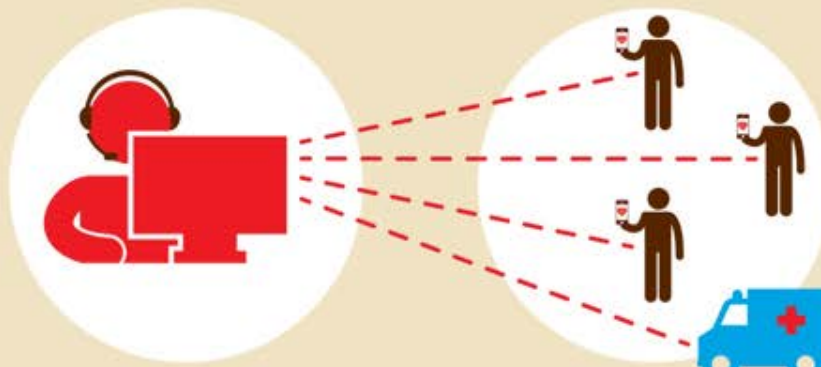
- High-risk places
- Visible locations
- Premise information in CAD system

## 7. Public Access Defibrillation Program

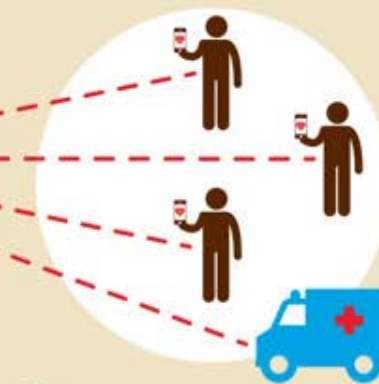




1. SCA victim in need



2. 911 operator sends PulsePoint alert



3. Signal received by nearby PulsePoint users



4. Users rush to help victim before professional help arrives

**GET THE APP.  
SAVE A LIFE.**

**PulsePoint**

DOWNLOAD THE APP TODAY.  
BE A LIFESAVER TOMORROW.  
[PulsePoint.org](http://PulsePoint.org)



## 8. Smart Technologies

Public Health - Seattle & King County

 **Division of  
Emergency  
Medical Services**

Public Health - Seattle & King County

 **Division of  
Emergency  
Medical Services**

**2017 Annual Report**  
to the King County Council  
September 2017

Public Health   
Seattle & King County

Public Health   
Seattle & King County



# 9. Accountability





## 10. Culture of Excellence

