



Starting a Simulation Program....

More than just getting a fancy manikin

Virginia EMS Symposium
2015

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- ▶ Paramedic - Tidewater Community College in 1996
- ▶ Currently assigned to Training Division
 - ▶ Education Coordinator
 - ▶ Instructor
 - ▶ CPR, ACLS, PEPP, ITLS and PHTLS
 - ▶ EMT, AEMT and Intermediate
 - ▶ Continuing Education
- ▶ B.S. in Public Safety Administration from Grand Canyon University
- ▶ U.S. Navy Hospital Corpsman 1989-1993)



Disclaimer

- ▶ Products and brands will be shown as examples in this presentation. Norfolk Fire-Rescue nor the presenter recommend any specific manufacturer or service.
- ▶ This presentation is not sponsored by any company in any manner.

Objectives

- ▶ Defining the Problem
- ▶ Getting Started
- ▶ Lessons we learned
- ▶ Resources

THE PROBLEM



Initial Training is...

- ▶ Largely focused on individual skills
- ▶ For relatively large groups
- ▶ Set up to maximize time and resources



This works, but typically imprints a model used for all other training



National Registry

SPINAL IMMOBILIZATION (SEATED PATIENT)

Candidate: _____ Examiner: _____

Date: _____ Signature: _____

Actual Time Start:	Possible Points	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs assistant to place/maintain head in the neutral, in-line position	1	
Directs assistant to maintain manual immobilization of the head	1	
Reassesses motor, sensory, and circulatory functions in each extremity	1	
Applies appropriately sized extrication collar	1	
Positions the immobilization device behind the patient	1	
Secures the device to the patient's torso	1	
Evaluates torso fixation and adjusts as necessary	1	
Evaluates and pads behind the patient's head as necessary	1	
Secures the patient's head to the device	1	
patient to a long backboard	1	
nsory, and circulatory function in each extremity	1	
TOTAL	12	



Patient Assessment/Management – Trauma

LEVEL TESTED: FREMR EMT-B/EMT EMT-Int/ajEC

Date: _____ Test Site Location: _____

Candidate's Name: _____ # _____ End Time: _____

Evaluator's Name: _____ Start Time: _____

Total Time: _____

USE FOR VEMSES CANDIDATES ONLY

Takes or verbalizes standard precautions (SS) if appropriate based on patient scenario

SCENE SIZE-UP

- Determines the scene is safe
- Determines the mechanism of injury
- Determines the number of patients
- Requests additional help if necessary
- Considers stabilization of spine

PRIMARY ASSESSMENT

- Verbalizes general impression of the patient
- Determines responsiveness/level of consciousness (AVPU)
- Determines chief complaint/apparent life threats

Airway	<ul style="list-style-type: none"> <input type="checkbox"/> Opens and assesses airway <input type="checkbox"/> Inserts adjunct as indicated <input type="checkbox"/> Assessment
Breathing	<ul style="list-style-type: none"> <input type="checkbox"/> Initiates appropriate oxygen therapy <input type="checkbox"/> Assures adequate ventilation <input type="checkbox"/> Injury management that compromises airway/breathing <input type="checkbox"/> Assesses/controls major bleeding if present <input type="checkbox"/> Assesses pulse
Circulation	<ul style="list-style-type: none"> <input type="checkbox"/> Assesses skin (color, temperature or condition) <input type="checkbox"/> Initiates shock management (proper position, conservative)

Identifies priority patients/makes transport decision/integrates treatments to preserve life

HISTORY TAKING

Obtains S.A.M.P.L.E. history, if able

SECONDARY ASSESSMENT AND VITAL SIGNS

Obtains vital signs (must include pulse, respirations and BP)

Assess the head	<ul style="list-style-type: none"> <input type="checkbox"/> Inspects and palpates the scalp and ears <input type="checkbox"/> Assesses the eyes <input type="checkbox"/> Assesses the facial areas including oral and nasal areas
Assess the neck	<ul style="list-style-type: none"> <input type="checkbox"/> Inspects and palpates the neck <input type="checkbox"/> Assesses for JVD <input type="checkbox"/> Assesses for tracheal deviation
Assess the chest	<ul style="list-style-type: none"> <input type="checkbox"/> Inspects <input type="checkbox"/> Palpates <input type="checkbox"/> Auscultates
Assess the abdomen/pelvis	<ul style="list-style-type: none"> <input type="checkbox"/> Assesses the abdomen <input type="checkbox"/> Assesses the pelvis <input type="checkbox"/> Verbalize assessment of genital/perineum as needed
Assess the extremities	<ul style="list-style-type: none"> <input type="checkbox"/> 1 point for each extremity <input type="checkbox"/> Includes inspection, palpation and assessment of motor sensory and circulatory function
Assess the posterior	<ul style="list-style-type: none"> <input type="checkbox"/> Assesses thorax <input type="checkbox"/> Assesses lumbar

Manages secondary injuries and wounds appropriately

REASSESSMENT (verbalized)

Verbalize on reassessment of the patient and interventions

1	
1	
1	
1	
TOTAL: 42	

Critical Criteria: (You must thoroughly explain your answer for checks are critical criteria on the back of this sheet)

- 111- Did not determine scene safety
- 112- Did not provide for spinal protection when indicated
- 113- Did not assess for and verbalize high concentration of oxygen, if indicated
- 114- Did not find, or manage, problems associated with airway, breathing, hemorrhage or shock
- 115- Did other assessment before assessing the airway, breathing and circulation
- 116- Did not verbalize appropriate intervention or verbalized inappropriate/unsafe treatment
- 117- Did not verbalize transporting patient within 10-minute time limit, if EMT candidate
- 118- Did not obtain 33 or more points

Station #: _____
Scenario #: _____



ately direct or take manual immobilization of the head
y apply appropriately sized cervical collar before ordering release of manual

dered release of manual immobilization before it was maintained mechanically
moved patient excessively causing potential spinal compromise
ed to the device before device sufficiently secured to torso
excessively up, down, left, or right on the patient's torso
ation allows for excessive movement
hibits chest rise, resulting in respiratory compromise
on of immobilization, head is not in a neutral, in-line position
ss motor, sensory, and circulatory functions in each extremity
to the long backboard
ge the patient as a competent EMT
eptable affect with patient or other personnel
a dangerous or inappropriate intervention



EMT Examiner
Review
Initials: _____
(Bubble T or 2 on
Scantron if false)

CPR/ACLS /PALS



Our Spark

- ▶ Quarterly Training – Fall of 2013
 - ▶ Attempt at simulation
 - ▶ Dialysis patient in cardiac arrest
 - ▶ Trauma patient with impaled object



"This just may work"

Administrative Support

Chief of Training Division believed in simulation, culminating in a published article in Fire Engineering.

The screenshot shows the Fire Engineering website. At the top, the logo "Fire Engineering" is displayed in a stylized red font. To the right, there are social media icons for LinkedIn, Facebook, Google+, and Twitter, along with a search bar and a "SEARCH" button. Below the logo, a navigation menu includes: Home, Resources, Training, Zones, EMS, Firefighting, Apparatus, Health/Safety, Leadership, Prevention, Rescue, Community, and Subscribe.

The main content area features an article titled "SIMULATION-BASED TRAINING FOR SUCCESSFUL OPERATIONS" dated 05/23/2014, by Robert G. Burton. The article discusses the benefits of simulation-based training for firefighters and EMS, mentioning that it allows for the replication of real-life events in a controlled environment. It notes that simulation-based training is becoming more prevalent as technology advances, and that it can help responders develop muscle memory and decision-making skills. The article also mentions that simulation-based training is being used in the health care field as well.

Below the article text, there is a photograph showing two firefighters in blue uniforms working on a high-fidelity simulation manikin. One firefighter is leaning over the manikin, while the other is standing nearby. The manikin is lying on a stretcher, and the firefighters appear to be performing a medical procedure or assessment.

Below the photograph, there is a caption: "(1) Norfolk (VA) Fire-Rescue (NFR) responders use high-fidelity simulation manikins." The article continues with the text: "As I looked for a way to apply this technology to the fire service, I saw many products on the market that would enable NFR members to have valuable experiences. However, I also learned that how the technology was used was far more important than the product itself. One of the first things you must identify before purchasing a product or piece of equipment is its expected outcome. In other words, how would this improve the NFR's performance and..."

On the right side of the page, there is a "TOPIC INDEX" section with a list of articles by topic, A-Z. The first article listed is "Firefighters Respond to River Edge (NJ) House Fire" by FireDynamics. Below this, there is a "SURVIVAL ZONE" section with the article "AFG Grants Often Cover Cost of Turnout Gear Washers and Dryers". Below that, there is an "EXTRICATION ZONE" section with the article "Training Minutes: Stabilization Options for Rollover Rescue". At the bottom, there is a "TECHZONE" section with the article "Amtrak Derailment Operations: the First 24 Minutes".

“Experience is a
hard teacher
because she gives
the test first, the
lesson afterwards”

Vernon Law



RPDM

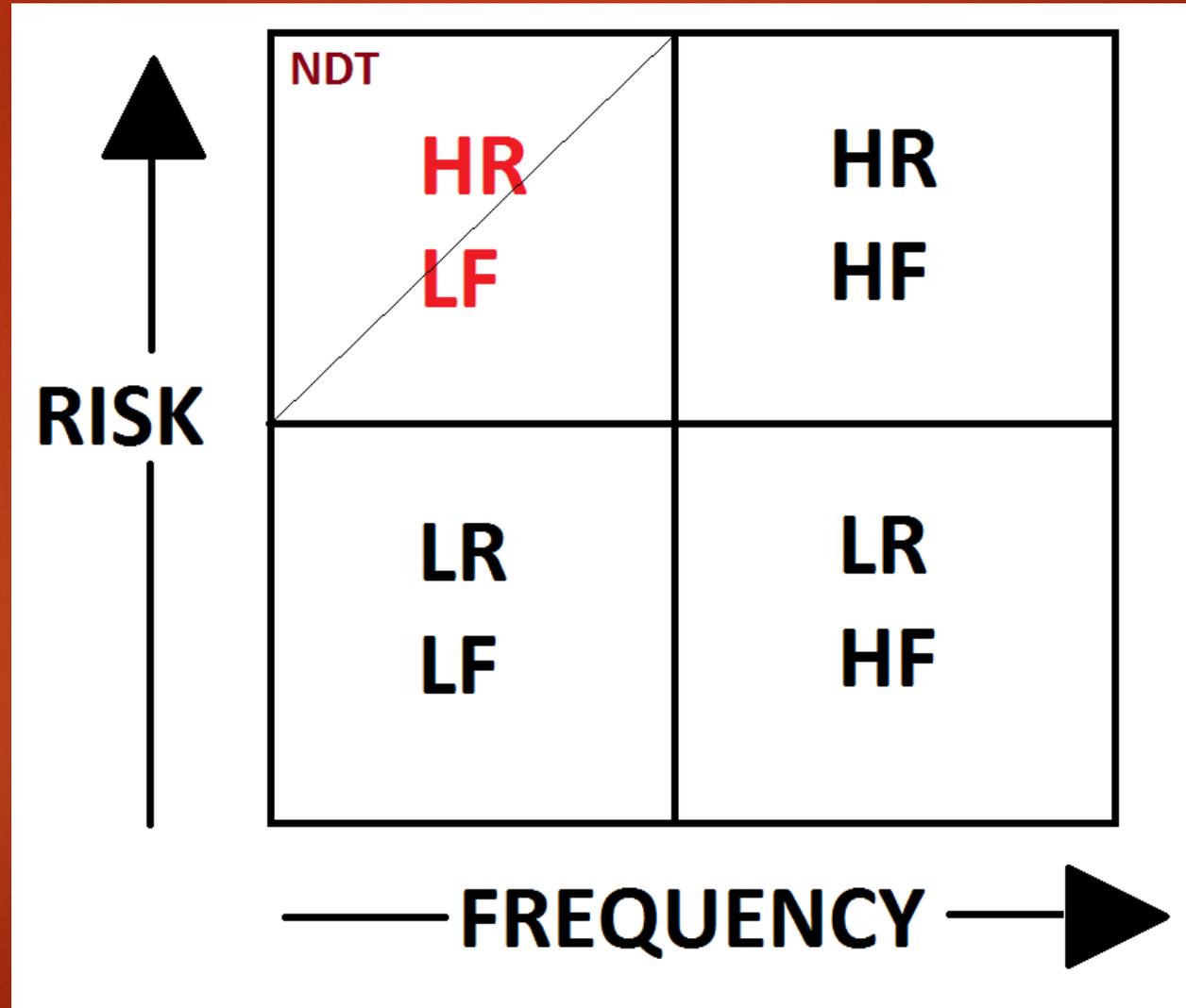


Recognition Prime Decision Making

“The brain is this massive hard drive loaded with information. Billions of gigabytes of data stored.....and when you get involved in any incident, the brain scans it, looks for a match.....finds the match, and automatically directs behavior based on past behavior that ended up with a successful result. That is RPDM. IT WORKS.....IT WORKS”

Gordon Graham

Gordon Graham – Risk vs. Frequency



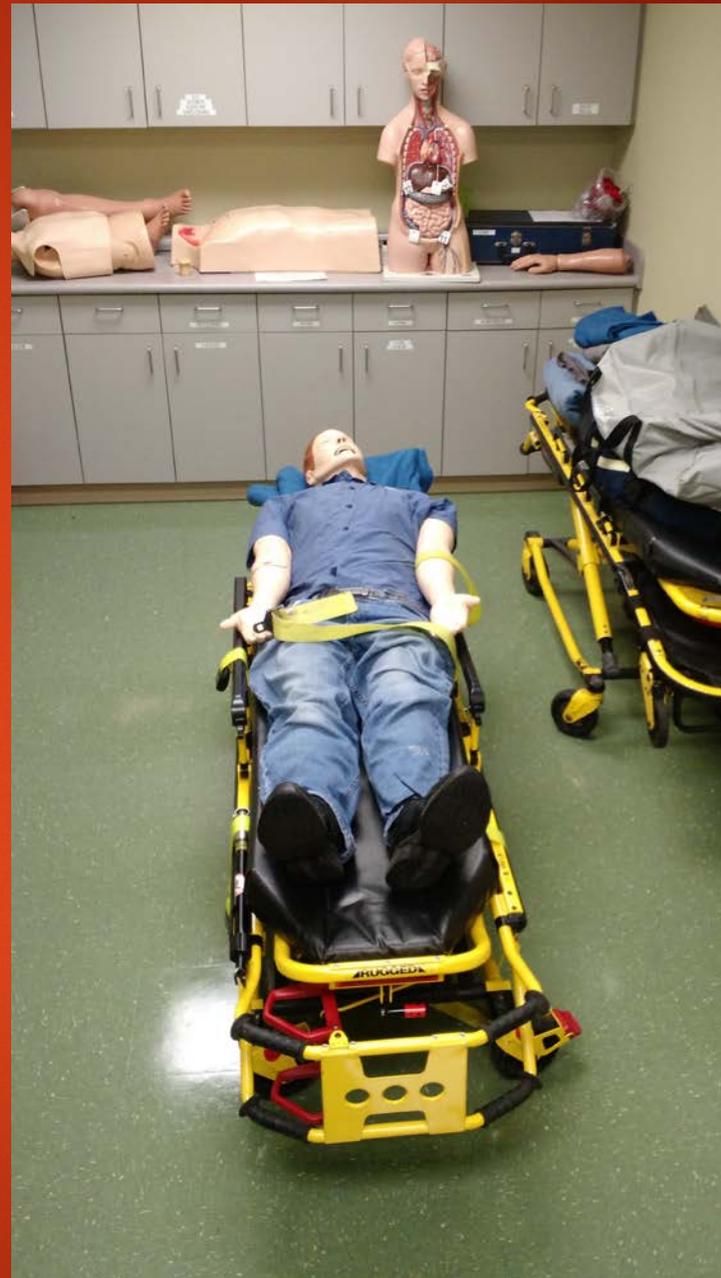


- ▶ Simulation endeavors to:
 - ▶ Recreate experiences that are High Risk / Low Frequency with No Discretionary Time
 - ▶ Give those providers the ability to establish RPDM
 - ▶ With no risk to patients or provider confidence / reputation

NFR TRAINING'S JOURNEY

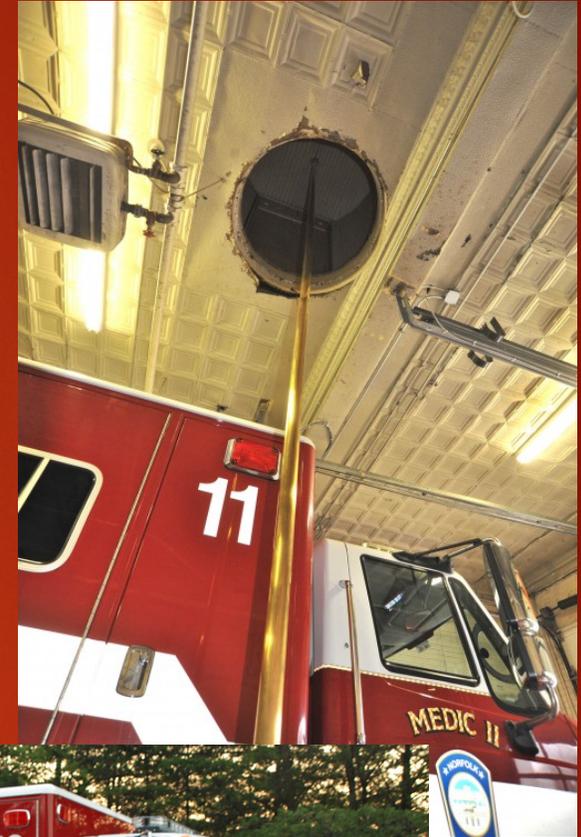
SimMan3G / SimBaby

THEY ARE EXPENSIVE – DON'T USE THEM!



Classroom alone is not realistic

- ▶ Options
 - ▶ Use old ambulance
 - ▶ City vehicle maintenance would not support
 - ▶ Used ambulances are sold intact
 - ▶ Get box from retired ambulance
 - ▶ Cut in half and place in room – not available for NFR Training
 - ▶ Build a replica inside our training center
 - ▶ Cheapest and best option for NFR



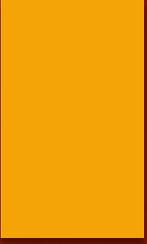
What others have done



Build



Build



Build



Finishing



Finishing

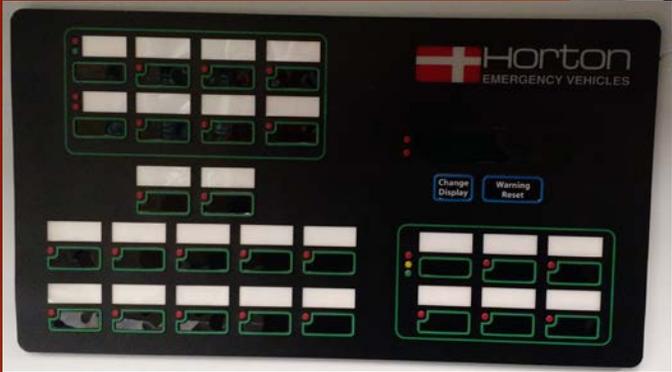


Back of ambulance

- ▶ This is theatre
- ▶ Sell that you are in an ambulance



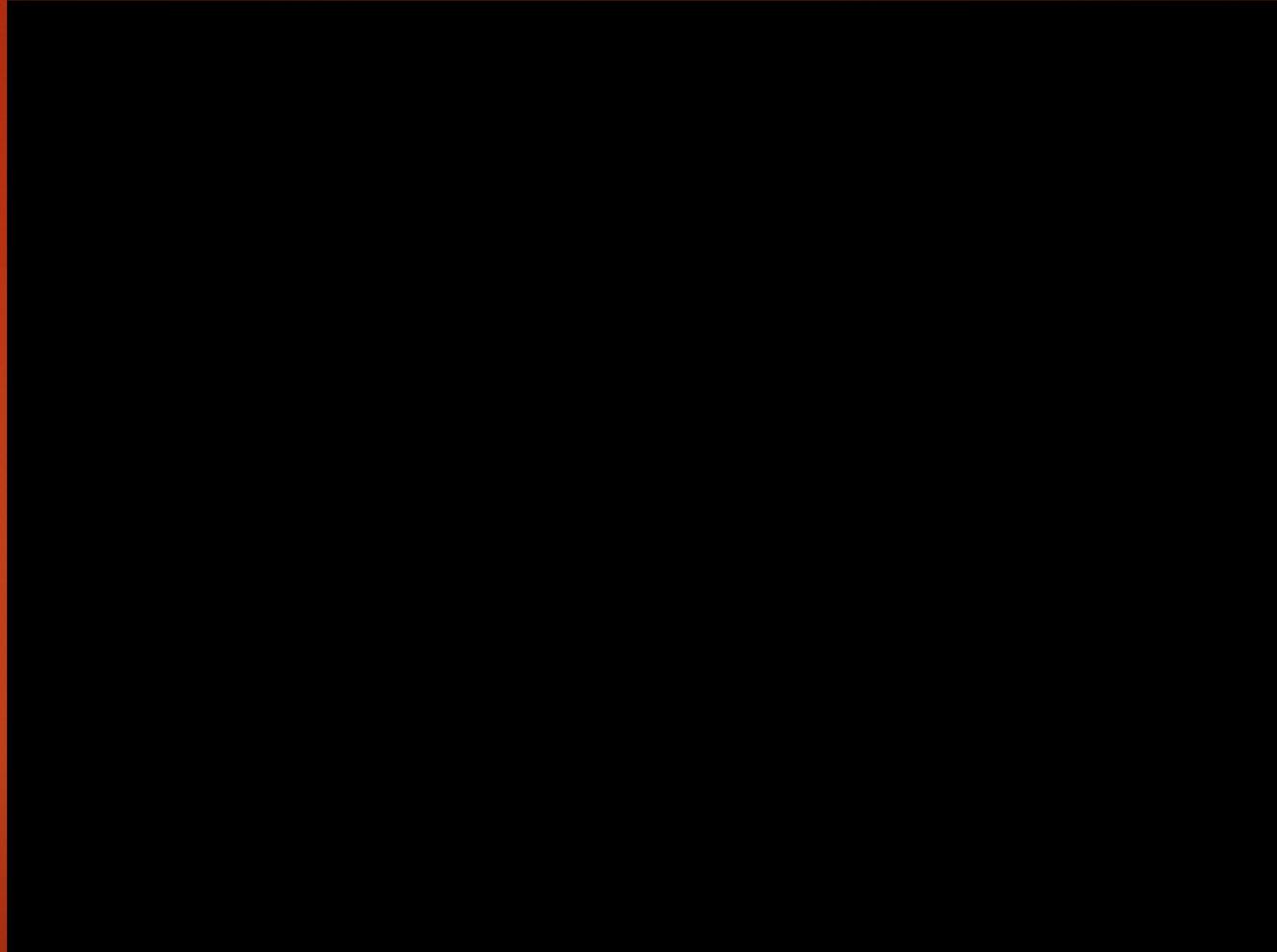
Outfitting



Outfitting



Are we moving?



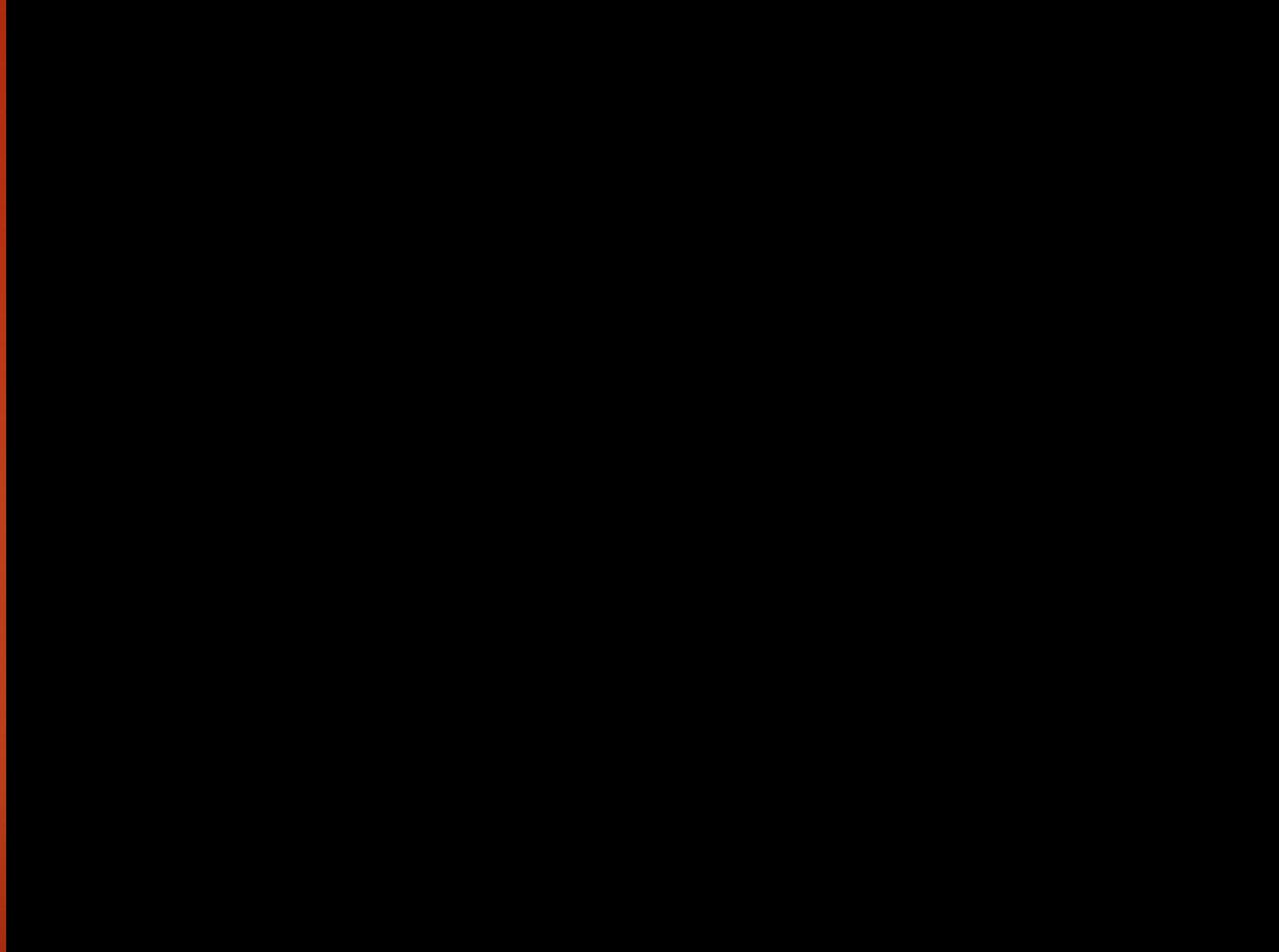
Camera system



Still some work to do



Video Monitoring



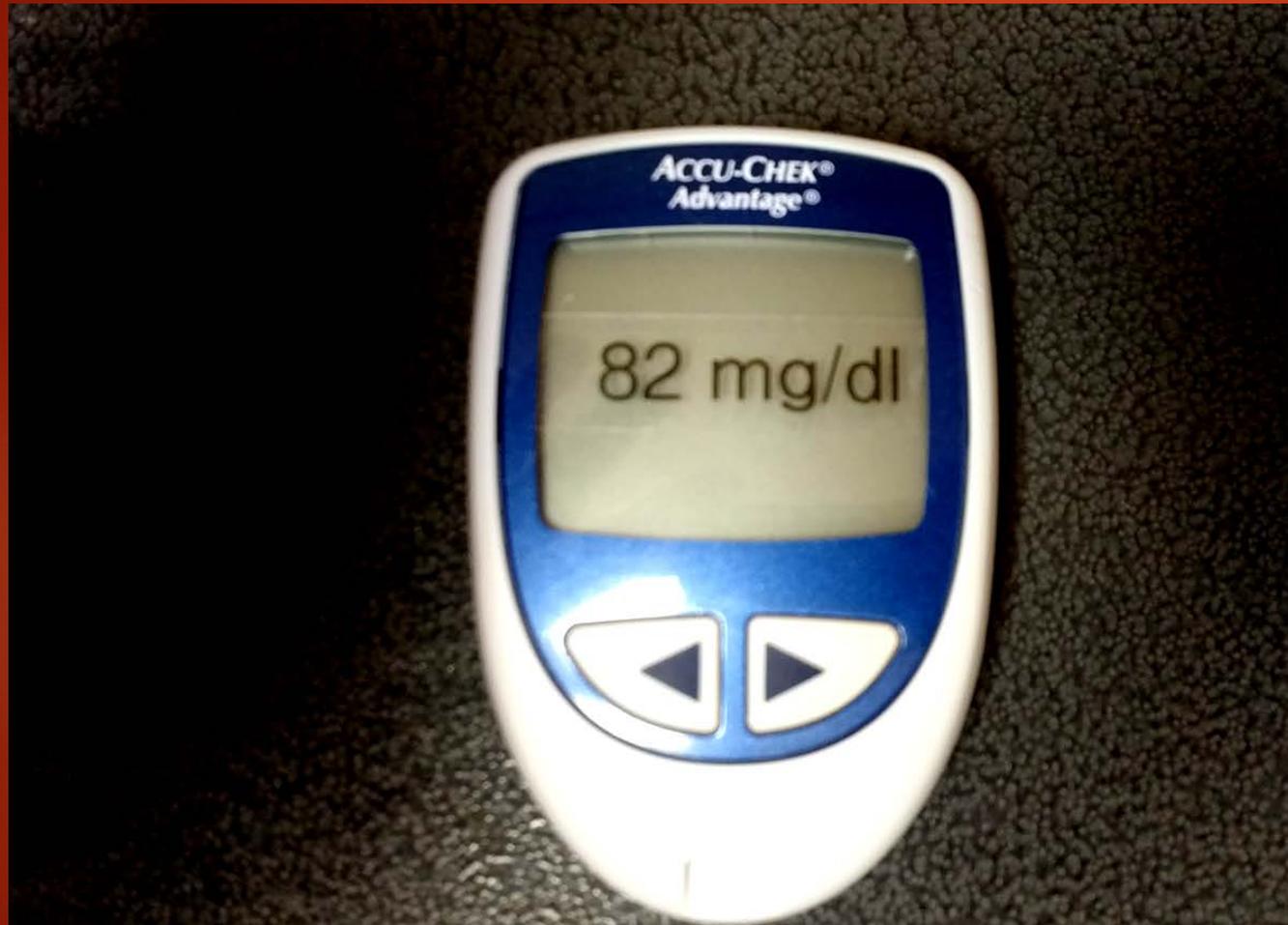
Costs

- ▶ Planning – Free
- ▶ Plywood \$1,200
- ▶ Cabinet building – Free
- ▶ Paint, Diamond plate, foam and vinyl for cussions - \$400
- ▶ Vinyl Decals - \$300
- ▶ Chair, Light bar and control plate - \$75
- ▶ Video System \$1,000
- ▶ **TOTAL COST – JUST UNDER \$3,000**

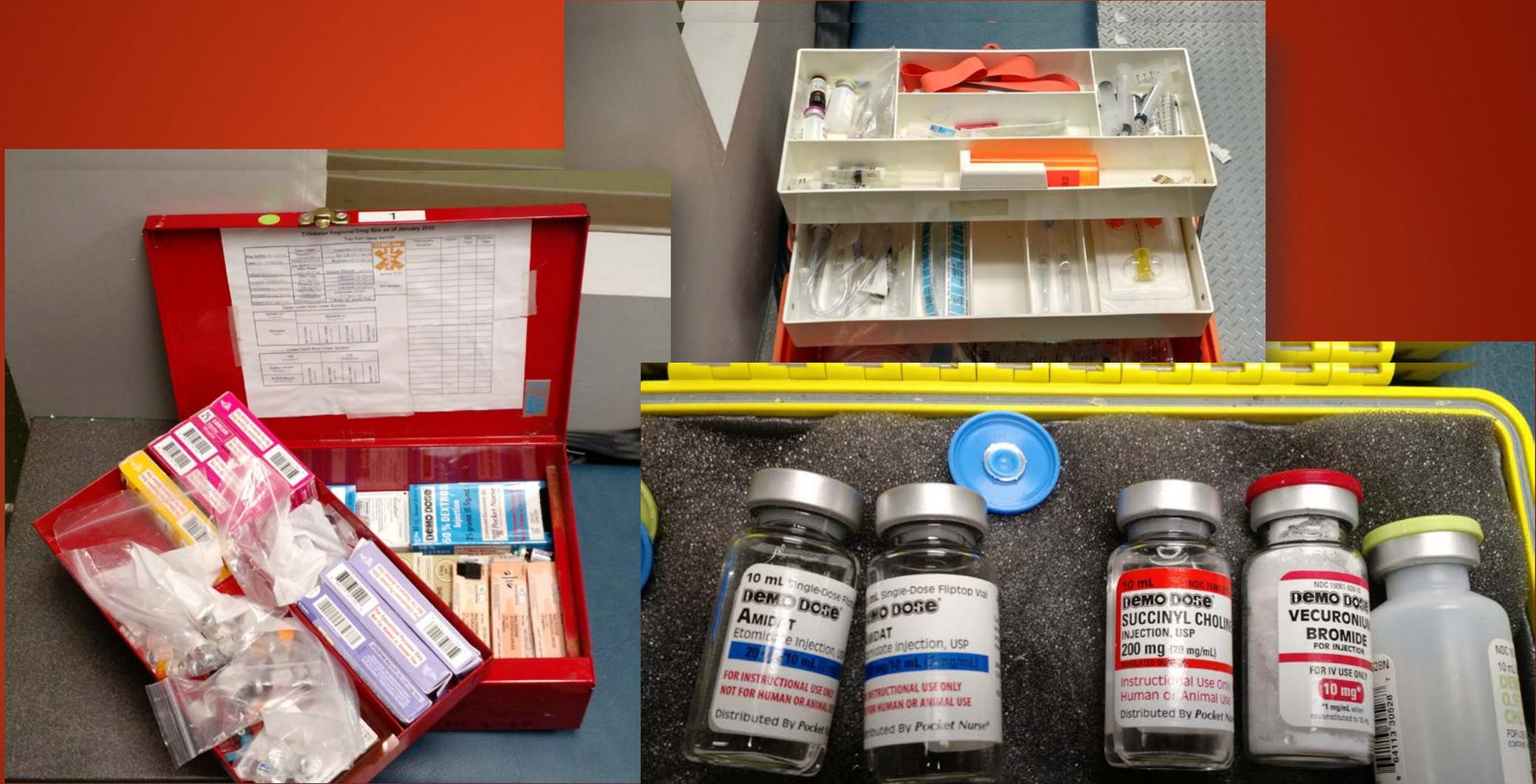
Equipment



Unique solutions



IV / Drug / Paralytic boxes



Reusing drug containers



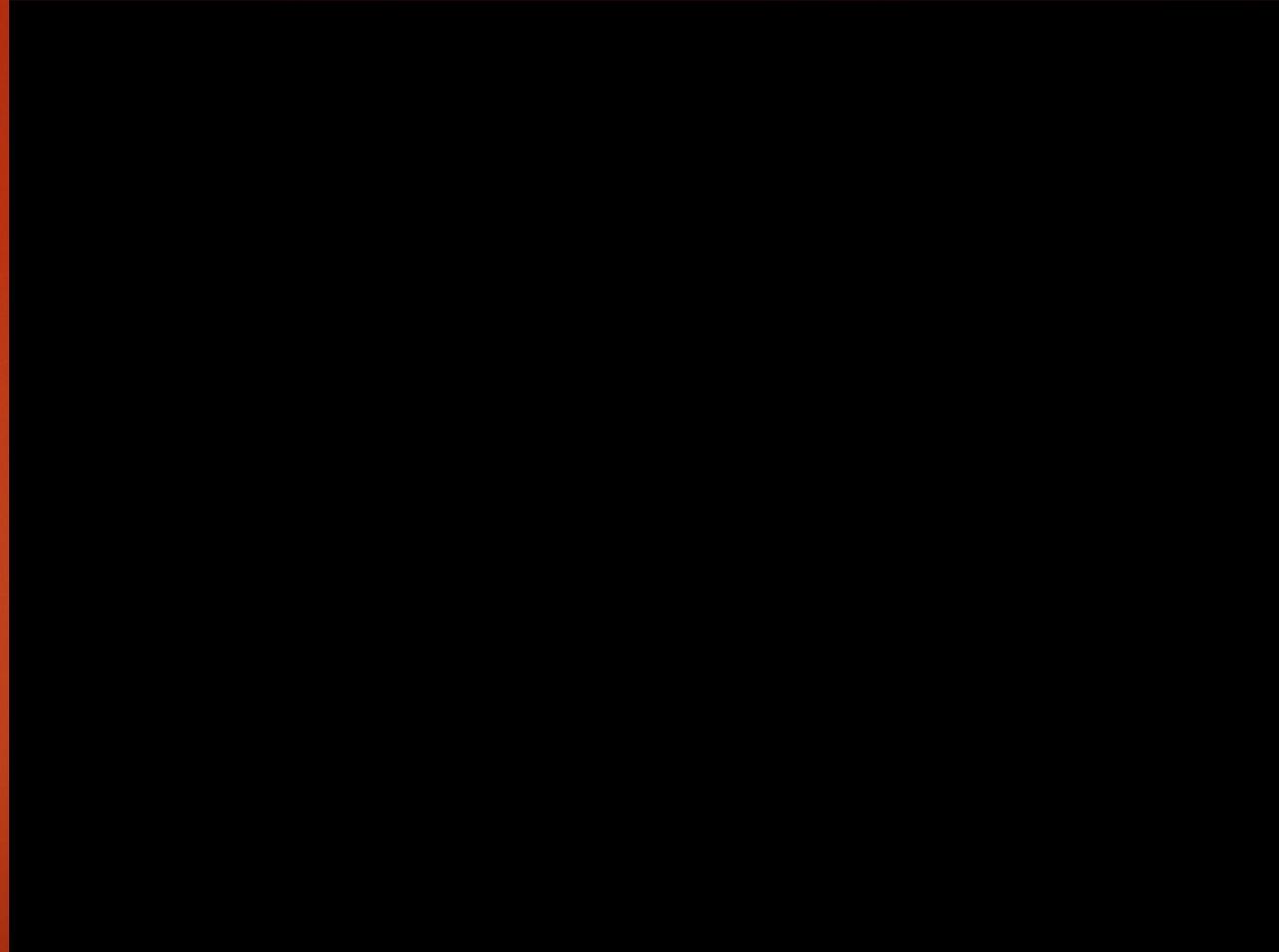
Simulated drugs



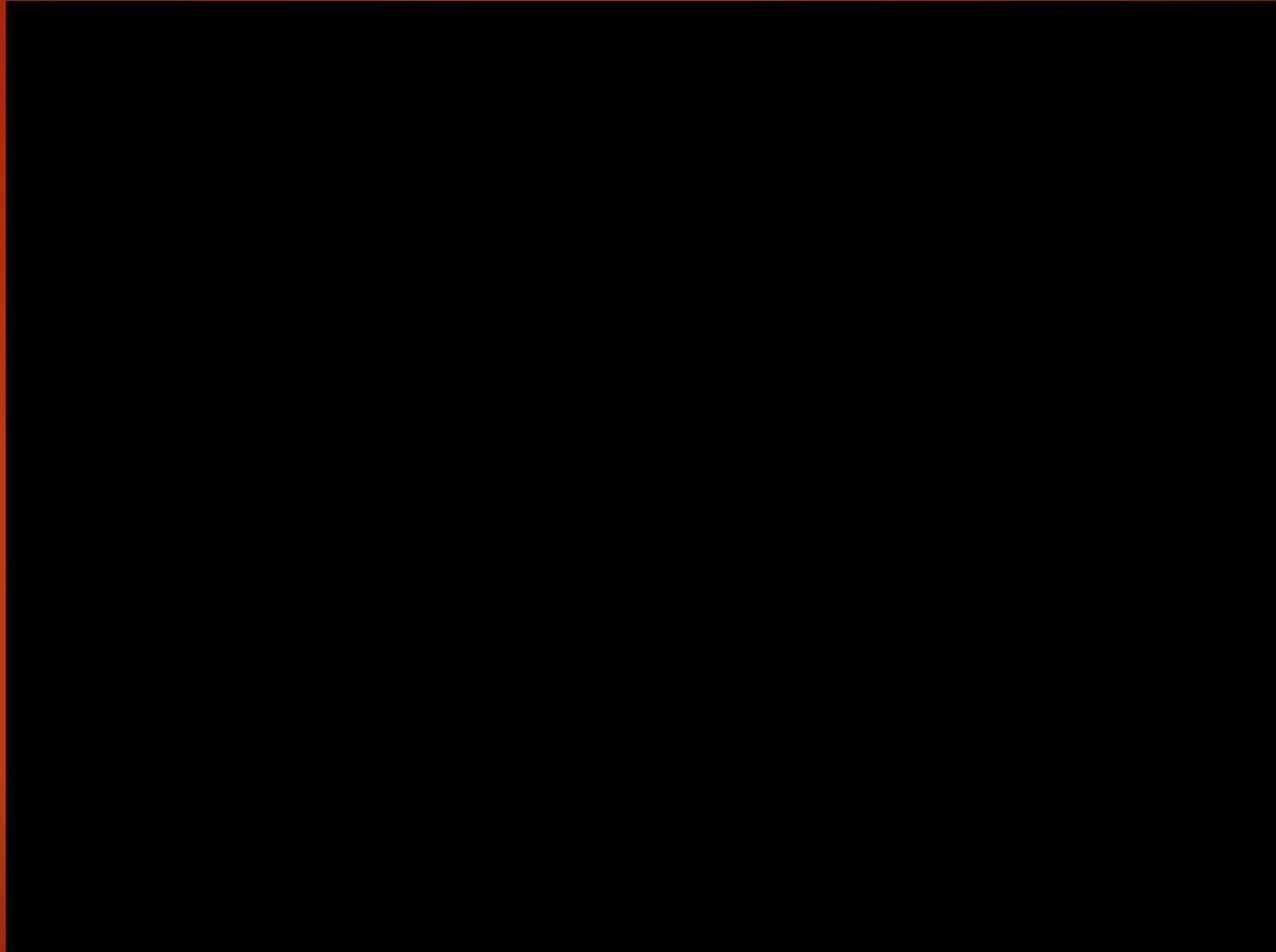
Simulated Drugs



Walkthrough



In use





LESSONS WE LEARNED

Scenario vs. Simulation

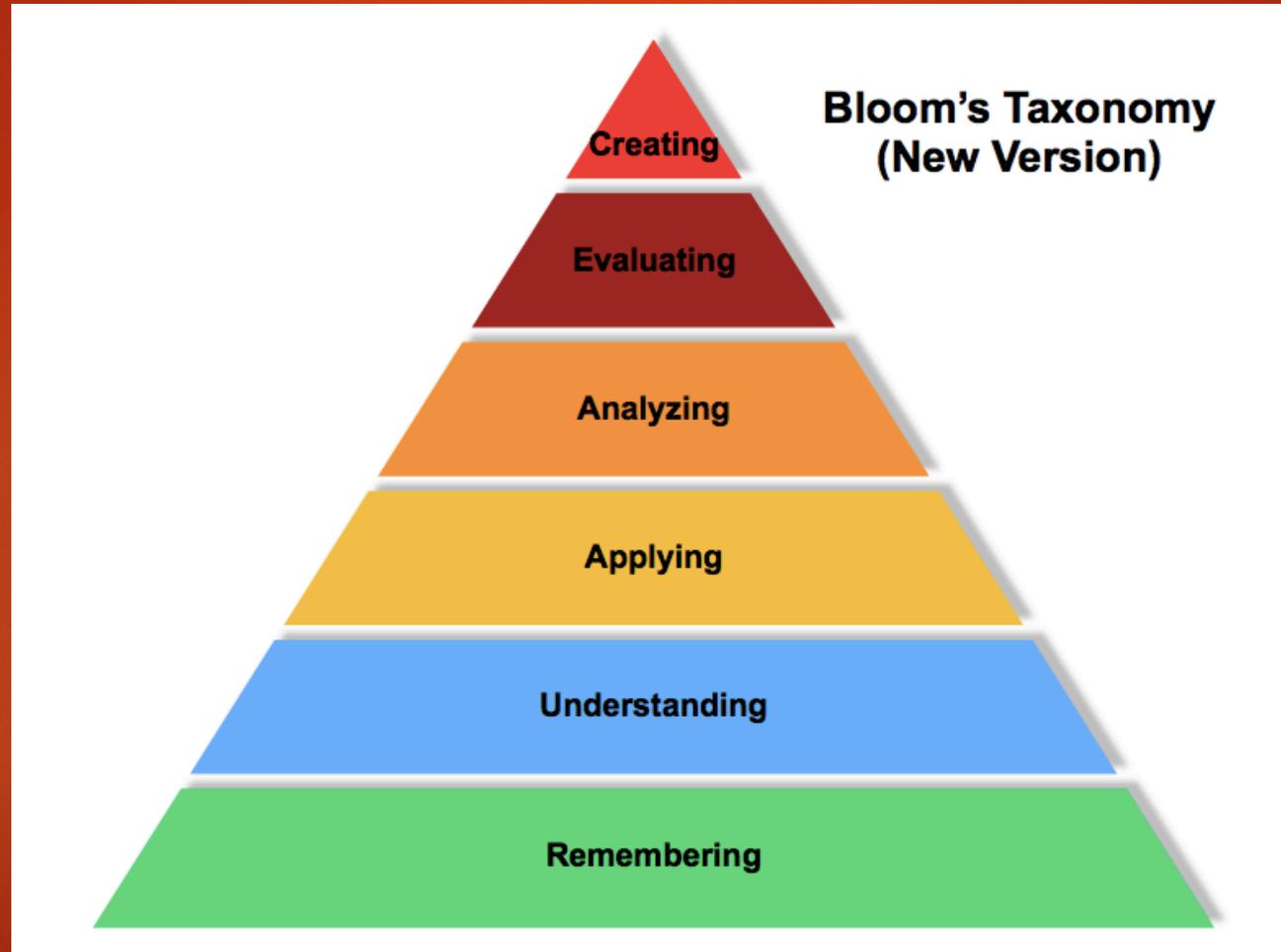
▶ Scenario

- ▶ Think National Registry Trauma Assessment or ACLS Megacode
- ▶ Time is sped up in some elements for sake of getting everyone through
- ▶ Injuries and conditions are often imagined
- ▶ Better for initial training

▶ Simulation

- ▶ As close to real world as possible
- ▶ Better for applying lessons to and from real world

Theory



Give introduction to participants

- ▶ Teach them about the manikin
- ▶ Set expectations



Skills must be performed

- ▶ CPR and rescue breathing is not simulated and must be performed well
- ▶ All drugs must be pulled from vials and then checked for accuracy
- ▶ Time will not be sped up, simulation is done in real time



Stay out of the way

- ▶ Speak with students only when necessary
- ▶ Minimize interaction
- ▶ Proctor involvement takes away from immersive simulation
- ▶ **YOU ARE THE BARRIER TO SIMULATION**



Remember Vernon Law



- ▶ Let the simulation play out until completion
- ▶ Let the participants make mistakes
 - ▶ A complete failure to reach the objectives is an excellent teaching opportunity
- ▶ **AT ALL COSTS RESIST THE URGE TO CORRECT!**

"It's fine to celebrate success, but it is more important to heed the lessons of failure." **Bill Gates**



ADVANTAGES OF SIMULATION LEARNING

The freedom to make mistakes and to learn from them: Working in a simulated environment allows learners to make mistakes without the need for intervention by experts to stop patient harm. By seeing the outcome of their mistakes, learners gain powerful insight into the consequences of their actions and the need to “get it right”.



Debrief

- ▶ Most important step
- ▶ Where the real learning occurs
- ▶ Must be positive
- ▶ Never punitive

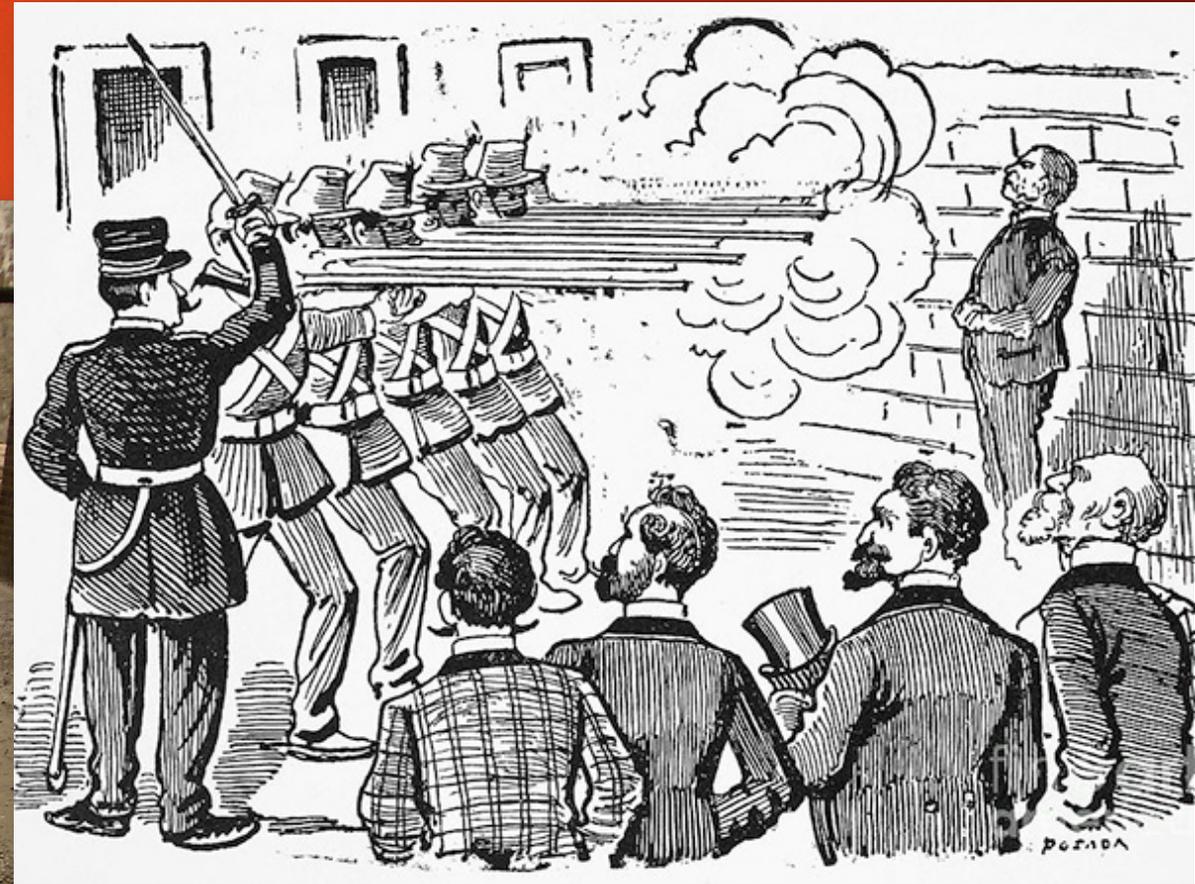


Key Steps in Debrief

- ▶ Talk less and facilitate more; try to only ask questions!!
- ▶ Provoke interesting and engaging discussions that foster reflective practice; Encourage the participants to talk to each other
- ▶ Correct a LIMITED number of errors; errors are discussable, let the learners identify own mistakes when possible; no excessive criticism or negative feedback
- ▶ Stress KEY educational points
- ▶ Reinforce good practice
- ▶ Identify performance gaps and help close them; don't humiliate a team member or fixate on one area of the scenario that was a problem.
RESPECTFULLY insert your expertise but not right away -- you are a resource.

An Important Lesson we Learned

Only one person should inform participants about mistakes that were made



Simulation is a mirror

- ▶ Majority of participants will be more critical of themselves that the proctors will be
- ▶ Some will not want to accept what they see in the "mirror" and will become defensive
- ▶ A small number become angry and are unable to accept lessons from simulation
 - ▶ Your tact and self control is key



How it works in NFR

- ▶ Companies sign up for SimLab sessions.
 - ▶ 3 hour blocks – time for 2 simulations with debriefing
 - ▶ Providers of all levels attend (not just for Paramedics)
 - ▶ Important to have crews work together
 - ▶ CE hours are provided based on topics covered
 - ▶ Used by company officers to:
 - ▶ Review lessons from previous calls
 - ▶ Give practice to new Attendant in Charge
- ▶ RSI training
 - ▶ Definition of High Risk / Low Frequency



Other uses for simulation



- ▶ QA showed we had an issue with intubation success rates
- ▶ Recordings from our video assisted laryngoscope showed some providers were unable to work through difficult airways
- ▶ Difficult Airway class was created with a focus on putting providers in stressful situations





Where to go to learn more?



NATIONAL ASSOCIATION OF EMS EDUCATORS

BREAKOUT SESSIONS 6 | 9:10am - 10:10am

6A Vicarious Simulation: A Medical School Model

Presenter: Rick Slaven, MPS, CCEMT-P, NREMT-P, (EdD candidate), DeBusk College of Osteopathic Medicine, Harrogate, TN

6B Educational Technology: Enhanced Case-Based Learning

Presenter: Rob Theriault, BHSc., EMCA, RCT (Adv.), CCP(F); Professor, Paramedic Program, Georgian College, Barrie, ON

6C The Computer in Your Student's Pocket

Presenter: Bill Young, NRP, Assistant Professor, Eastern Kentucky University, Nicholasville, KY

6D Demystifying the Elusive and Magical Clinical Experience

Presenter: David Page, Faculty, EMS Department, Inver Hills Community College/ Allina EMS, St. Paul MN

BREAKOUT SESSIONS 1 | 11:00am - 12:00pm

1A CoAEMSP/CAAHEP: Best Practices for the Annual Report, Field Internship / Preceptor Training & Capstone, Student Competency Evaluation

Presenters: G. Hatch, Jr., EdD, EMT-P / G. Kokx, PhD(c), NRP / D. Cason, RN, MS, EMT-P / P. Tritt, RN, MA / D. York, NREMT-P / J. Mistovich, MeD, NREMT-P / J. Anderson Warwick, MA

1B Making the Transition from Provider to Educator

Presenter: Gary Heigel, B.A., EMT-P, Department Chair, BA, Paramedic, Rogue Community College, White City, OR

1C The Sequence of Simulation

Presenter: Dennis Edgerly, BS, EMT-P, HealthONE EMS, Littleton, CO

1D Are They Ready for Field Internship? Summative Simulation Evaluation

Presenter: Chris Sharpe, RN, BSN, CEN, SPEN, MICP, NRP, NCEE, Virtua EMS, Mt. Laurel, NJ

1E Lightning Rounds!

Presenters: Dr. Chris Nollette, LP, Ed.D., NREMT-P, LP, John Todaro, BA, NREMT-P, RN, TNS, NCEE, Chris LeBaudour, MS Ed, Heather Davis, EdD©, NRP, Joe Grafft, MS, Kim McKenna, M.Ed. RN EMT-P

Society for Simulation in Healthcare



Advance your career in healthcare simulation education

Set yourself apart from your peers and distinguish yourself as an experienced educator in healthcare simulation education by earning the **CHSE certification**. Certification will help enhance your career, position you as a leader and publicly demonstrate your commitment to being the best in simulation education.



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Stand out from your peers and give your simulation program a competitive edge by earning the **CHSOS certification**. Certification will showcase your specialized skills and knowledge, provide you with recognition as an international leader, and keep you competitive.



Society for Simulation in Healthcare

QUESTIONS?

