

# Memorandum

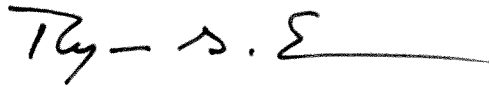


DATE: August 13, 2010

TO: Members of the Public Safety Committee

SUBJECT: **Resuscitation Outcomes Consortium (ROC Study)**

Attached is briefing material on the "Resuscitation Outcomes Consortium (ROC Study) Presentation" to be presented to the Members of the Public Safety Committee on Monday, August 16, 2010, by Dr. Paul E. Pepe, Medical Director, Emergency Medical Services.



Ryan S. Evans  
First Assistant City Manager

c: Honorable Mayor and Members of the Dallas City Council  
Mary K. Suhm, City Manager  
Deborah Watkins, City Secretary  
Tom Perkins, City Attorney  
Craig Kinton, City Auditor  
C. Victor Lander, Administrative Municipal Judge  
Jill A. Jordan, P.E., Assistant City Manager  
A.C. Gonzalez, Assistant City Manager  
Forest E. Turner, Assistant City Manager  
Jeanne Chipperfield, Chief Financial Officer  
Helena Stevens-Thompson, Assistant to the City Manager Mayor/City Council



CITY OF DALLAS

City Managers Office

# Office of Medical Emergency Services *for Public Safety, Public Health, Homeland Security & Related Research*

**A Brief History and Latest Progress of the**

## ***U.S. National Institutes of Health Resuscitation Outcomes Consortium***



***Presented by Paul E. Pepe, MD, MPH***



*What is the  
#1 Cause of  
Preventable  
Premature Death in  
our Community ?*

# Sudden Death Syndrome



*...Overall Greatest Cause of Premature Death*

*And in Dallas County Alone....*

**...That's 6 to 7 Lives Lost Each Day**



*Some are Children....*

*...Including Young Athletes*

**...and 40% are Women**

***What is the  
#1 Cause of  
Premature Death in  
our Children and  
Young Adults ?***

# *Trauma (i.e.. Severe Injury) ....*



*#1 Killer of Adults < 45 years old*

*...and, More Importantly ---*



*--- the #1 Killer of Children !*

# *EMS as we know it today....*



*...Created Because of These Two Major Epidemics*

**That Makes These Two Threats to Our Community  
Our Challenge ... and Our Duty ... To Improve Upon**



# We Are Already Taking Local Action ...



*With City-Wide CPR Training ...*

*... And Enhancing DFR Training & Response*

# and Dallas City Council Members ...



*... Have Even Provided a Leading ...  
... And Life-Saving Role !*

*But Is Our  
Federal Government  
Also Addressing  
These Issues ?  
(That Affect ALL Americans)*

*The Answer is*

*Yes !*

# *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





*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**

# 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 !***



# *Dallas Area BioTel System (Metropolitan EMS System)*



*Was the Key to Being Awarded the Grant  
.... and Our Subsequent Successes*

# *Why Was BioTel the Key?*

**Numbers, Numbers, Numbers !**



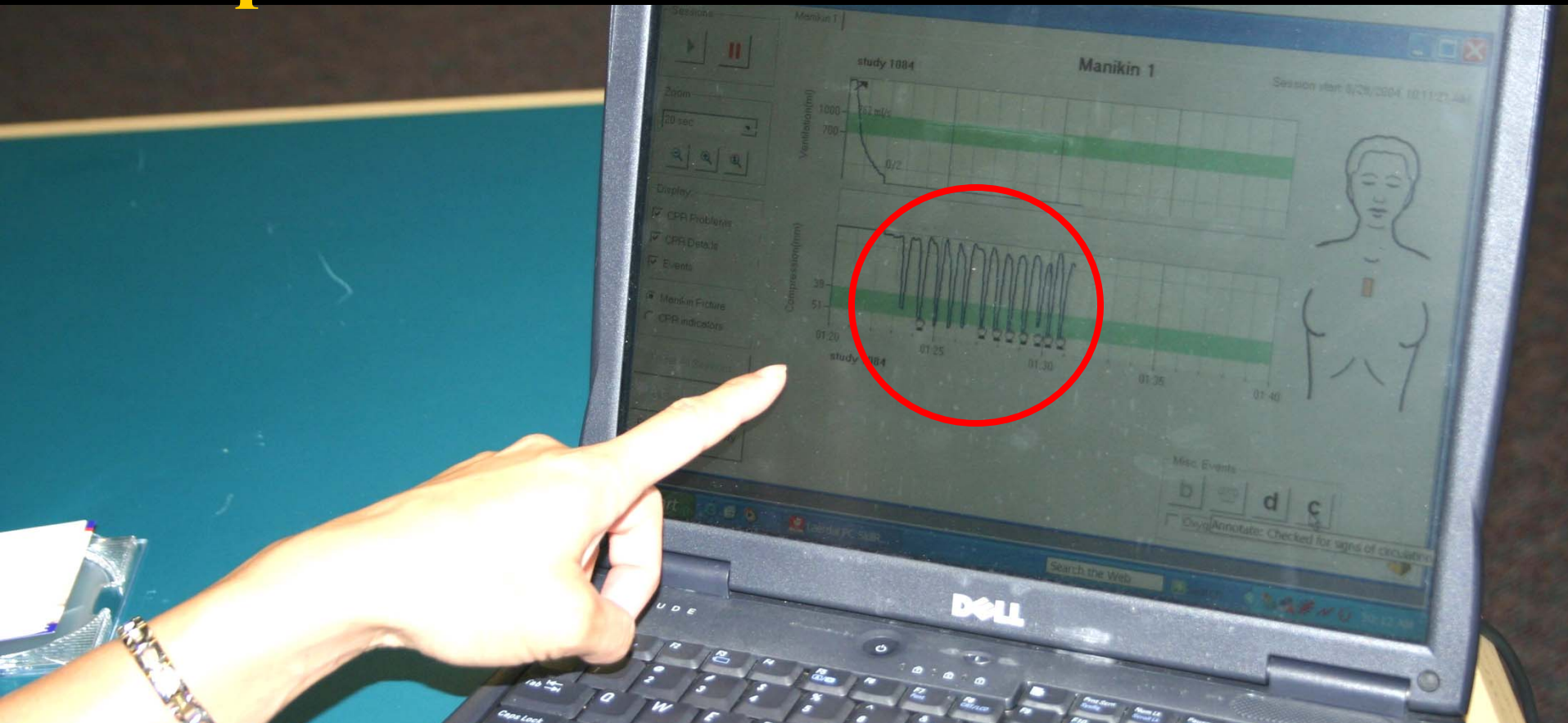
*Across the County....*

- **> 2,000 Annual Cardiac Arrests**
- **> 15,000 Annual Level I Traumas**

# *First 3 Multi-Year Projects:*

- **EPISTRY:** A Population-Based Registry of All Incidents Related to these 2 Epidemics to Establish Baseline #'s & Survival  
(for Both Cardiac Arrest and Trauma)
- **IMPEDANCE THRESHOLD DEVICE:**  
“ITD” -- Special Valve that ↑↑ Blood Flow Back into the Heart (in Cardiac Arrest)
- **HYPERTONIC SALINE (HSD):**  
Infusion of a Highly Concentrating Fluid in Trauma Resuscitation (widely used in Europe)

# 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!*

Laerdal PC SkillReporting System

File View Sessions Help



*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

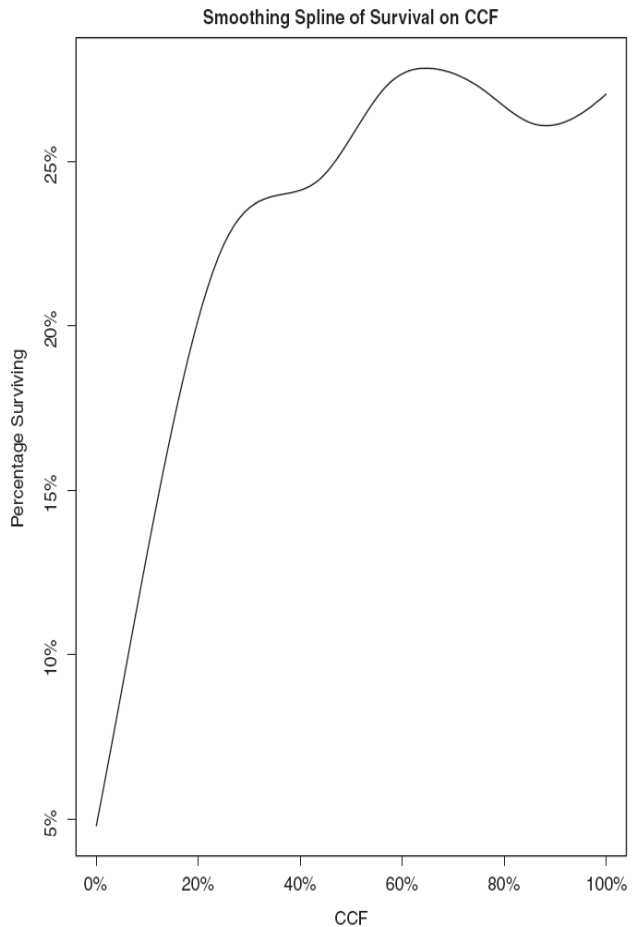


Figure 3. Smoothing spline representing the incremental probability of survival corresponding to a linear increase in chest compression fraction.

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

# 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

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

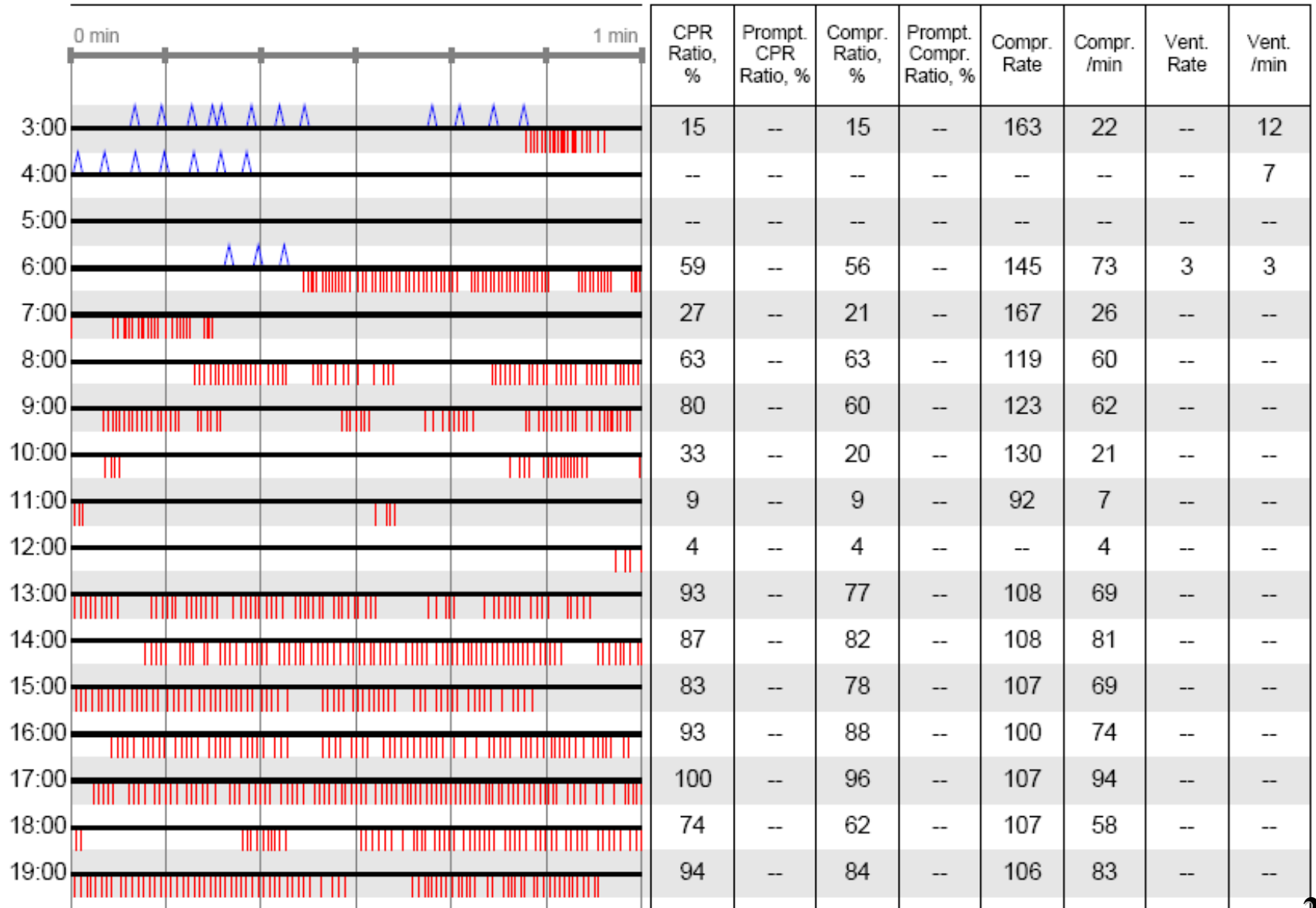
**Objective** To investigate whether the survival of patients with out-of-hospital cardiac arrest would improve with minimally interrupted cardiac resuscitation (MICR), an alternate emergency medical services (EMS) protocol.

**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

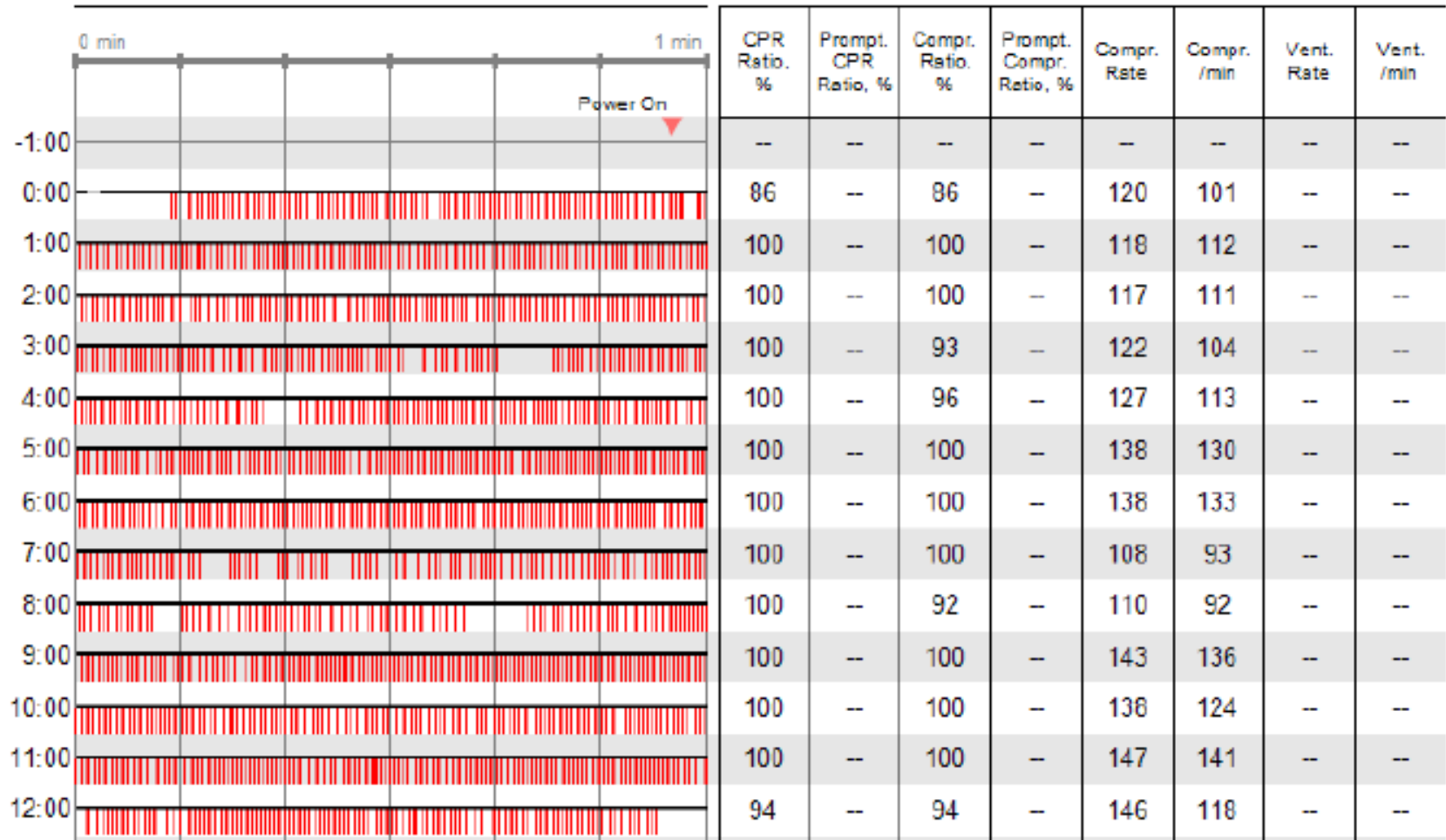
Interval Statistics



# CPR 2009

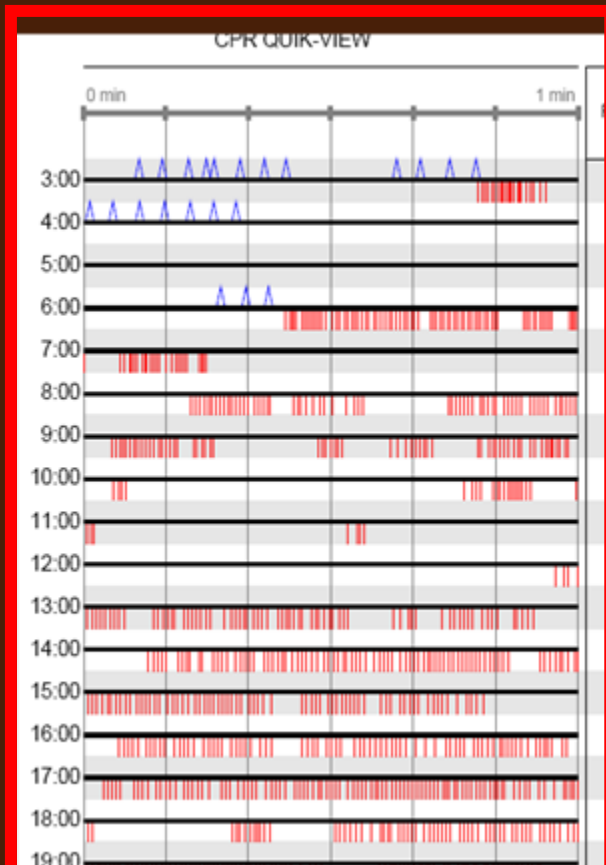
CPR QUIK-VIEW

Interval Statistics

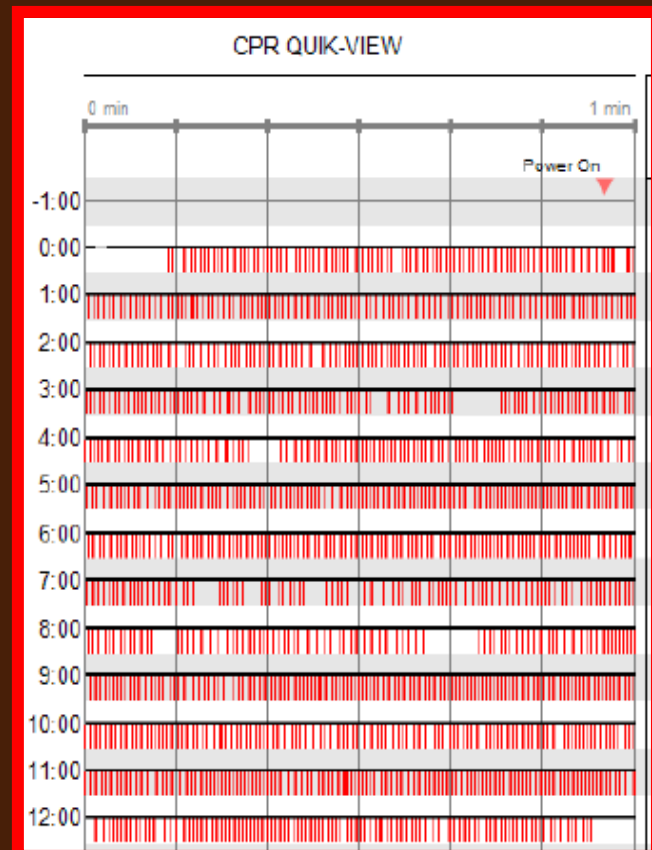


# Following Feedback, Re-Training and... *More Re-Training:*

2006



2009



# Impact on Dallas Area Outcomes

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



**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**

# Similarly, in the Trauma Study ...

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

**(Final data and Statistical Analysis still being reviewed)**



*In January 2010, at City Hall,  
the NIH Held a News Conference*

- **Announced NIH Renewal of ROC for Six More Years**
- **And Dallas Was Renewed as One of the ROC Sites**
- **Cited Dallas as a Model Site !**

# *Dr. George Sopko from the NIH*



**Congratulating Dallas Area Firefighters/EMS Personnel  
at the Dallas City Hall L1 Conference Room**

# 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*



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*

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.

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. After finishing a four-hour shift of moving boxes up and down ladders, the 46-year-old warehouse manager in Carrollton told co-workers he was grabbing a bite to eat.

# *The NIH ROC Has studied:*

**Cardiac Arrests:** 13,000 / year

**Severe Traumatic Injuries:** 26,000 /year



# Current ROC Funding Partners:



National Heart, Lung and Blood Institute



Institute of Circulatory and Respiratory Health of the  
Canadian Institutes of Health Research



National Institute of Neurological Disorders and Stroke



Defence Research and Development Canada



United States Army



Heart and Stroke Foundation of Canada



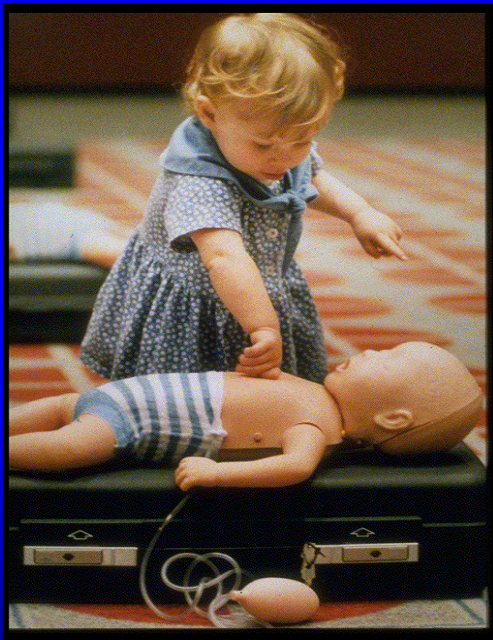
American Heart Association



# On the Horizon...

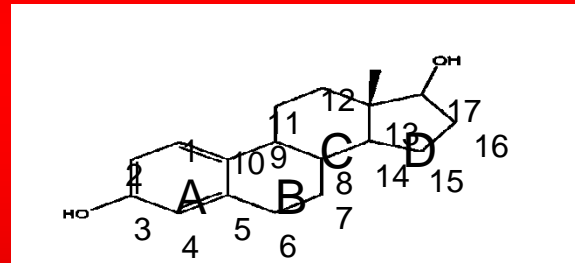


# Chest Compressions **ONLY** CPR *vs. the Traditional Approach with Rescue Breathing Included*



*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%)*

PRD. IN  
THE U.S.A.  
F.S. 651

002-0010-  
0510-00



**AIRLINES**

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# LATE CHECK-IN

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## CONTINENTAL BAGGAGE CLAIM CHECK

Baggage is checked subject to tariffs,  
including limitations of liability therein  
contained.

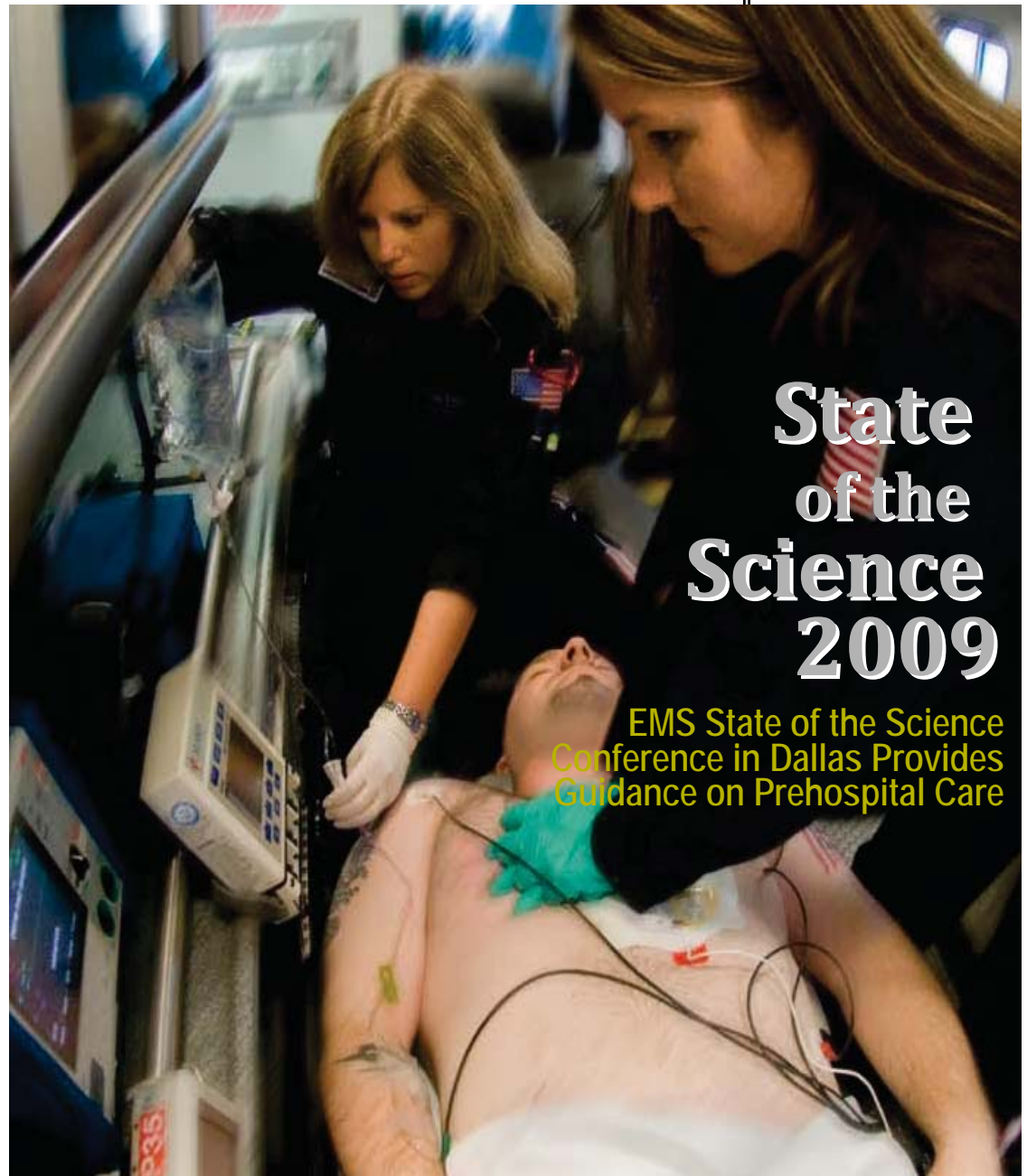
This is not the luggage ticket (Baggage  
Check) described by Article 4 of the  
Warsaw Convention as amended by the  
Hague Protocol 1955.

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**But Now  
Gaining  
National ...**

***... and  
International***

**Notoriety**



# State of the Science 2009

EMS State of the Science  
Conference in Dallas Provides  
Guidance on Prehospital Care

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

*Not Only Make Life Better....*



*...for Future Generations !!!*

*But Also Remember...*

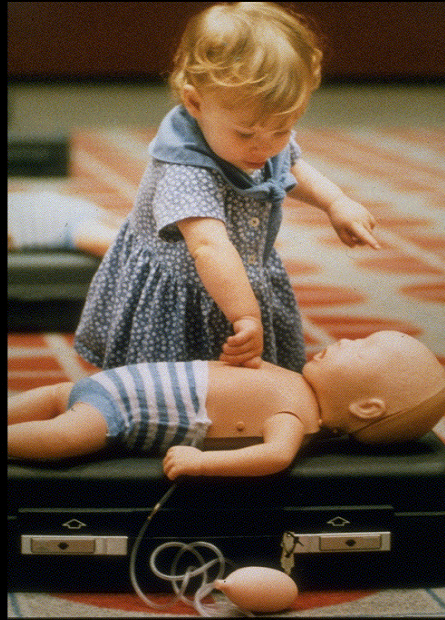


*It's Good Business Too...*

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



**“ City of Dallas ...**



***We're No Dummies !! ”***

*Thank*

*You !!!*

