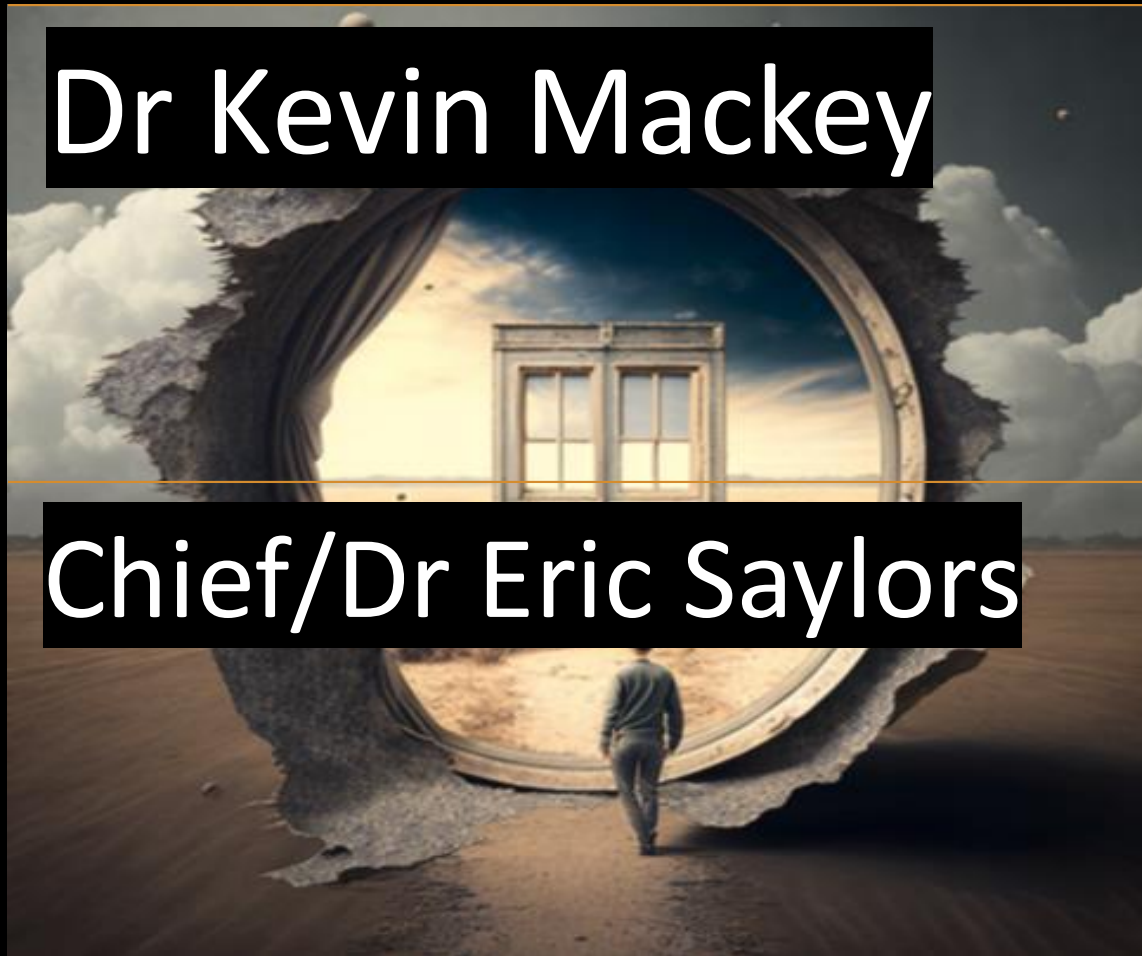


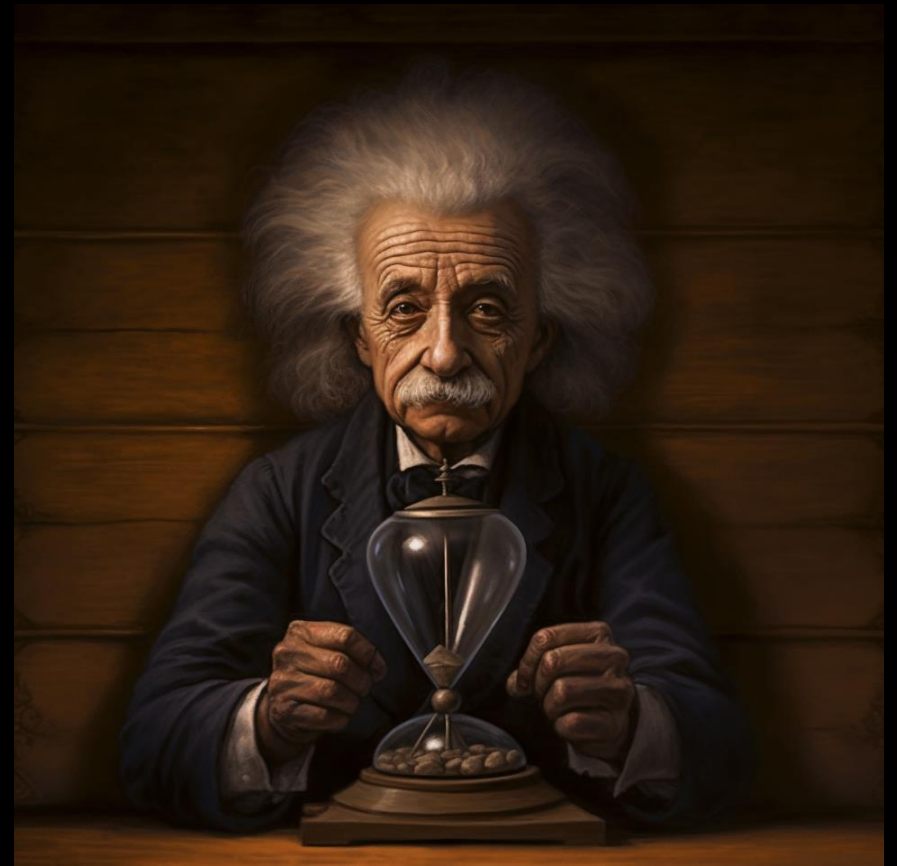
Dr Kevin Mackey

Chief/Dr Eric Saylor

Operational  
Findings:  
Intentional  
Mass  
Causality  
Incidents



If I had one hour to  
save the world, I would  
use 50 minutes  
defining the problem  
and 10 minutes finding  
a solution



- Principle of the Problem: *Time*

- Time from injury to surgery

- Vietnam Wound Study

- Hardaway 3rd, R. M. (1978). Viet Nam wound analysis. *The Journal of trauma*, 18(9), 635-643.

## Viet Nam Wound Analysis

ROBERT M. HARDAWAY, III, M.D.

A statistical study is reported of 17,726 wounded American soldiers in Viet Nam over 15 months from March 1966 to July 1967. Causes, location, treatment, and results were analyzed for various regions, organs, and tissues.

Results of treatment were remarkably good, the best in the history of military surgery. Major problems of resuscitation and treatment of local tissue injury which had not before been treated on a large scale were treated with excellent results.



# Environmental Operational Objectives

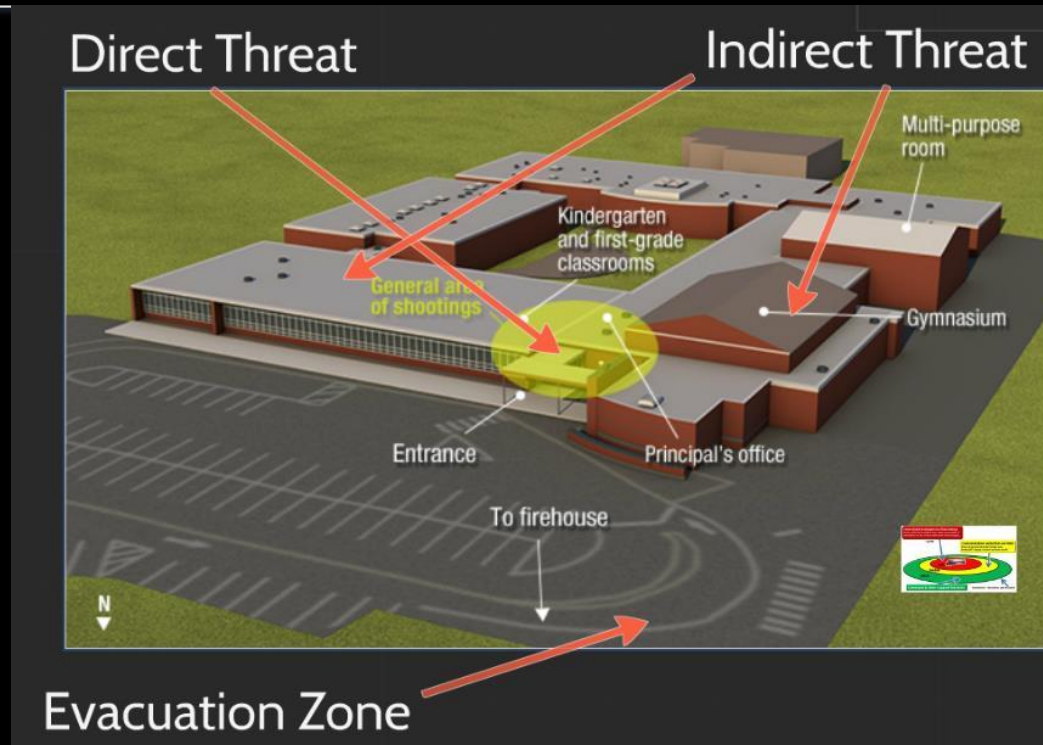
- Jacobs, L. M., McSwain Jr, N. E., Rotondo, M. F., Wade, D., Fabbri, W., Eastman, A. L.,. (2013). Improving survival from active shooter events: the Hartford Consensus. *Journal of Trauma and Acute Care Surgery*, 74(6), 1399-1400.

The Hartford Consensus recommends that an integrated active shooter response should include the critical actions contained in the acronym **THREAT**:

1. *Threat* suppression
2. *Hemorrhage* control
3. *Rapid Extraction* to safety
4. *Assessment* by medical providers
5. *Transport* to definitive care

Common Terminology  
and Operating picture:  
TCCC

- Secure Vs Safe Vs Clear
- Victim Vs Patient
- Threat Zones vs Hot/Warm/Cold



# Tactical challenges

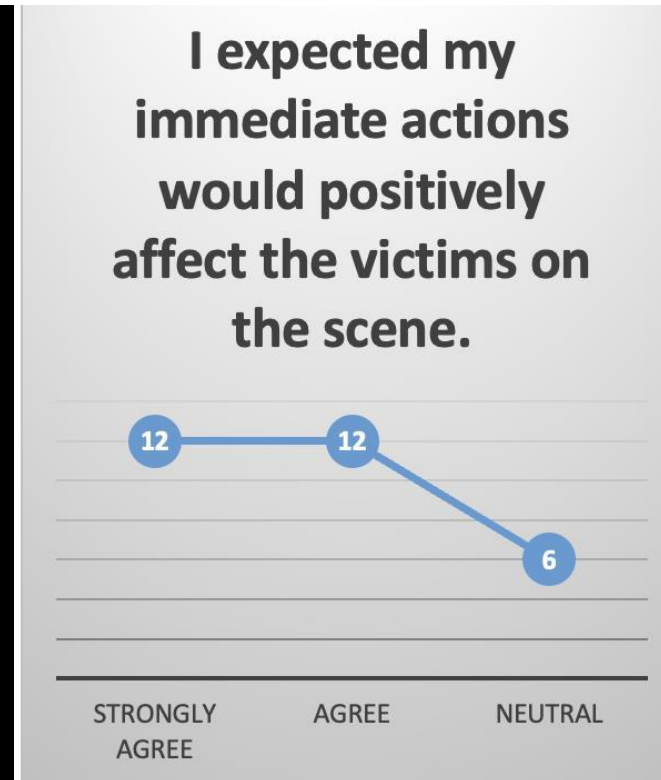
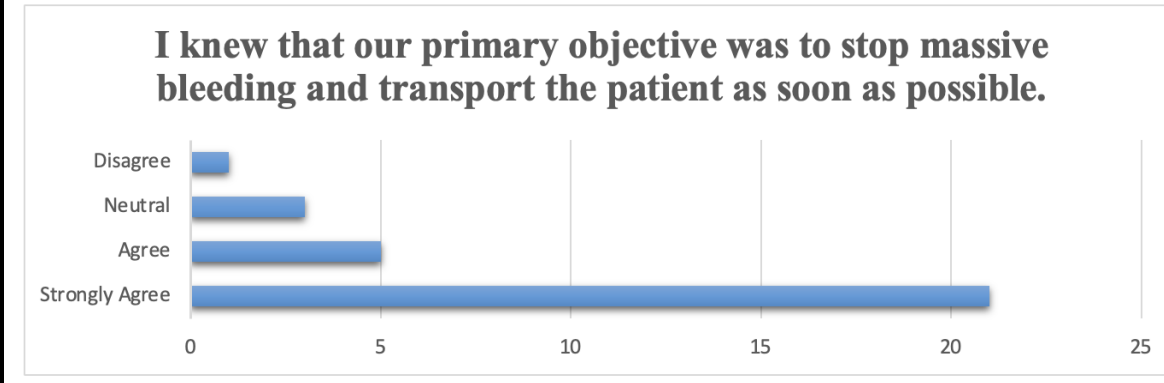
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- Access to victims
- Hemorrhage control
- Moving Victims
- Sorting Victims



# Methodology

- Mixed method sequential explanatory study
- Multiple failsafe experiments
  - Quantitative Data Collection and results
  - Qualitative Data Collection and findings



# Findings:

## No Diamond Formation

---

- (Qual) - Too logistical heavy to implement
- (Quant) - One to one ratio LE to EMS provider
- (Quant) - So slow
- (Quant) - Lacked effective exit plan
- (Qual) - Gave perception of unsecured area





# No Ballistic Gear

- 
- (*Quant*) – requires correct body position
  - (*Quant*) – rating – Class 1, 2, 3, 4
  - (*Quant*) – Sizing, storage
  - (*Qual*) – Heavy, slow
  - (*Qual*) – Perception of unsecured area
  - (*Qual*) – can look like a combatant (Social identity theory)



# Requires a Move Device



- 200-foot move to evac
- No Device
  - 3:1 ratio
  - Max of 4 patients per crew
- With device
  - 1 to 1 ratio
  - Max of 10 patients per crew



# Sorting Vs Triage

- No triage in threat zone – first come, first serve
  - Prevents log piles in funnels
- Sorting in the evac zone;
  - A C E acronym
    - Abdominal
    - Chest
    - Extremities



# Outcomes at drills

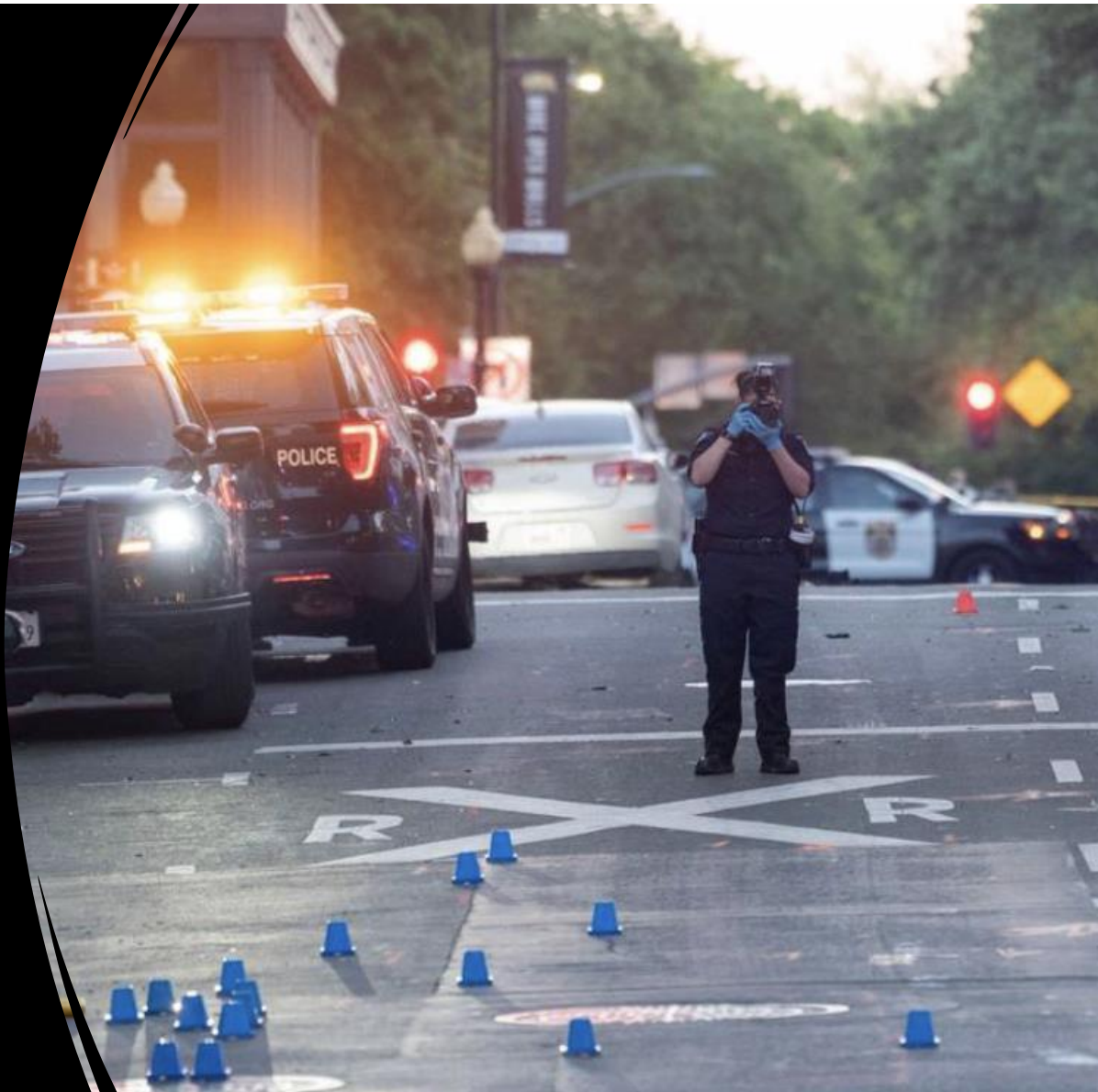
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- Time delta
  - Average of 45 minutes to first victim out to average of 11 minutes to last victim out
    - 26 live victims with 200 ft drag
  - All victims to hospital in 26 minutes



# Real Life Application: K Street Shooting April 3, 2022

- Dispatch 02:05
- First unit (E2) on scene: 02:08
  - 19 victims
  - Spread over 5 blocks
  - Scene secured at 02:07 by CHP
- Establish command
- Recognize a mass killing
- Order resources
- First victim transported at 02:19 (12 minutes) minutes from time secure
- Last Victim transported at 02:41 (34 minutes) minutes from time secure




## Qualitative Data

- “As an organization, had gone through intentional MCI training,”
- “which meant that from the Battalion Chief rank all the way down to the transporting paramedics, that everybody understood that, the objective is to get to the patients quickly, stop the bleeding, transport them to a trauma center and get them to a surgeon.”
- “Those basic objectives directly related to the intentional MCI training that we had received ... that was a major change in mindset in the ... Fire Department from five or 10 years ago.”

## Appendix D – Incident Transport Information

### Patients Transported to Local Hospitals

Ambulance Identifier	On scene Time	Transport Time	Transport Arrival Time	Destination	Age	Gender	Injuries
M13	02:15	02:19	02:28	UC Davis	32	Male	GSW to R buttock
M1	02:11	02:27	02:35	UC Davis	26	Male	GSW to flank and thigh/rib fractures
M4	02:16	02:28	02:35	UC Davis	35	Male	GSWs Torso x3 GSW to extremity
M20	02:36	02:41	02:50	Sutter	26	Female	GSW L upper arm
M15	02:16	02:29	02:37	Kaiser South	23	Female	Major Trauma
M2	02:12	02:35	02:47	Kaiser South	24	Female	Major Trauma
M19	02:28	02:41	02:55	Kaiser South	22	Male	Major Trauma



Operational  
Impacts on  
Survival

Thank You

- Dr Mackey
- Chief/Dr Saylor

Time is  
Everything

