

An Ounce of Prehospital Care Saves a Ton of Hospital Care: *The Earlier the Intervention, the Better the Results*



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DALLAS, U.S.A.**

The Patient Has a Fractured Fibula....

...on a Mild Sedative.... Can Go Home Tomorrow ..

Program Committee Gets Assistance Finding This Speaker...



Early Interest in Mouth-to-Mouth ...

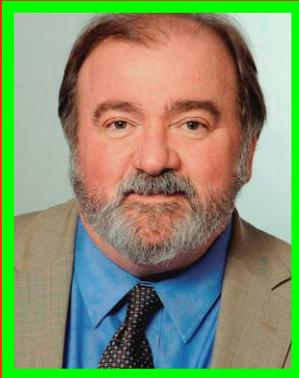


Set Me Up for “A.C.L.S.”....



... “Alternate Clinical Life Style”

That Brings Us to *Today's First Panel ...*



A Focus on the Effects of EMS & Other “Out-of-Hospital” Interventions



Like Most Veterinary Students...



...Doreen Breezes Thru Chapter 9

Out-of-Hospital Emergency Care ...





Introduction

The Traditional Paradigm Has Been That:



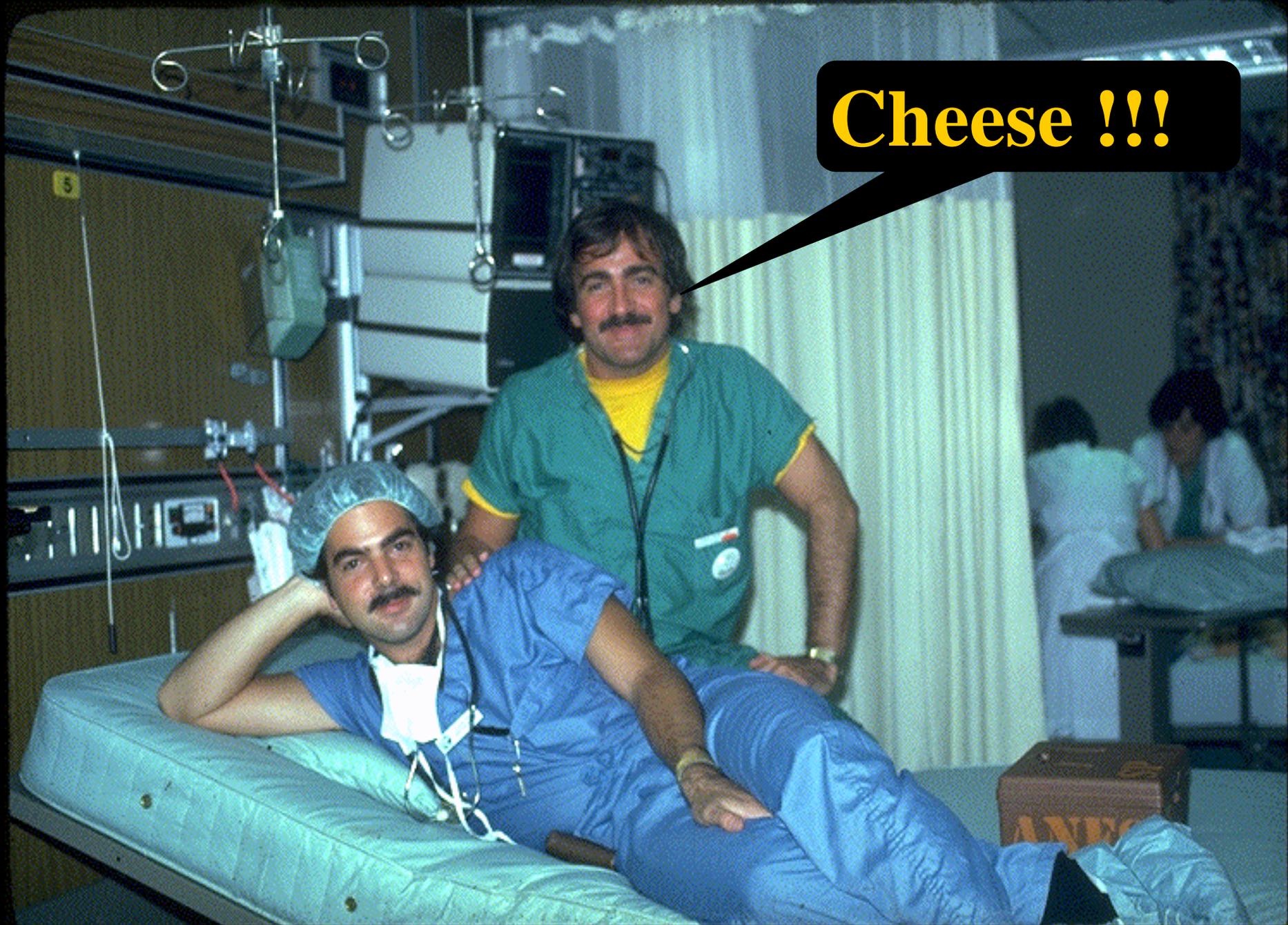
**“EMS is an Extension of
In-Hospital Medical Care”**

We Were Bringing Drugs, Airway Devices, etc.



...to the Streets, Bedrooms, Arenas, etc

Cheese !!!



Seattle Medic One Program



Seattle Fire Department

Got Exceedingly Sleepless in Seattle...

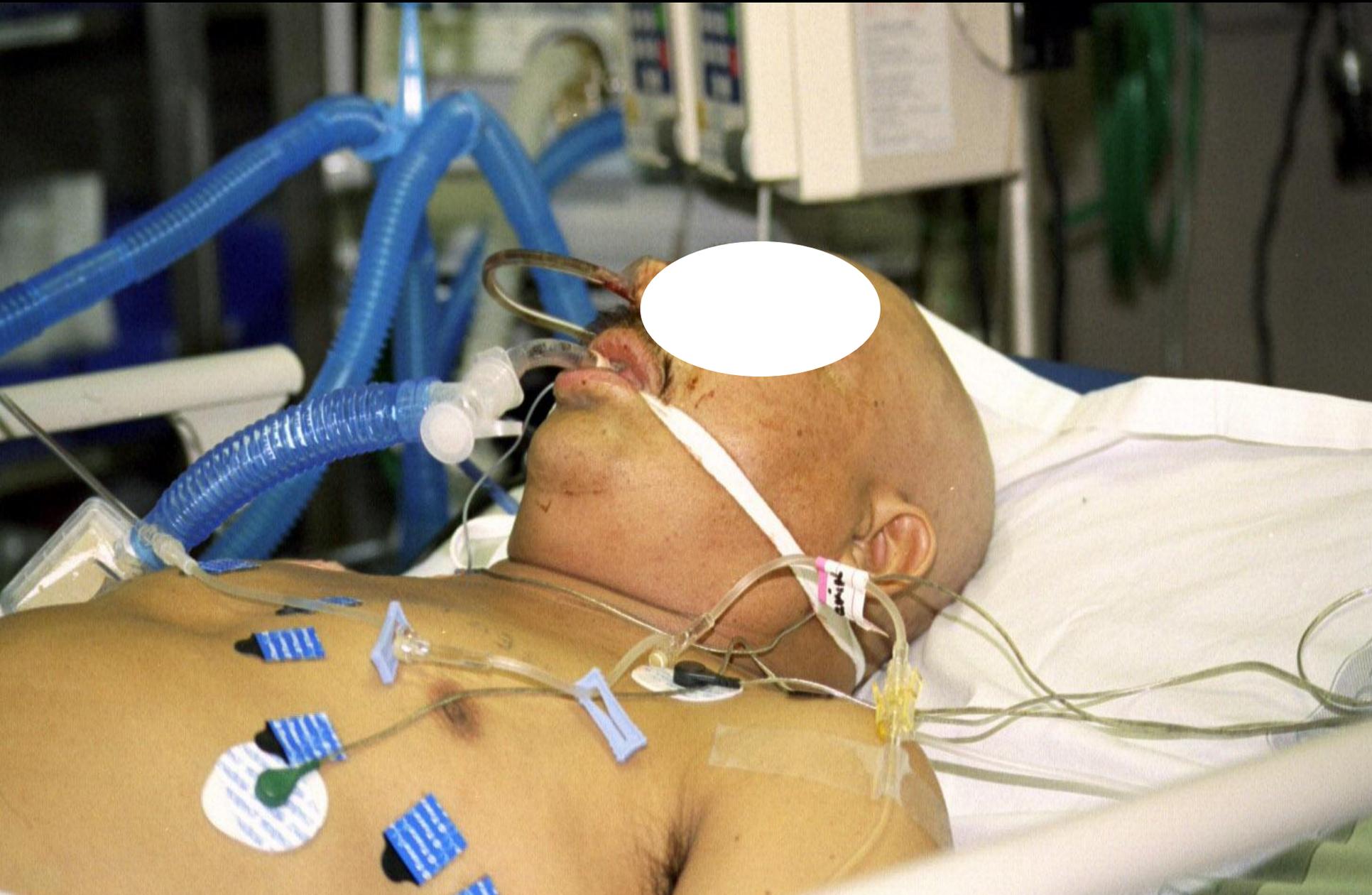


99% Success Rate within 2 Attempts...



... Correlated with Increased Survival Rates !

Patient Transport to ICU Expedited



Developed Another Perspective...

- **Paramedics Set the Tone**
- **Intubation Set Up ICU Care**
- **Led to Direct Admits to ICU**

At the Same Time...

- **Earlier Defibrillation Meant
NO Need for Intensive Care**





**The Earlier the
Intervention...**

***...the Better the
Results***



Chicago Airport

1st Year's Experience:

Of 9 VF Cases in the Ticket Counter and Gate Areas ...

- *All 9 (100%) Saved*
- *6 Had Never Seen an AED*
- *Most Waking Before EMS*

Evolving Paradigm

**Better In-Hospital Care
Can Be Driven by
Out-of-Hospital Care**

Therapeutic Hypothermia



It's Really Cool !

Tx Hypothermia

- Raleigh & Seattle Experience
- Like the Intubation Experience,
Patients Arrived at the Hospital
with Therapy Already Started...
- Drove Hospital Training & Compliance

You mean you're still
ALIVE !?



More Patients Survived !!

The MITI Study

- Door to Needle Time at Hospitals was >90 minutes
- Decided to Compare to Out-of-Hospital Administration
- Found No Difference
- ...Because Almost all Cases Tx'd < 70 min of 9-1-1 Call (pre & in-hospital)

STEMI & Stroke Center Designations, etc





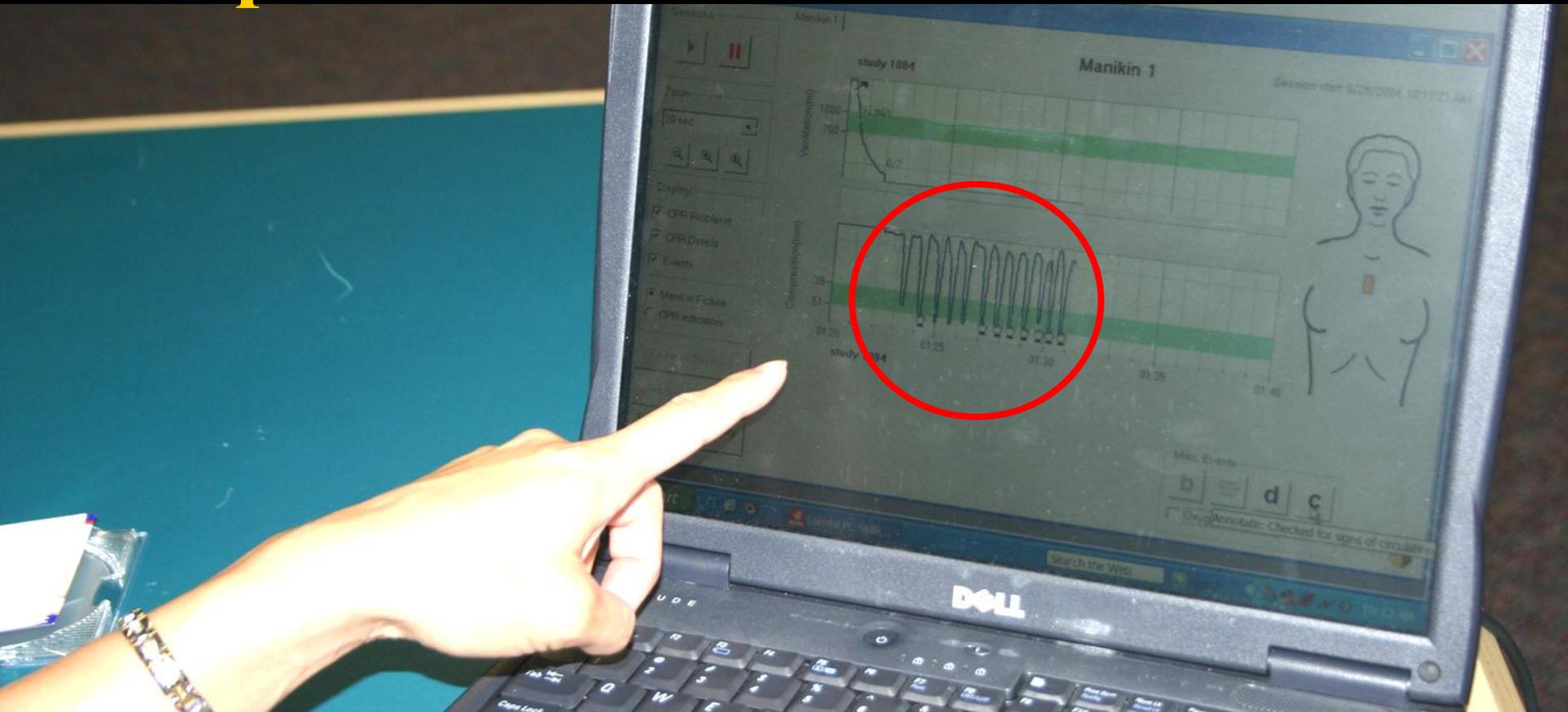
In 2004 ...

**The U.S. NIH Sent Out an RFA
to Establish a Network
of 10 Cities in North America**

***That Would Drive National Priorities
in Terms of Uncovering New Ways
to Save More Lives***

following Sudden Cardiac Arrest and Trauma

Besides Salaries for Expert Personnel to Capture the Data and Outcomes ...



Acquired Monitoring Equipment:

*for example, the ability to Capture Sec. to Sec. Performance of CPR
... Recorded and Measured on Computers!*

***How Did the
First Trial of
a Device Go?***

ITD Study



*Very Interesting Results ...
No Advantage
In Survival Chances
from the ITD Itself*

**...But Survival Rates ↑↑↑
A 55% Improvement
in Dallas Alone!**

So *Why* ?

Key Finding of Early Studies

Chest Compression Fraction Determines Survival in Patients With Out-of-Hospital Ventricular Fibrillation

i.e., The More Time Medics Spend Doing Chest Compressions, Then the Better the SURVIVAL RATE !!

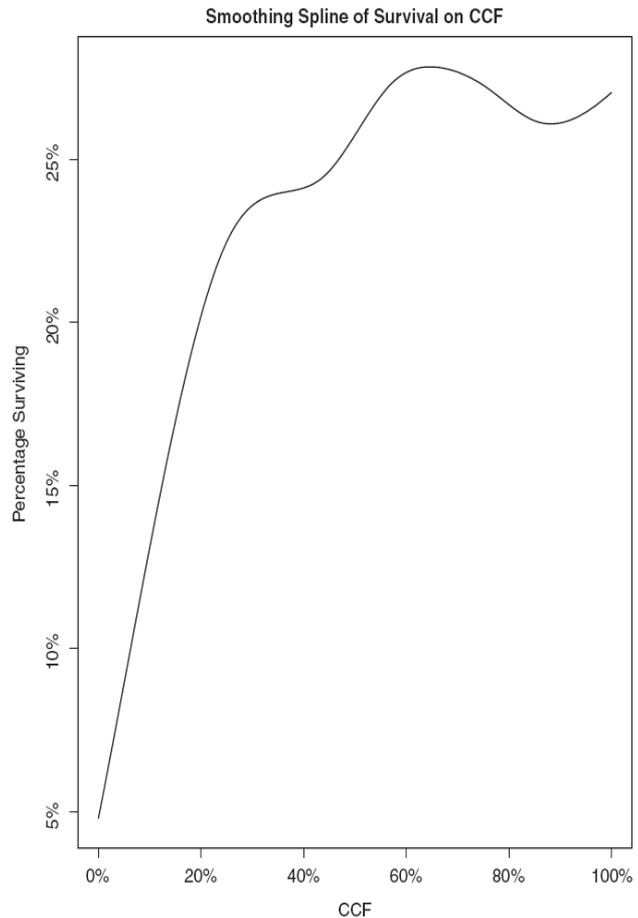


Figure 3. Smoothing spline representing the incremental probability of survival corresponding to a linear increase in chest compression fraction.

With the NIH Funded Monitoring Systems, We Gave On-Going Feedback to Medics !

 ORIGINAL CONTRIBUTION

Minimally Interrupted Cardiac Resuscitation by Emergency Medical Services for Out-of-Hospital Cardiac Arrest

Bentley J. Bobrow, MD

Lani L. Clark, BS

Gordon A. Ewy, MD

Vatsal Chikani, MPH

Arthur B. Sanders, MD

Robert D. Brown, MD

Context Out-of-hospital cardiac arrest is a major public health problem.

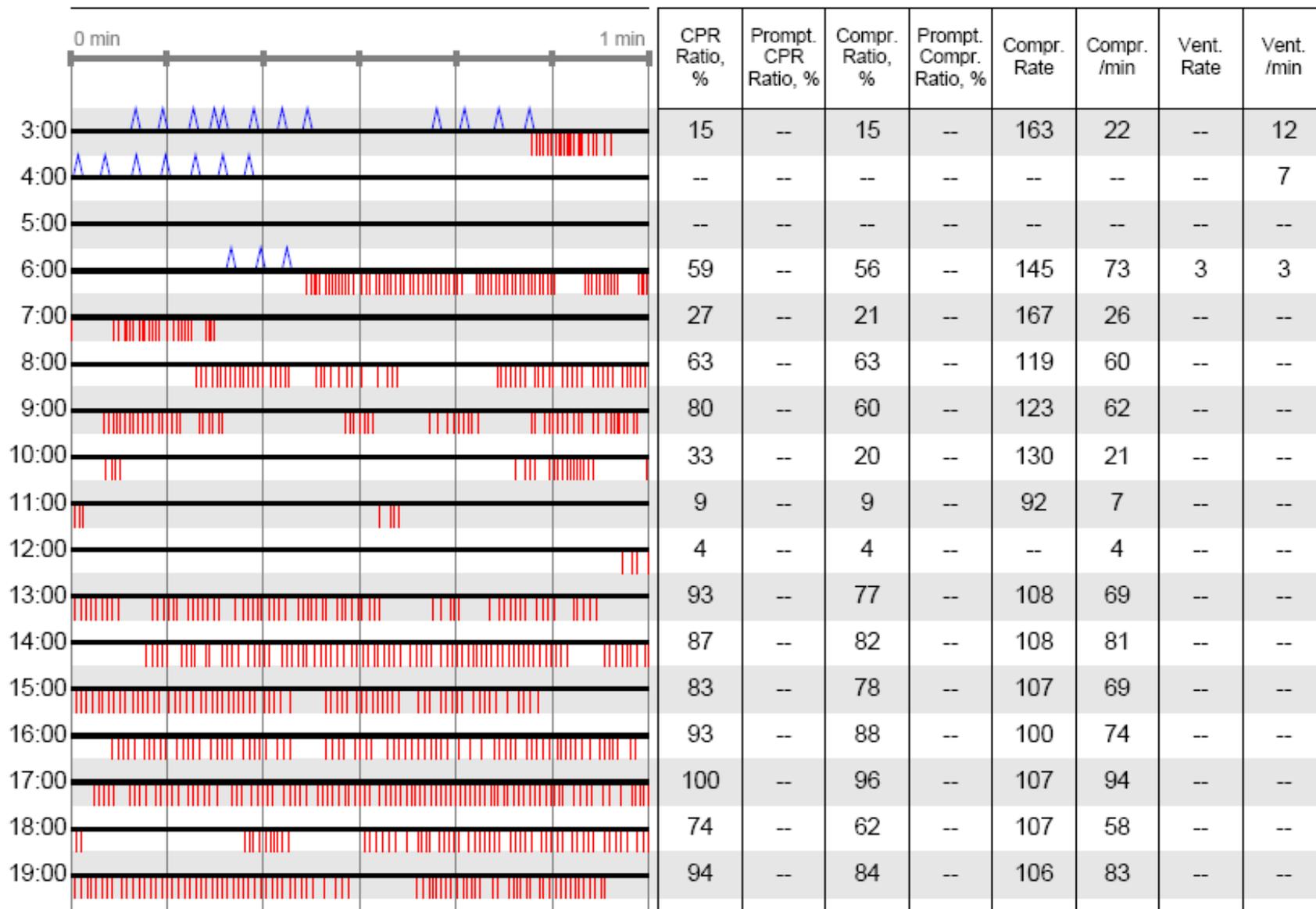
Objective To investigate whether the survival of patients with out-of-hospital cardiac arrest would improve with minimally interrupted cardiac resuscitation (MICR), an alternate emergency medical services (EMS) protocol.

Design, Setting, and Patients A prospective study of survival-to-hospital discharge between January 1, 2005, and November 22, 2007. Patients with out-of-

CPR 2006

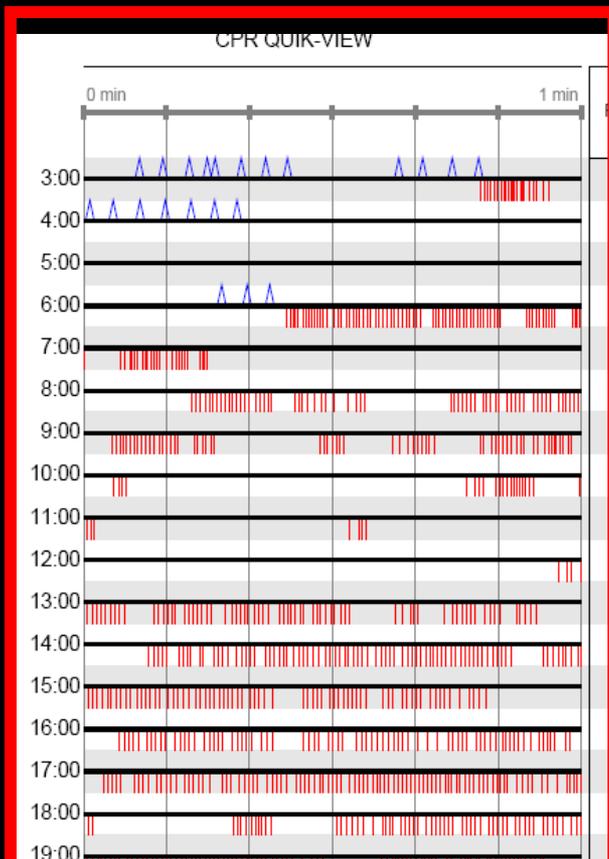
CPR QUIK-VIEW

Interval Statistics

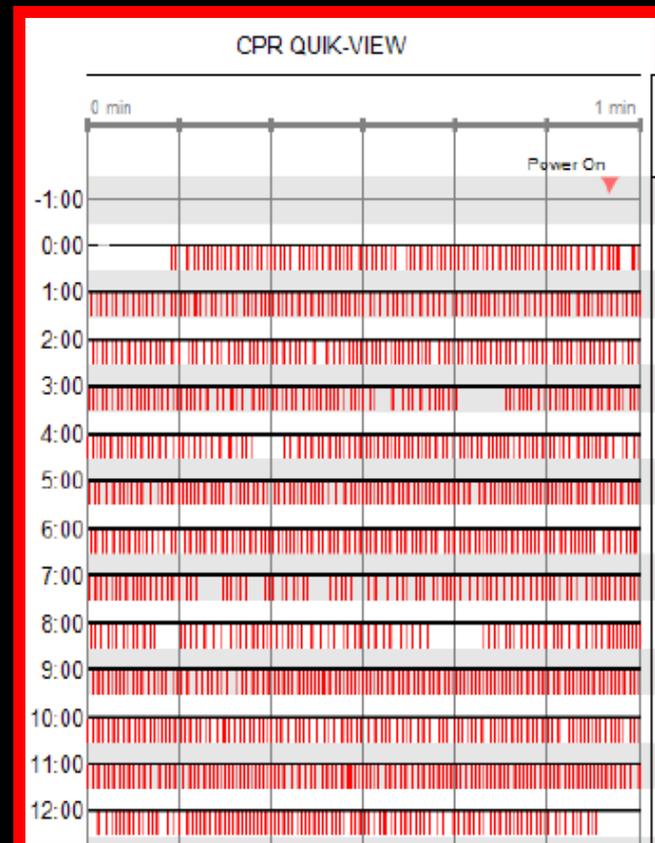


Following Feedback, Re-Training and... *More Re-Training:*

2006



2009



Impact on Dallas Area Outcomes

	Survival to Hospital Discharge		
	2006	2009	Relative Percent Increase
Dallas	3.9%	6.0%	54%
Irving	7.0%	11%	57%
Mesquite	3.0%	6.0%	100%
Carrollton	4.2%	15.8%	376%

Grants help make Dallas County one of best places to suffer cardiac arrest

10:24 PM CST on Friday, February 26, 2010

By JASON ROBERSON / *The Dallas Morning News*



Steven Shelley is grateful for a federal grant that helped Dallas County medics and firefighters save more cardiac arrest patients last year and send them back to work.

Public Health

Cardiac care gets a jolt

County goes from one of the worst to one of the best places for a heart to stop

Similarly, in the Trauma Studies ...

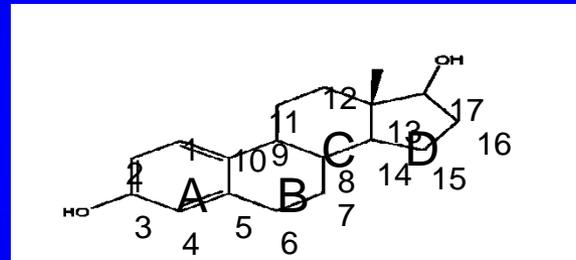
- Although No Dramatic Differences Were Found at Study End ...
- Overall Survival Rates Reportedly Increased from Baseline Rates

(Final data and Statistical Analysis still being reviewed)



***In Stroke, Brain/Spinal Cord Trauma,
Sepsis and Cardiac Arrest Models.***

Acute Administration of I.V. Estrogen



**Shown to Provide
Significant Protection**

(up to 60%)

**The Earlier the
Intervention...**

***...the Better the
Results***

So What Does This All Have to Do With the Emergency Department ?

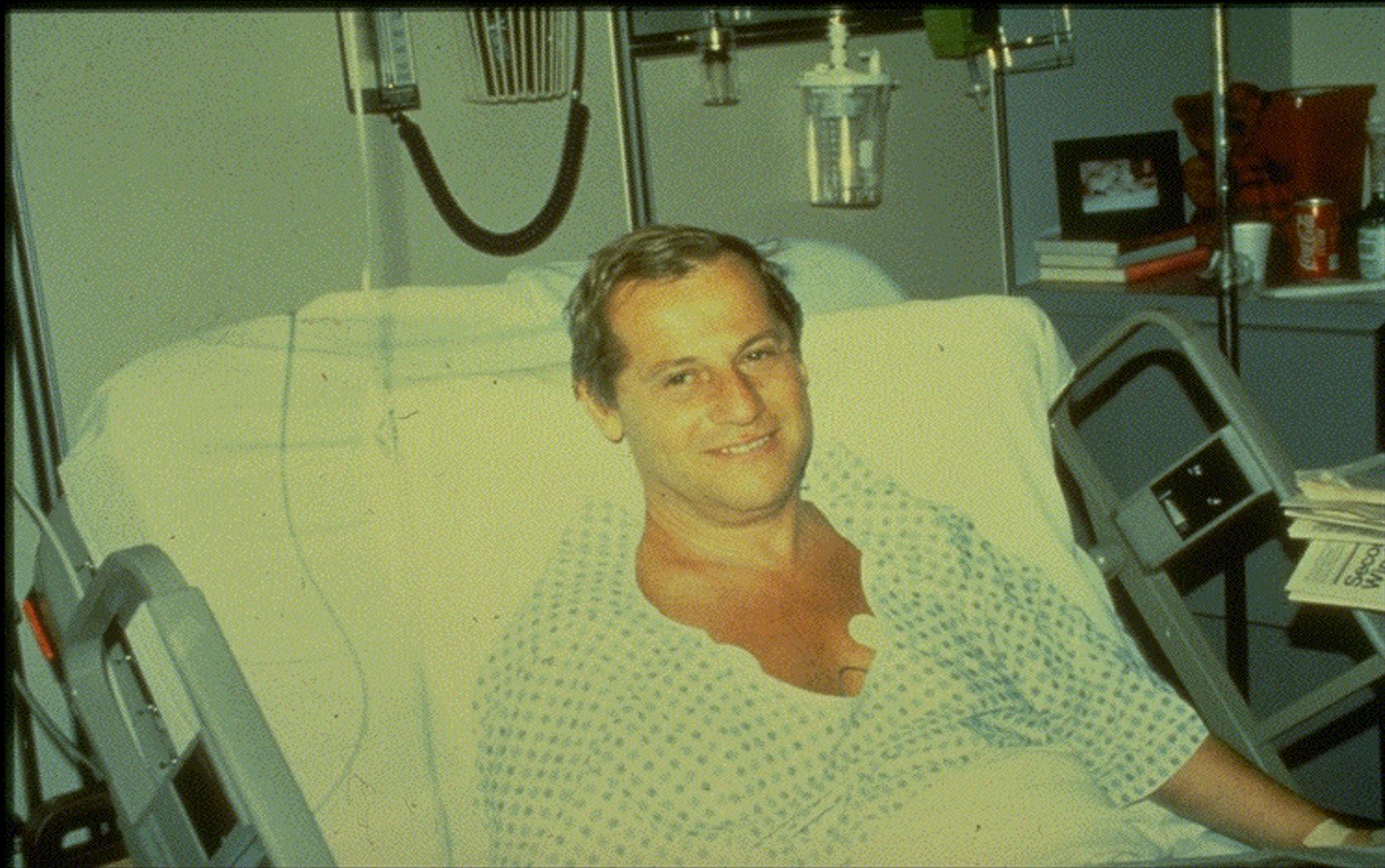


Prehospital Resuscitation Avoids Lengthy, Disruptive ER Resuscitations



*.... Better Odds That They Will
Not Only Wake Up in the ICU Sooner ...*

...Now More Likely to Avoid an ICU !



Also ...

Time-Consuming Transfers Avoided ...



... and Better CQI for Timeliness (unloads ER)

Evolving Portable Prehospital Interventions ...



Avoid Complications(?); Save \$\$\$

How Dispatch Data Can Not Only Save Lives...
... But Also Spare the ED !



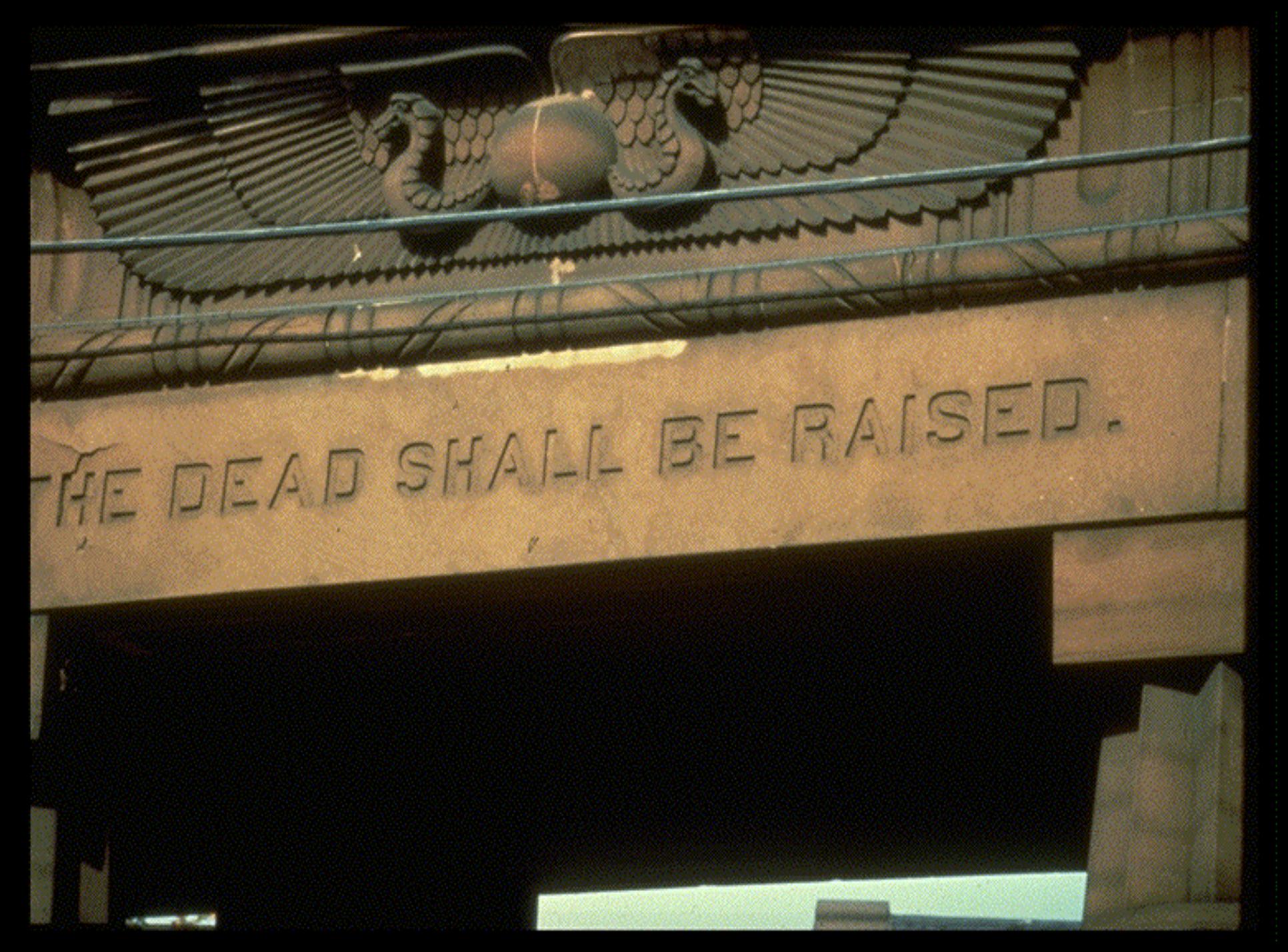
COPC
(Community Oriented Primary Care)

In

Summary...

PUBLIC
MARKET
CENTRE





THE DEAD SHALL BE RAISED.

***On the Road to
the 22nd
Century...***

Make Life Better....



...for Future Generations !!!

Thank

You !!







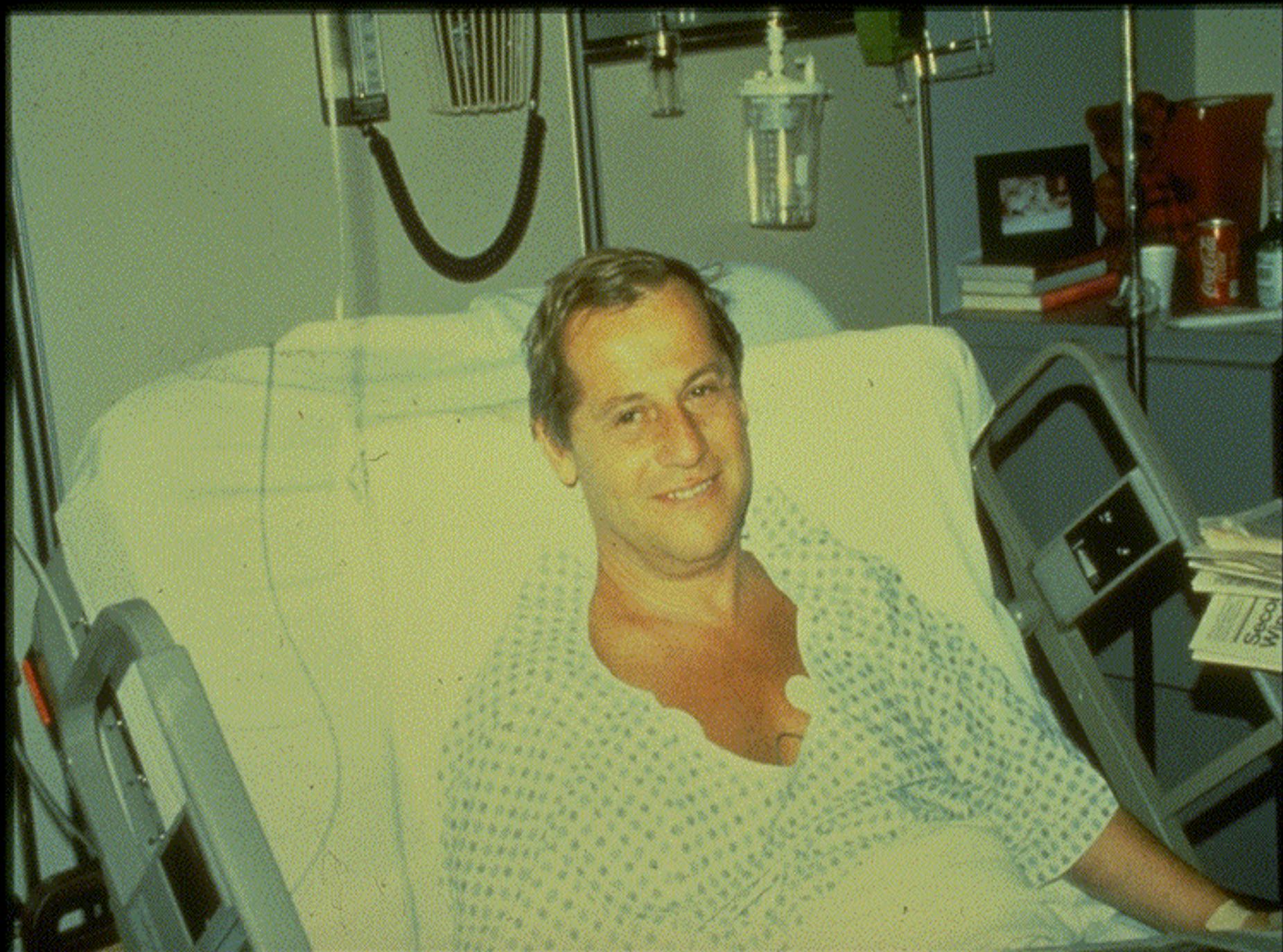
But Also Remember...



It's Good Business Too ...

To Make Your City the Safest City in Which to Be Resuscitated...





**The Earlier the
Intervention...**

***...the Better the
Results***

Today-- “CPR” also Includes AEDs



CPR 2009

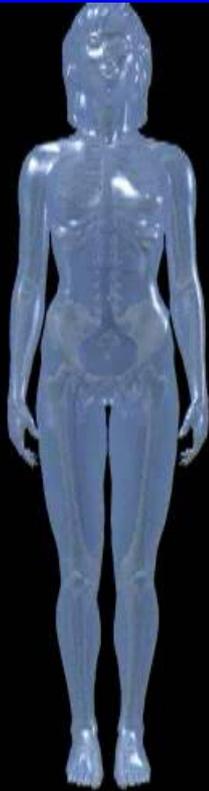
CPR QUIK-VIEW

Interval Statistics



The EZ-10 Revolution

Ground-Breaking Technology



The EZ-10 Revolution

Superior Technology

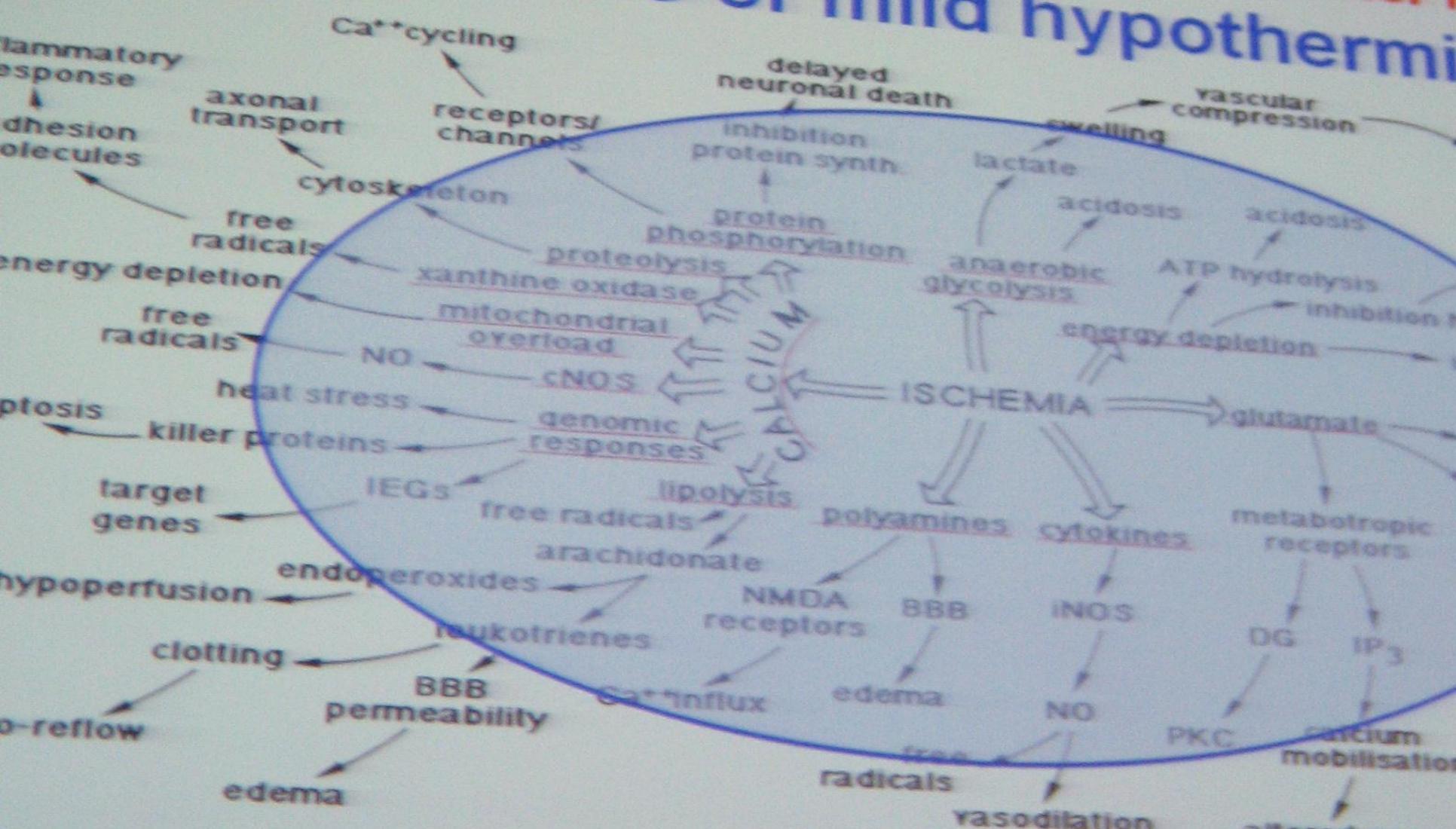


“ City of Dallas ...



We're No Dummies !! ”

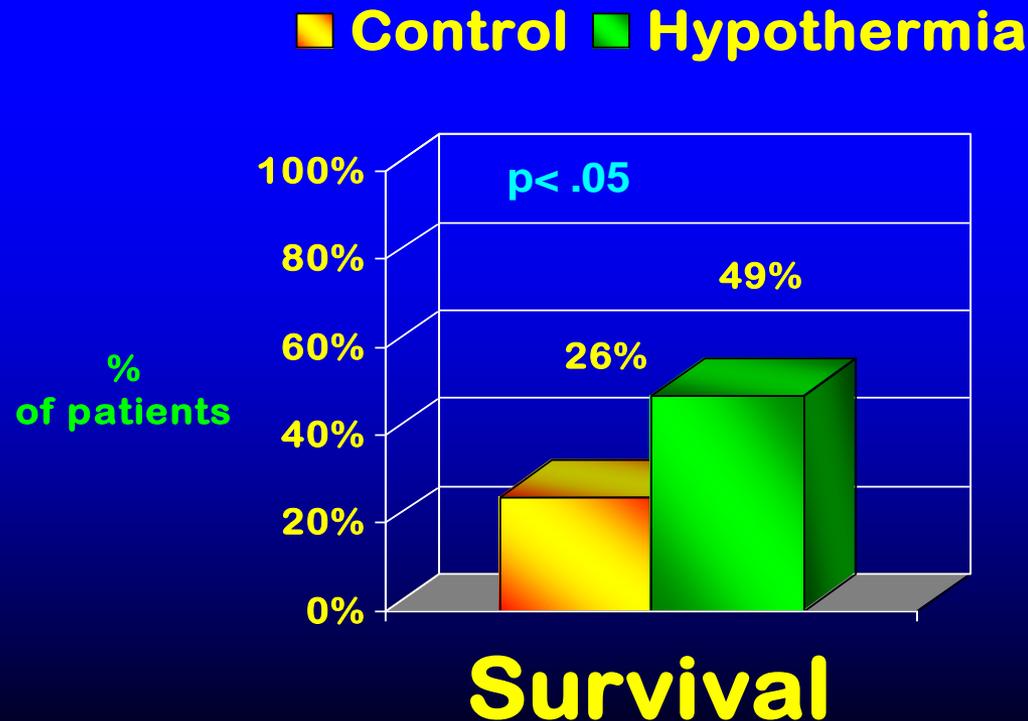
Simplified Scheme of the Mechanisms After Effects of mild hypothermia



Induced Hypothermia (33° C)

Steve Bernard, et al *N Engl J Med* 2002;346: 557

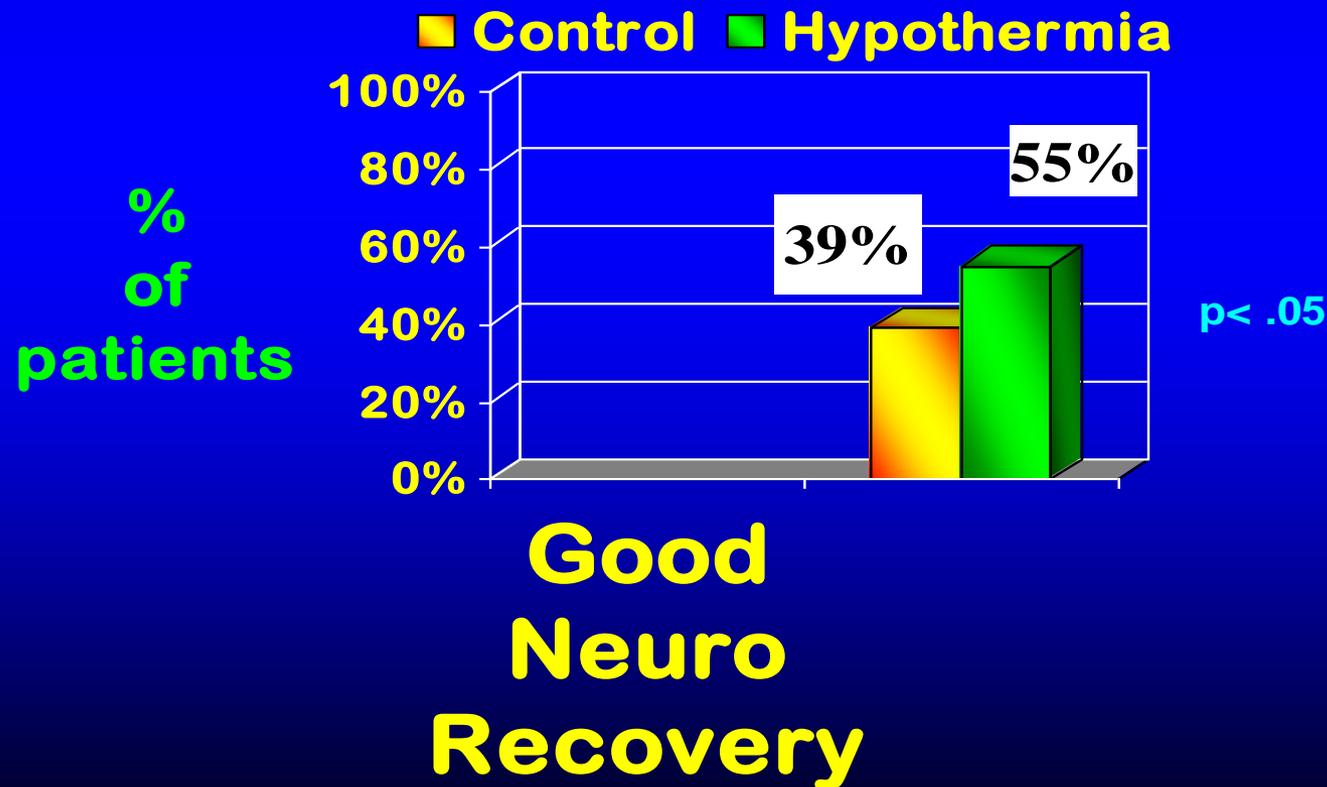
- 73 Out-of-Hospital Cardiac Arrest Patients Cooled to 33° C for 12 hours



Induced Hypothermia (32-34° C)

Fritz Sterz, et al *N Engl J Med* 2002; 346 : 549

136 Out-of-Hospital Ventricular Fib. Pts.
Cooled to 32 – 34 ° C for 24 hours



We Decide What You Do !!





**I Guess Not Everyone
Thinks that this Cold
Therapy is Always a
Good Thing!**

Left Out in the Cold !!

Like ETI....



...Start It In the Field !



...Start It In the Field !

Other Items

ITD

QCPR

STEMI Centers

ROC Studies

***On the Road to
the 22nd
Century...***

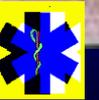


Thank

You !!







In-Hospital Care – An Extension of EMS: *Reversing the Traditional Paradigm*

Edward M. Racht, MD

*Immediate Past Medical Director,
Austin Travis County EMS System*

and

**Immediate Past Chair, GETAC
Texas Department of State Health Services**

*Vice President of Medical Affairs and Chief Medical
Officer, Piedmont-Newman Health System, Atlanta*



Smile, Shorty !

Dr. Leonard Cobb
*1st Medical Director,
Seattle Fire Dept.*





First MAD Programs ...



“Manhole Access Defibrillation”

There Were Early Warning Signs...



Pepe's Parents

Circa
1956



The Roots of Modern EMS ...



the 1960's

In the Beginning...

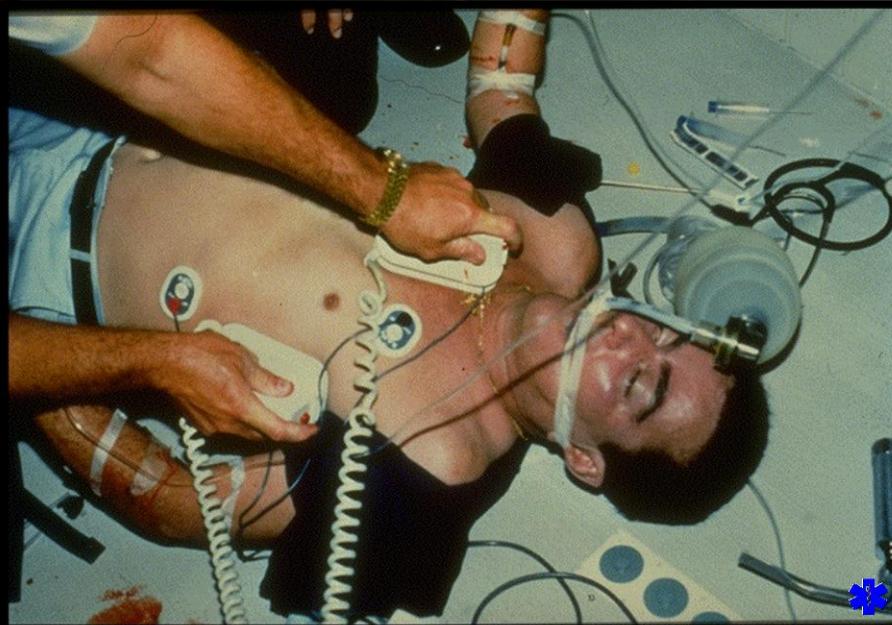
There Were These

Two New Epidemics...

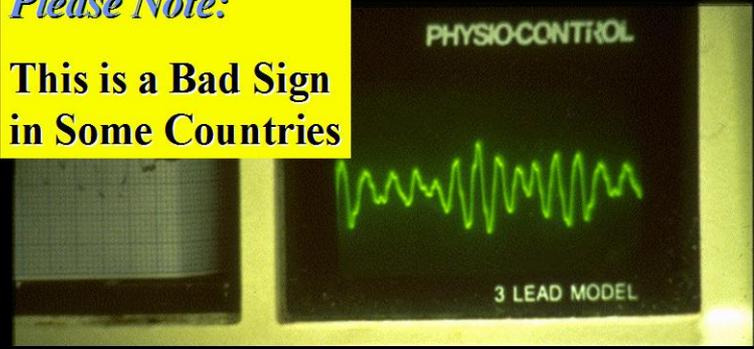
***So What Made
These 2 Epidemics
Different ?***

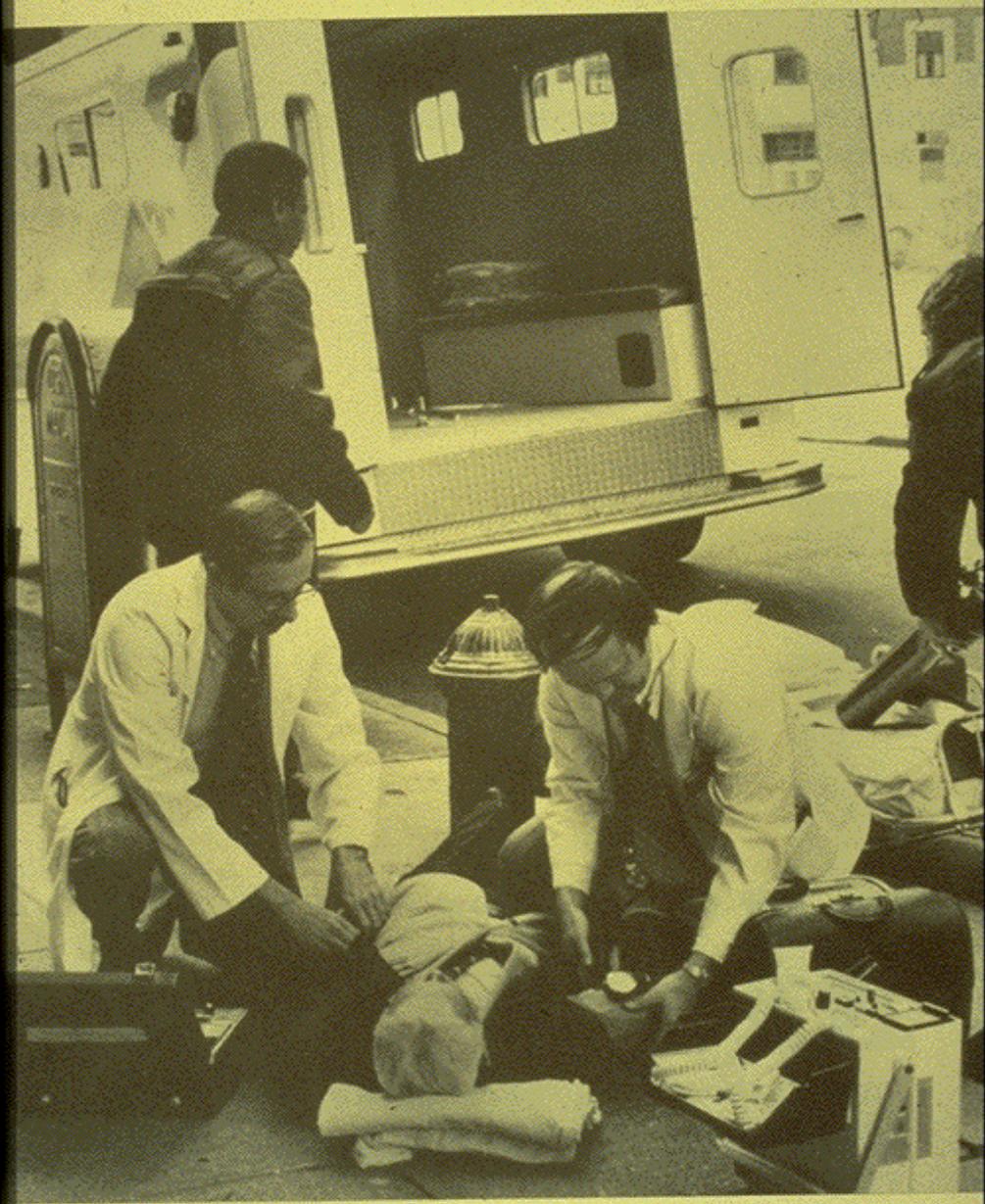
**Required Immediate
Attention . . .**

***Outside of the
Hospital***



Please Note:
**This is a Bad Sign
in Some Countries**





Street Smarts

- **Understood Hazards**
- **Modified Priorities**
- **Became Creative**

My Story Begins....

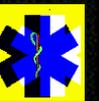


...Sleepless in Seattle

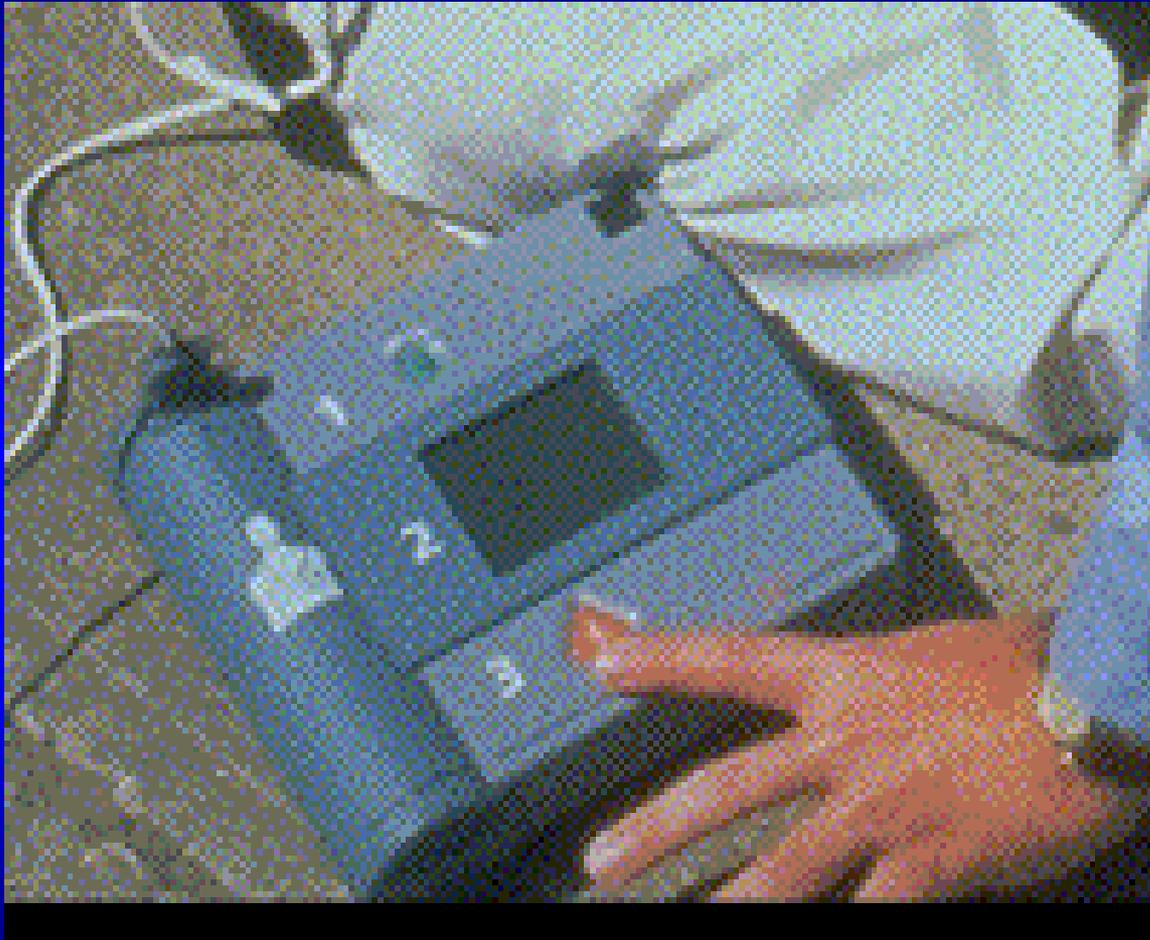


PUBLIC MARKET CENTRE





Brought to the Hospital Ward



The EZ-10 Revolution

Rapidly Moving to 1st Line



The U.S. National Institutes of Health Resuscitation Outcomes Consortium



National Heart, Lung, and Blood Institute



National Institute for Neurological Disorders and Stroke



Canadian Institutes of Health Research



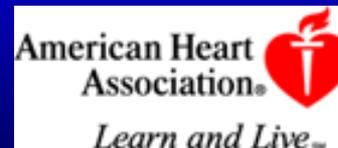
U.S. Department of Defense



Defence Research and Development Canada



American Heart Association



Heart and Stroke Foundation of Canada

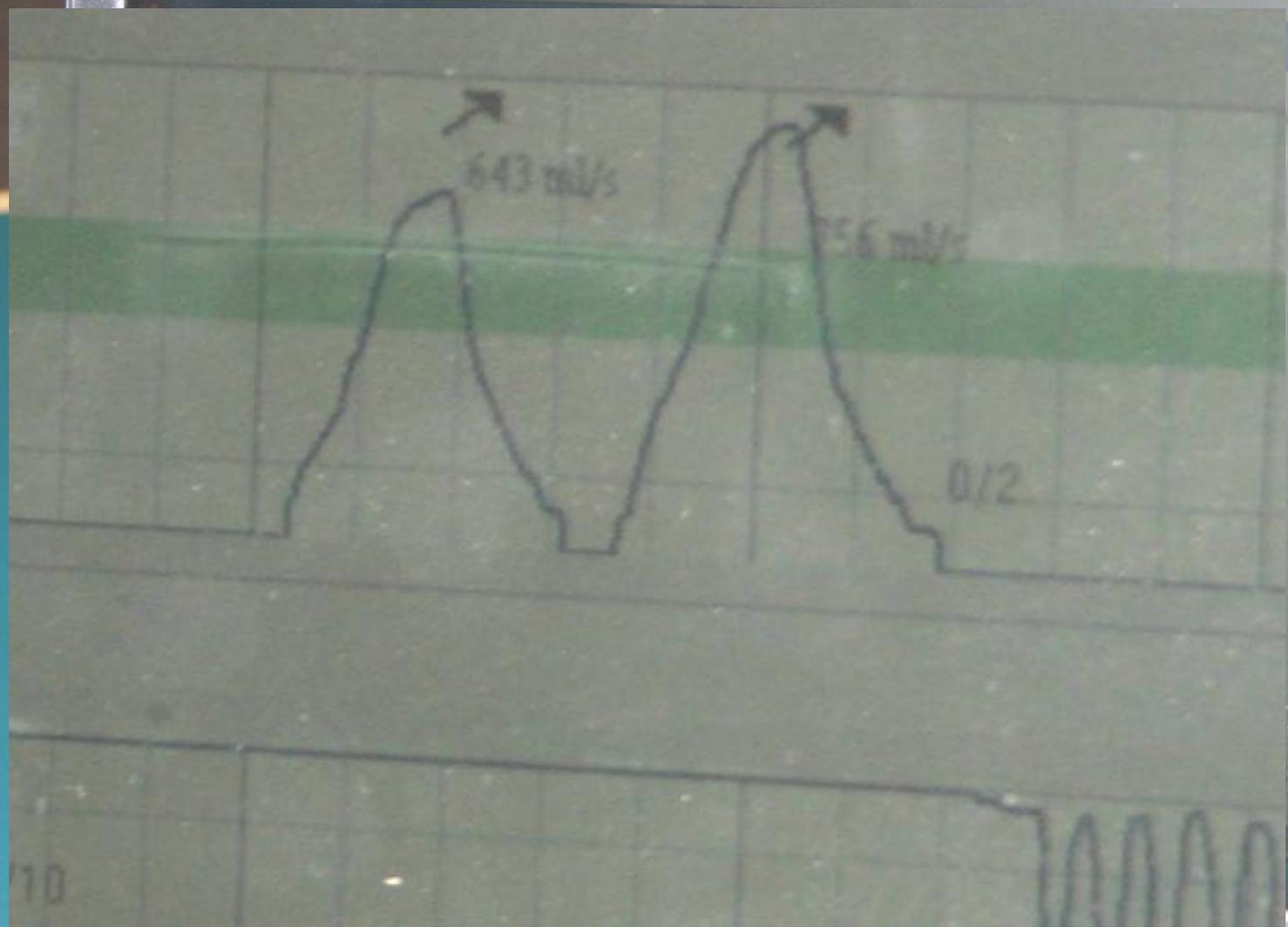


Among > 100 Highly Competitive City-University Partnerships that Applied...

- **The Dallas Area *BioTel* System** (incl. Dallas & other member Cities)
was 1 of only 7 Major U.S. Municipal Sites Chosen
- Dallas Was Designated a Center of Excellence for
Resuscitation Medicine and Related Research
- This Meant Unique Federal Funding for Training,
New Life-Saving Equipment, Data Collection
and Additional Medical Oversight
- And the Hope for --- ***A Life-Saving Effect !***

Laerdal PC SkillReporting System

File View Sessions Help





While the Percentages Seem Small...

Because of the Large #'s Treated...

**...This Translates into Dozens of
More Lives Saved in Dallas Area**

**...And Hundreds Across the
Numerous ROC Jurisdictions**