



Practical Considerations in Medical Direction

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SPEAKER DISCLOSURE / COI STATEMENT

I, Brent Myers, have the following commercial relationship(s) to disclose: ESO – Employee and Stock-Holder

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LEARNING OBJECTIVES

- Describe the situations that require ultra-time critical EMS response vs. an experienced ALS provider ("paramedic paradox")
- List the evidence-based performance measures for EMS care of patients with stroke, STEMI, and cardiac arrest
- Describe the best practices for providing on-line medical direction
- Describe top-10 leadership attributes of an EMS physician

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We succeed only as we identify in life, or in war, or in anything else a single overriding objective and make all other considerations bend to that one objective. - Eisenhower

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Background

The job of the Medical Director is to be the communicator in chief

- 5% of the job relates to deciding what is the clinically appropriate thing
- 48.5% relates to external factors and clarifying the mission for the stakeholders
- \bullet 48.5% relates to internal factors and clarifying the mission for your own

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Change Management

- "Status quo police"
 - "That is not the way we do things around here"
 - Comparison:
 - Nike, Virgin, Amazon change is a way of doing business
 - Sears and Proctor & Gamble tried to stay "safe"
 Adam Hartung "Fire the Status Quo Police"







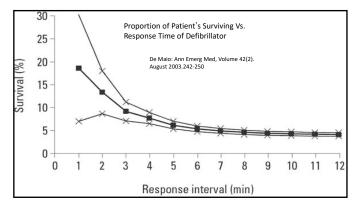
Improved neurologic recovery and survival after early defibrillation

W. Douglas Weaver, M.D., Michael K. Copass, M.D., Debbie Bufi, R.N., Roberta Ray, M.S., Alfred P. Hallstrom, Ph.D., and Leonard A. Cobb, M.D.

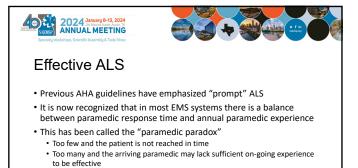
ABSTRACT Eighty-seven patients who had out-of-hospital cardiac arrests received defibrillating shocks delivered by minimally trained first responders before the arrival of paramedics in a city with short emergency response times. Their outcomes were compared with those of 370 other victims who received only basic life support by first responders until paramedics arrived. Survival was improved by early defibrillation in cases in which there was a delay in initiating cardiopulmonary resuscitation and in which paramedic response times exceeded 9 min; there was 62% survival after early defibrillation by first responders and 27% if first responders provided only basic life support (p < .02). Neurologic recovery was also improved after early defibrillation. Eighteen of 46 resuscitated patients (39%) receiving early defibrillation were awake at 24 hr compared with 49 of 204 patients (24%) who received only basic life support while awaiting paramedics (p < .02). Incorporating defibrillation aprar of basic life support can reduce both mortality and morbidity from cardiac arrest, even in cities with established, rapidly responding emergency care systems.

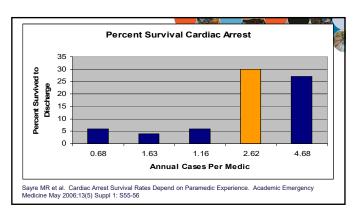
Circulation 69, No. 5, 943–948, 1984.

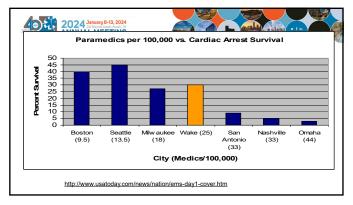
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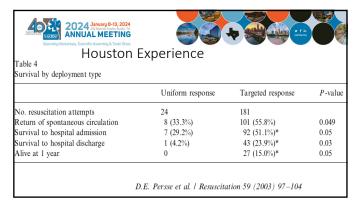


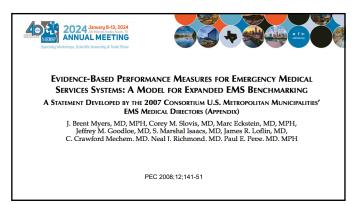


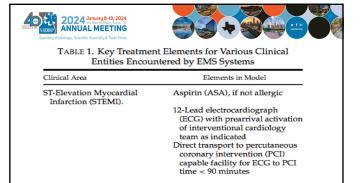








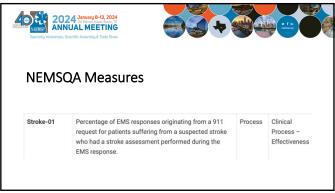






- 12 Lead transmitted
- Scene time <15
- · Transport to PCI center
- PCI < 90 min
- NNT=15
- · Avoid re-infarction, stroke, death

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Quick Background – Data Safety Monitoring Board

- Used in randomized clinical trials to monitor for patient safety reasons to stop a study before all patients are enrolled

 May stop a study due to apparent harm the intervention group is experiencing unexpected harm compared to the control and it is no longer ethical to provide the intervention
- May stop due to equivalence the data strongly suggest that no difference will be detected between experimental and control and other considerations, such as cost, indicated trial should be stopped

 May stop due to apparent benefit the intervention group is experiencing greater than expected benefit and it is no longer ethical to withhold treatment

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Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct

Raul G. Nogueira, M.D., Ashutosh P. Jadhav, M.D., Ph.D., Diogo C. Haussen, M.D., Alain Bonafe, M.D., Ronald F. Budzik, M.D., Parita Bhuva, M.D., Dileep R. Yavagal, M.D., Marc Ribo, M.D., Christophe Cognard, M.D., Ricardo A. Hanel, M.D., Cathy A. Sila, M.D., Ameer E. Hassan, D.O., Monica Millan, M.D., Elad I. Levy, M.D., Peter Mitchell, M.D., Michael Chen, M.D., Joey D. English, M.D., Qata, A. Shah, M.D., Frank L. Silver, M.D., Vitor M. Pereira, M.D., <u>et al.</u>, for the DAWN Trial Investigators*





Control vs. Thrombectomy: Neuro Intact at 90 Days

13% vs. 49%

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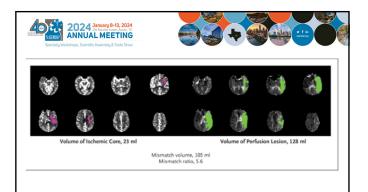


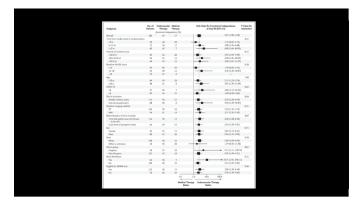
ORIGINAL ARTIC

Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging

Gregory W. Albers, M.D., Michael P. Marks, M.D., Stephanie Kemp, B.S., Soren Christensen, Ph.D., Jenny P. Tsai, M.D., Santiago Ortega-Gutierrez, M.D., Ryan A. McTaggart, M.D., Michel T. Torbey, M.D., May Kim-Tenser, M.D., Thabele Leslie-Mazwi, M.D., Armou Sarraj, M.D., Scott E. Kasner, M.D., Sameer A. Ansari, M.D., Ph.D., Sharon D. Yeatts, Ph.D., Scott Hamilton, Ph.D., Michael Mynash, M.D., Jerreny J. Heit, M.D., Greg Zaharchuk, M.D., Sun Kim, M.D., Janice Carrozzella, M.S.N., et al., for the DEFUSE 3 Investigators*

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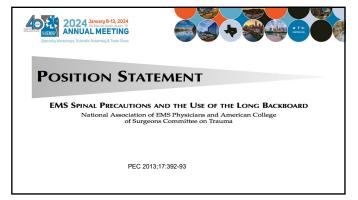


Odds: 2.77 (1.60-4.48)

Proportion: 17% vs. 45%

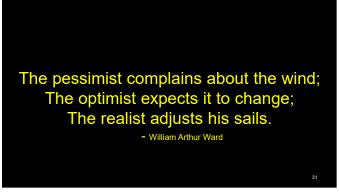
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Get Face Time in the Streets

- Part of the communicator in chief is to be the liaison between the EMS providers and the hospital
- Praise in public, reprimand in private
- Remind the providers they work for medical direction but not for every physician in the community





Why This May Be True

- Henry Ford offered his assembly line employees the equivalent of \$110/day minimum pay (up from ~\$55) to help reduce turnover and get "buy in"
- We can't raise pay but we can demonstrate respect for them by walking a mile in their shoes

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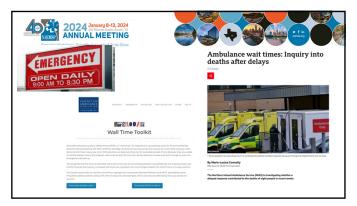
I would rather try to persuade a man to go along, because once I have persuaded him, he will stick. If I scare him, he will stay just as long as he is scared, and then he will be gone.

- Eisenhower

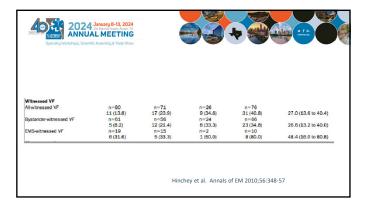
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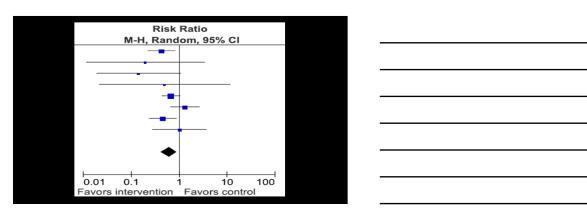








Systematic Review and Meta-analysis of the Benefits of Out-of-Hospital 12-Lead ECG and Advance Notification in ST-Segment Elevation Myocardial Infarction Patients John Myocardial Infarction Patients John Nam, MSc; liyls Carers, MD; James M. Bowen, BScPhrn, MSc; Michelle Welsfurd, MD, ABEM, FRCP, Daris O'Reilly, PhD, MSc Study objective: To present a review of out-of-hospital identification of Effective deviction myocardial Infarction patients enlargency metales selences with 25 beautified to the Contrained Library was searched, using contrained vocabulary and keywords. Randomized controlled trials and observational studies were included. Outcome included short term mortality (230) determined, where appropriate, Results were startfield by perculaneous coronary intervention of Efficiency in the Contrained Library was supported and 36 studies met the final criteria; 15 included date on perculaneous coronary intervention and 20 in fibrinolysis. (2) included date on perculaneous coronary intervention and 30 in fibrinolysis. (2) included date on perculaneous coronary intervention and 30 in fibrinolysis. (2) included date on perculaneous coronary intervention and 30 included short on the fibrinolysis. (3) included date on perculaneous coronary intervention and 30 included short on perculaneous coronary intervention of Efficiency in the American of the American intervention and 30 included both). Where perculaneous coronary intervention of the perculaneous coronary interventi



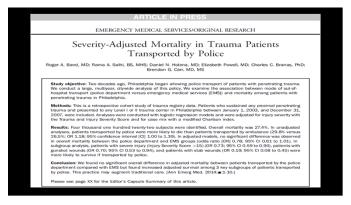


Table 3. Adjusted association between mode of transport and mortality within specified subgroups.* OR (95% CI) **Population Subgroups EMS** PD Overall Ref 0.78 (0.6-1.01) 0.78 (0.6-1.01) 0.73 (0.59-0.90) 0.59 (0.23-1.51) 0.70 (0.53-0.94) 0.67 (0.55-0.83) ISS >15 ISS ≤15 GSW Ref Ref Ref ISS >15 Ref SW 0.19 (0.08-0.45) ISS > 15Ref 0.39 (0.10-1.48) *All ORs presented are adjusted for probability of death with TRISS methodology, case mix with a modified Charlson index, age, and sex.

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#5 Do Not Delegate On-Line Medical Direction



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Why This Matters?

- To the providers they get a consistent message
- To your ED co-workers they get a break and come to respect your decision-making
- To you you learn more about your providers than by nearly any other mechanism

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#6 – Deliver Educational Sessions in Person

- Praise in public
- Remediate in private
- Show positive cases and cases with opportunity for improvement







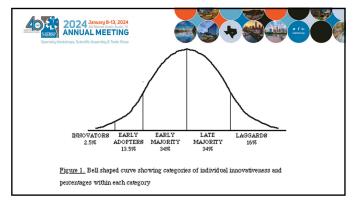




Examples

- Medications within categories
- Minor clinical misadventures
- Educational methods
- \bullet 8 to 12% of the US population calls for EMS each year
 - We are UMS unscheduled medical service that occasionally responds to an emergency

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#9 Put Your Money Where Your Mouth Is

- Response Time
- Safety
- Education
- Commitment to the providers

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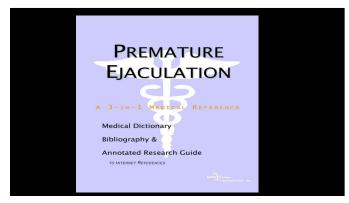


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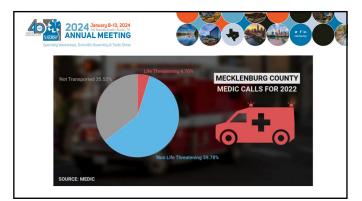


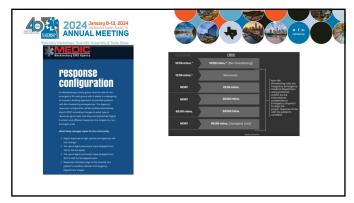


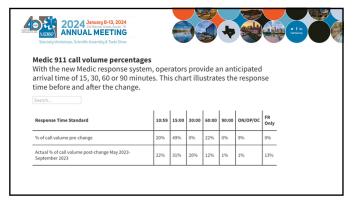
Speed Report Rather Than Response Time Report

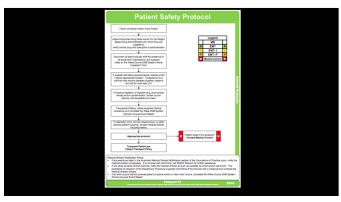
- All speeds over 80 MPH trigger a review
- Progressive discipline is utilized for those who violate safety/speed regulations
- \bullet Save for the laggards, this has been universally well-received

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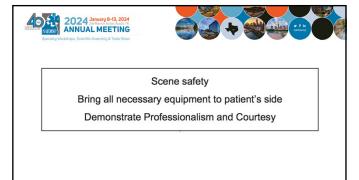
















#10 Always Put the Patient First (But Don't Say it Very Often)

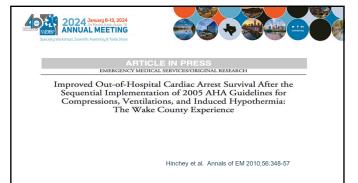
- "I am tired of hiring about the patient when we can talk about operations!"
 - Anonymous former EMS Chief in the Wake EMS System
- Don't talk about dead babies in the street
- Do bring the medical community along

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Adult Emergency Department Induced Hypothermia and/or Rewarming Status Post Cardiac Arrest Orders Inclusion Criteria Non Traumatic Cardiac Arrest with Return of Spontaneous Circulation (ROSC) Time to initiation of hypothermia is less than 6 hours Comatose after ROSC: GCS less than 8, and no purposeful movements to pain Exclusion Criteria Uncontrolled GI bleeding Patient requiring Mannitol therapy Advanced Directives or DNR status Cardiovascular instability as evidenced by: Uncontrollable dysrhythmias Refractory hypotension (unable to achieve target MAP with pressors – at least 75mmHg) Suspected intracranial hemorrhage Major intracranial, intrathoracic or intrabdominal surgery within 14 days Gravid pregnancy DATE /TIME Weight kg Time of ROSC



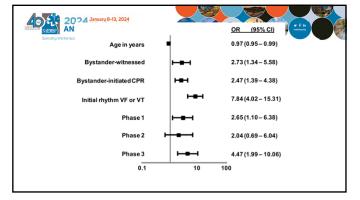




Wake County Experience

- Community-wide approach to improving resuscitation outcomes
- Natural experiment with prospective data collection and observation
- Continuous compressions, controlled ventilations, working codes "on-scene", and induction of hypothermia

Characteristics	Baseline (N=425)	Phase 1 (N=369)	Phase 2 (N=161)	Phase 3 (N=410)	Absolute Increase* % (95% CI)
Witnessed arrest	(į,	t	((
Bystander witnessed	n=154	n=134	n=61	n=136	
bystalioel wichessed	8 (5.2)	14 (10.4)	8 (13.1)	31 (22.8)	17.6 (9.7 to 25.5)
EMS witnessed	n=51	n=50	n=12	n=47	17.6 (9.7 to 25.5)
	6 (11.8)	6 (12.0)	1(8.3)	10 (21.3)	9.5 (-5.2 to 24.2)
Initial CPR	0 (11.0)	0 (12.0)	1 (0.3)	10 (21.3)	9.5 (-5.2 to 24.2)
Bystander	n=162	n=117	n=63	n=142	
First responder (firefighter)	8 (4.9)	13(11.1)	6 (9.5)	21 (14.8)	9.9 (3.2 to 16.6)
	8 (4.9) n=143	13 (11.1) n=165	6 (9.5) n=77	21 (14.8) n=192	9.9 (3.2 to 16.6)
First responder (firefighter)	n=143 2(1.4)	n=165 6 (3.6)	n=77 5 (6,5)	n=192 14(7.3)	5.9 (1.7 to 10.1)
	2(1.4)	6 (3.6)	5 (6.5)	14 (7.3)	5.9 (1.7 to 10.1)
EMS response Intervals Defit to scene in >4 min	n=356	n=287		n=330	
			n=121		
	16 (4.5)	16 (5.6)	9 (7.4)	35 (10.6)	6.1 (2.1 to 10.1)
Defib to scene in ≤4 min	n=42	n=70	n=39	n=73	
	1 (2.4)	9 (12.9)	4 (10.3)	12 (16.4)	11.6 (0.9 to 22.3)
Initial cardiac rhythm					
Asystole	n=200	n=178	n=81	n=199	
	3 (1.5)	2 (1.1)	1(1.2)	4 (2.0)	0.5 (-2.1 to 3.1)
PEA	n=100	n=89	n=38	n=107	
	1 (1.0)	3 (3.4)	0 (0)	8 (7.5)	5.5 (-0.2 to 11.2)
VF or VT	n=124	n=101	n=42	n=97	
	14 (11.3)	22 (21.8)	12 (28.6)	35 (36.1)	24.8 (13.7 to 35.9)
Witnessed VF					
All-witnessed VF	n=80	n=71	n=26	n=76	
	11 (13.8)	17 (23.9)	9 (34.6)	31 (40.8)	27.0 (13.6 to 40.4)
Bystander-witnessed VF	n=61	n=56	n=24	n=66	
	5 (8.2)	12 (21.4)	8 (33.3)	23 (34.8)	26.6 (13.2 to 40.0)
EMS-witnessed VF	n=19	n=15	n=2	n=10	
	6 (31.6)	5 (33.3)	1 (50.0)	8 (80.0)	48.4 (16.0 to 80.8)







Take Home Points

- #1 Measure What Matters
- #2 Get Face Time in the Streets
- #3 Learn from the Streets
- #4 Control the Message
- #5 Do Not Delegate On-Line Medical Direction (at least not all of it)

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Take Home Points

- #6 Deliver educational message in person
- #7 Don't sweat the small stuff
- #8 Stand up for what matters
- #9 Put your money where your mouth is
- #10 Always put the patient first (but don't say it too often)

I would rather try to persuade a man to go along, because once I have persuaded him, he will stick. If I scare him, he will stay just as long as he is scared, and then he will be gone.

- Eisenhower

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