

# CRUCIAL CONVERSATIONS ABOUT THE VALUE OF SIMULATION



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# Improving Cardiac Resuscitation Skills for EMS Providers

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Assistant Professor, Emergency Medicine  
EMS Medical Director  
Simulation Director, Department of  
Emergency Medicine  
Rutgers Robert Wood Johnson Medical  
School





**The Universal Goal:**

**ROSC alone DOES NOT guarantee meaningful survival!**

**We want Survival to Neurologic Baseline... Or close to it**

**What can we as EMS Providers do to give our patients the best chance at returning to their lives?**

# RWJ HPCPR

## HPCPR Overview: Back to Basics

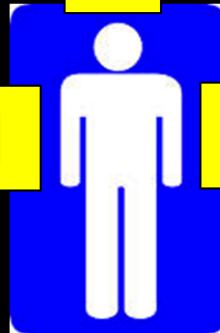
### 1<sup>st</sup> unit on scene: BLS or ALS



2



1



3

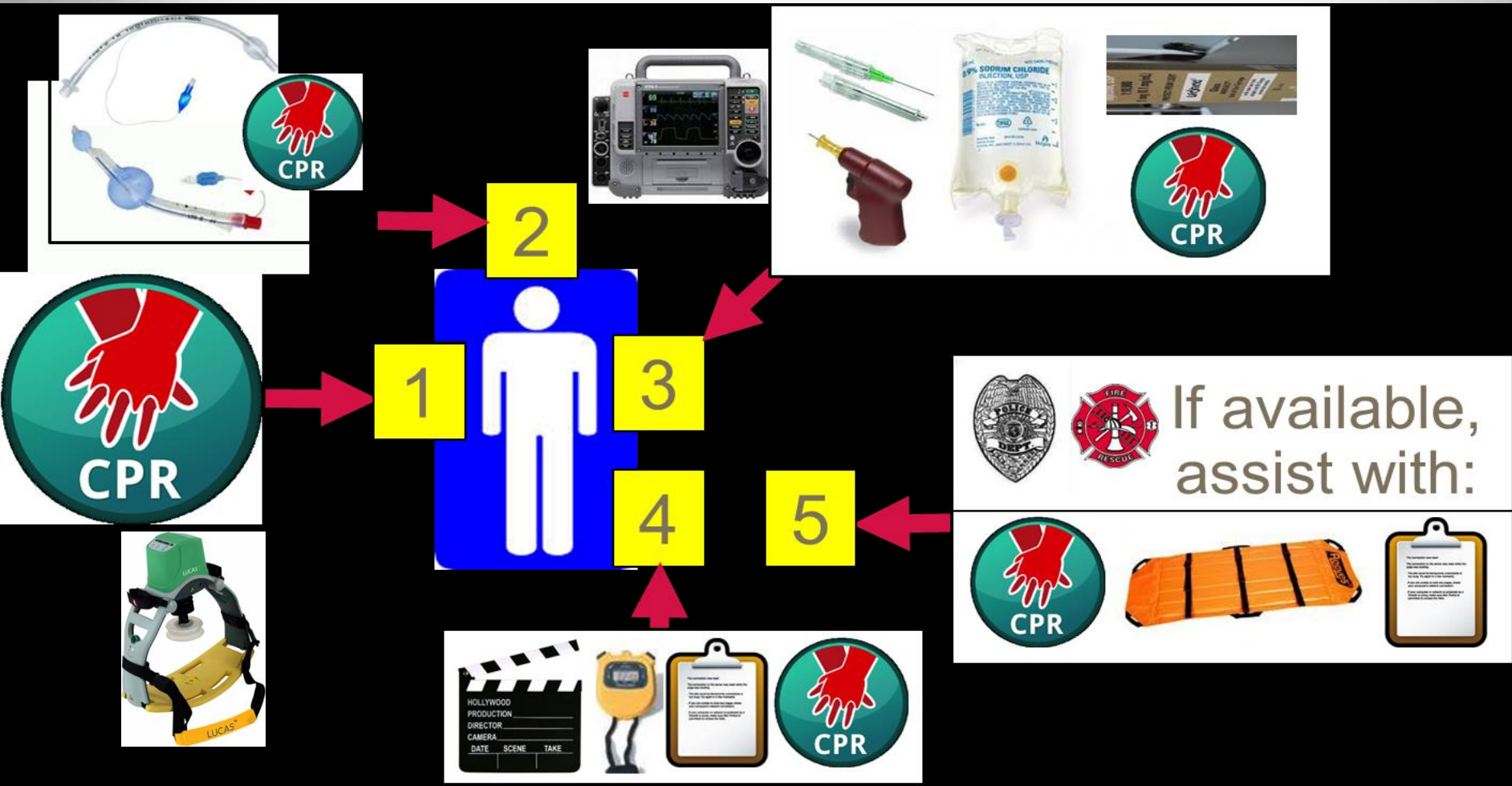


If available



ALS procedures wait until arrival of additional resources – CPR first

## RWJ Pit Crew CPR Overview **BLS & ALS on scene**



**MEASURE!**

**Practice Practice Practice!**



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**FEEDBACK!**



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**MEASURE!**

# CPR Fractions

**What the heck are they?**

- CPR Ratio
- Chest Compression Ratio
- Chest Compression Rate
- Chest Compressions per Minute



**MEASURE!**

# Measure Measure Measure!



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# MEASURE!

## Report Card: CPR Quality Analysis<sup>1</sup>

CPR Quality Analysis	# or %	No	At Goal
Time to CPR from recognize no pulse (goal <1min)	10 Seconds	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Time to defib pads from recognize no pulse (goal<1min)	40 Seconds	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Time to defib if shockable (goal &lt; 2min)</b>	1:40 Minutes	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CPR fraction % of Code (goal >80%)	79%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean Compression rate (goal100-120); %in range	124	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean compression depth (goal>50mm);%in range	29mm	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compressions without leaning, % full recoil (goal>90%)	83%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mean ventilation rate (4-12bpm)	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Modified from Meaney. *Circulation*. 2013;128:417-435

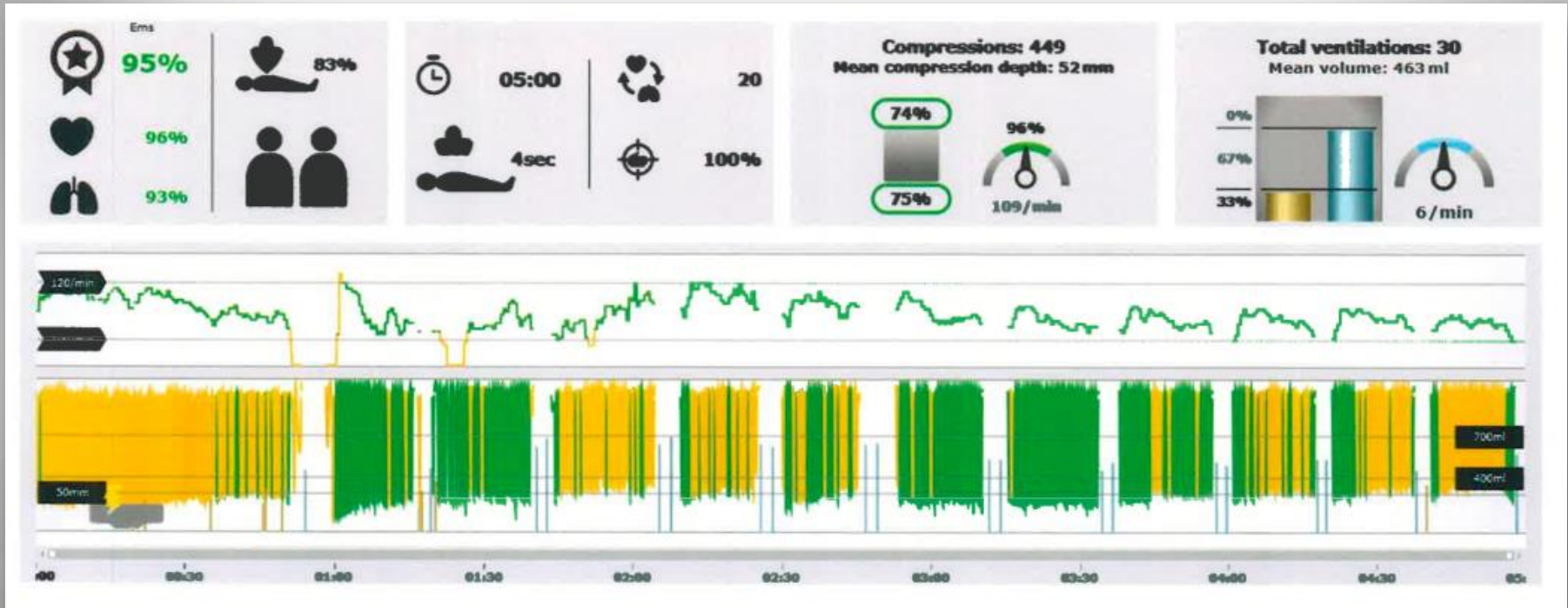
# MEASURE!

## Report Card: General subjective checklist

General checklist	No	Team recognized priority	Yes	Not Applicable
Team leader clearly identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Scene orderly and quiet?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Defibrillator applied quickly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CPR started promptly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pauses in CPR delivery minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CPR subjectively high quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peri-shock pauses minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Airway secured efficiently?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drop HOB w/ CPR release pin	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rapid placement of CPR board	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct defib pad placement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Defib placed in defib not monitor mode (Zoll)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rhythm identified	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compressors alternated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation initiated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**MEASURE!**

# Measure Measure Measure!



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# FEEDBACK!



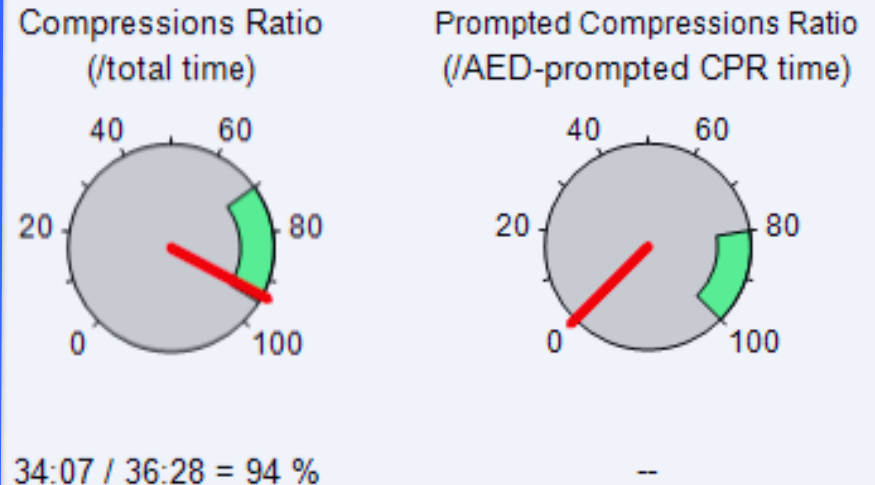
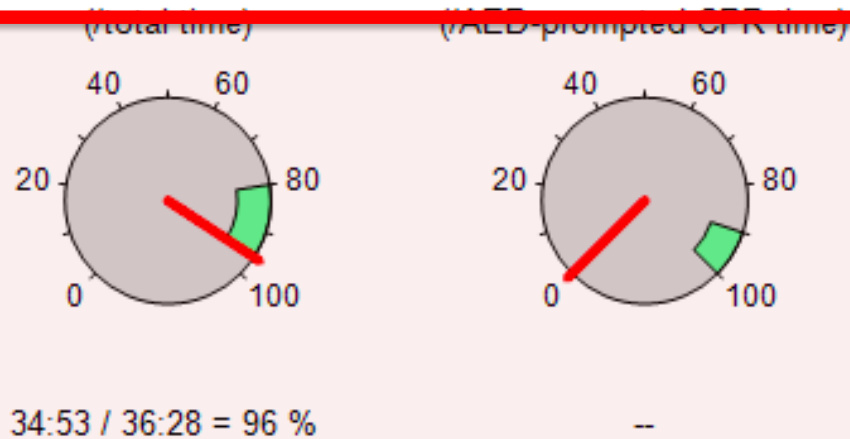
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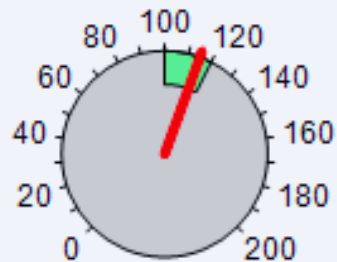
# FEEDBACK!

# Compression Metrics

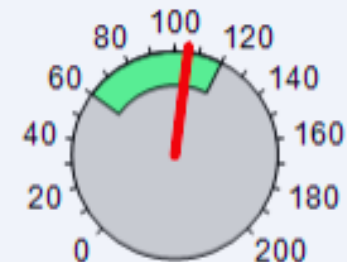
## Your CPR



Compression Rate



Compressions/minute



▲ Ventilation

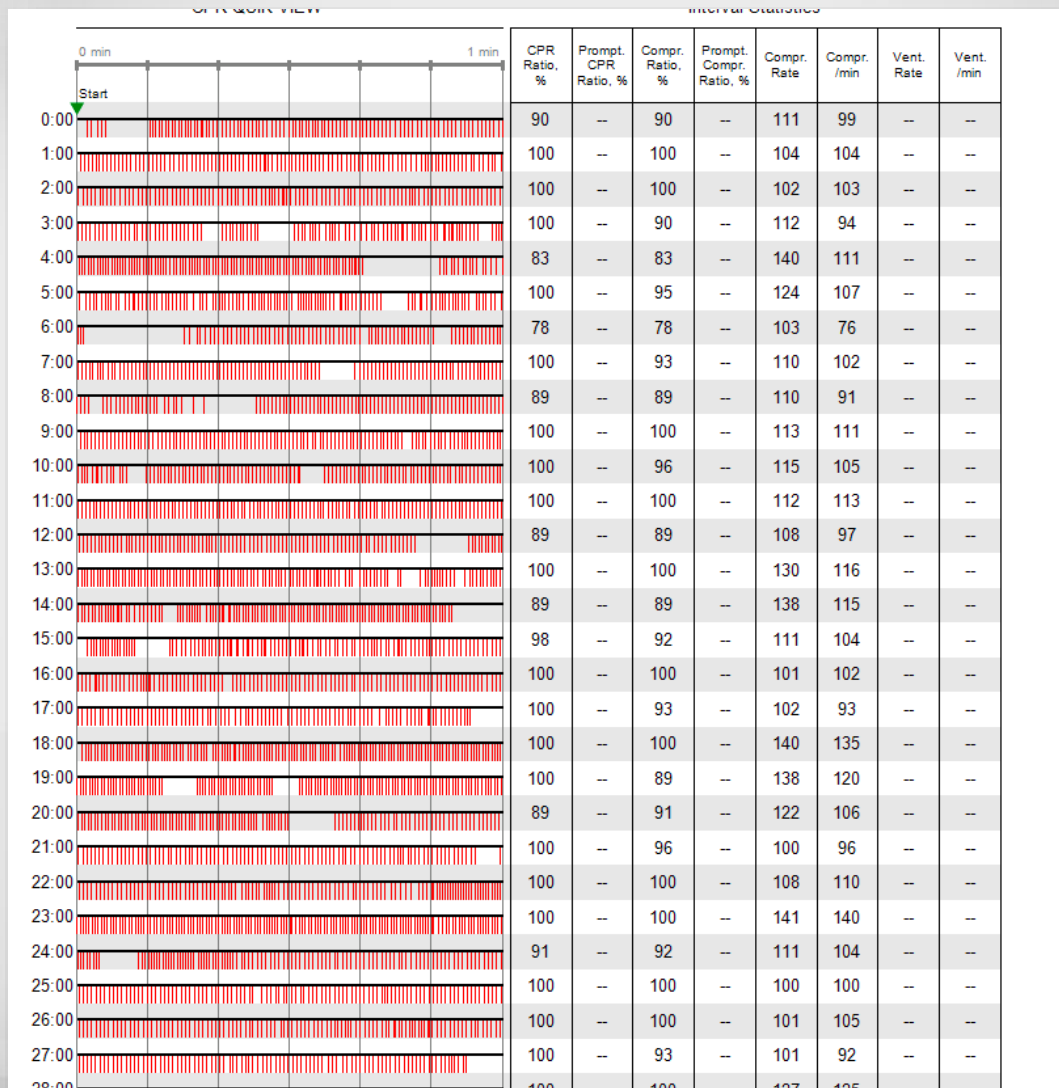
— Chest compression

— AED-prompted CPR period

▲ AED Analysis

⚡ Shock

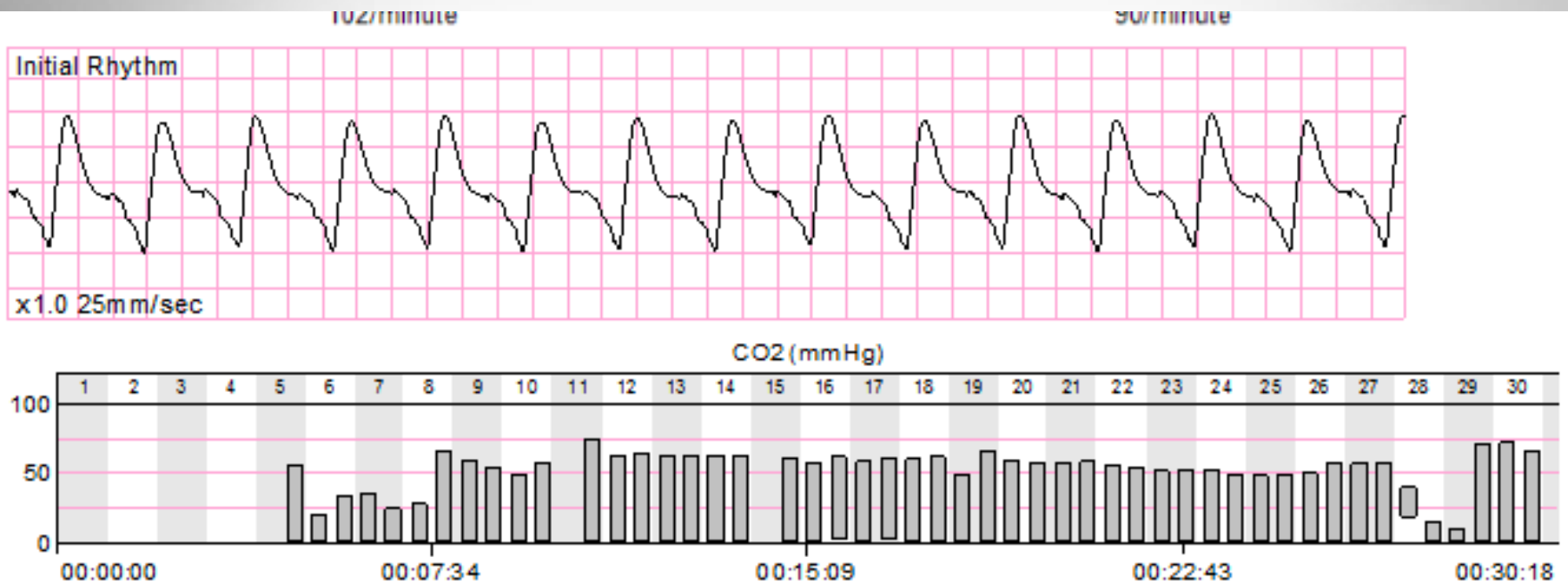
■ ROSC (user annotated)



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# FEEDBACK!





RWJ HPCPR

# High Performance CPR Field Champions



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# RWJ HPCPR

Jan 13-Oct 13

Nov 13 – Current

CPC1&2 Overall  
Survival  
(Discharged Alive, Good  
Neurologic Function)

7.9%  
(n=101)

20.2%  
(n=238)

Utstein CPC1&2  
(Discharged Alive with  
Good Neurologic  
Function/(Witnessed &  
Shockable))

50.0%  
(n=16)

73.9%  
(n=65)



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# Why it's important...

**Returning people to  
their lives & families**



# Why it's important...

**Returning people to  
their lives & families**



# Integrating Simulation with Risk Management

## **Stephen Donahue**

Program Director  
Center for Education, Simulation and  
Innovation (CESI)  
Hartford Healthcare

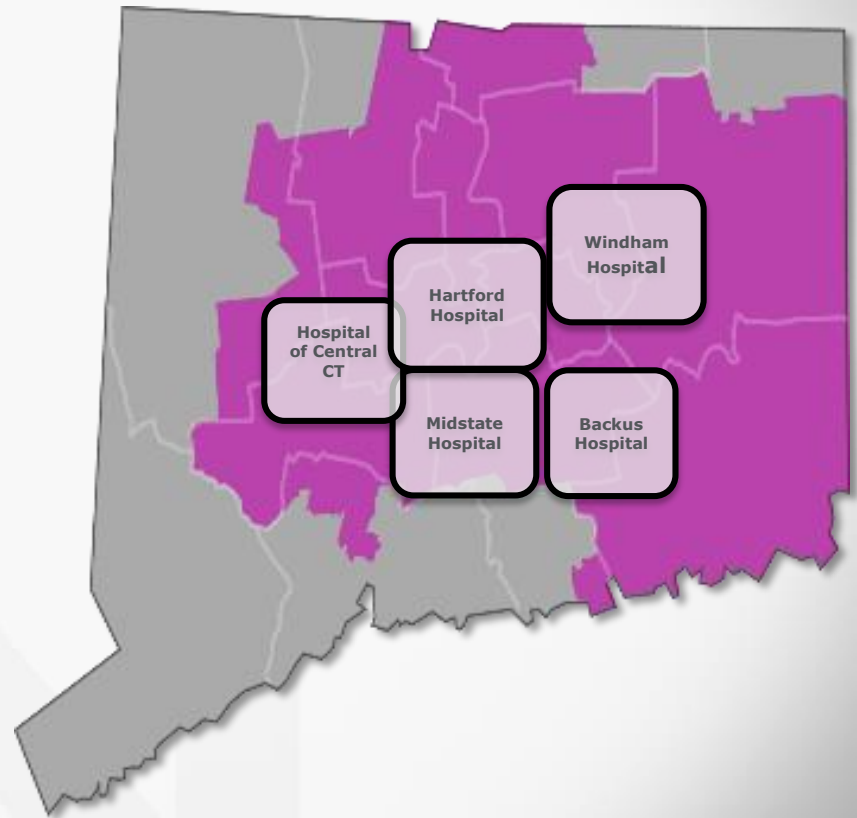


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# Hartford Healthcare

- 5 Acute Care Hospitals
- 101 cities and towns
- 19,000 employees
- 8000 nurses
- 600 midlevels
- 500 Employed Physicians
- Revenue: \$2.5 billion
- Inpatient discharges: 87,000
- ER visits: 382,000



## OBJECTIVES

1. Recognize themes, gaps, or specialties that could most benefit from comprehensive simulation/risk management curriculum structures;
2. Apply strategies for implementing simulation/risk management curriculum structures in your institutions or departments;
3. Assemble potential measurement strategies for determining the success of a simulation/risk management curriculum, including evaluations, self-assessments, pre and post-tests, and patient satisfaction scores.

# Recent Shoulder Dystocia Verdicts

**“\$3.7 million** verdict  
in negligent  
handling of shoulder  
dystocia”  
Illinois 2013

**“\$1.9 million** verdict for  
shoulder dystocia in  
Virginia baby”  
Virginia 2007

**“Excessive traction  
blamed for brachial  
plexus injury - \$3.07  
million”**  
Michigan 2012

**“Brain damage from  
medical malpractice at  
birth –  
\$56 million** verdict”  
New York 2009

**“\$20.9 million** medical  
malpractice jury  
verdict after  
newborn’s shoulder  
dystocia”  
Maryland 2012

**“\$5.5 million** verdict in  
Erb’s Palsy, Shoulder  
Dystocia Trial”  
New Jersey 2007

**“[Attorney]  
obtains  
\$4 million** in  
shoulder dystocia  
case”  
Pennsylvania  
2013



## HISTORY



HOSPITAL REGULATION: ALL POSITIVE AND IMPORTANT NEGATIVE FINDINGS SHALL BE RECORDED

DATE 9/20/61 HOUR \_\_\_\_\_ A.M.  
P.M.

## ORDER OF RECORDING

1. CHIEF COMPLAINT
2. HISTORY OF PRESENT ILLNESS
3. HISTORY OF PAST ILLNESS
  - A) CHILDHOOD
  - B) ADULT
  - C) OPERATIONS
  - D) INJURY
4. SYSTEMIC REVIEW
  - A) GENERAL
  - B) SKIN
  - C) HEAD-EYES EARS-NOSE THROAT
  - D) NECK
  - E) RESPIRATORY
  - F) CARDIOVASCULAR
  - G) GASTROINTESTINAL
  - H) GENITOURINARY
  - I) GYNECOLOGICAL
  - J) LOCOMOTOR
  - K) NEUROPSYCHIATRIC
  - L) ALLERGIC CONDITIONS
  - M) IMMUNIZATION
5. FAMILY HISTORY
6. SOCIAL HISTORY

28 y. old 2 ft 10 in. Admitted at  
36 w for undetect labor. Pt  
diabetes mellitus on insulin  
hypertension - on aldomet.

Anti natal course controlled  
medication as above.

Smoker alcohol - 5 strict drug -  
No operative past

Family as of ~~the~~ diabetes mellitus

9/20/61

SIGNATURE OF ATTENDING PHYSICIAN

DATE

SIGNATURE

DATE

# Delivery note

09/20/01 Delivery Note

Patent (F+P) to Deliver NSVD  
Nucleolus card reduced XI. Anterior Post  
Solder delivered w/ Suprapubic pressure  
P (across) (L) remains regular w/ 3-0 Vicryl  
w/ good hemostasis. Proctol Exam performed  
w/ good sphincter tone. Plaente  
delivered Spontaneous Intact  
+ 7/12" 5/9

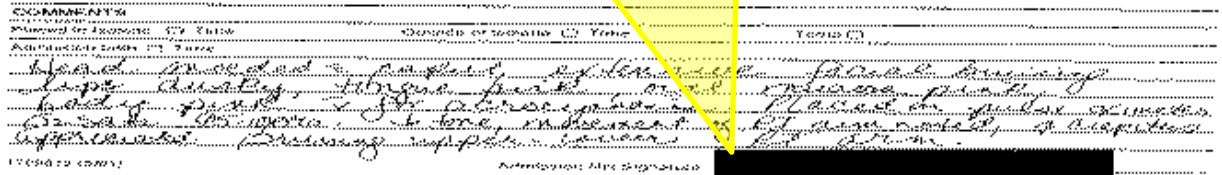
PROGRESS NOTES



APJ

# Newborn Nursery Admission

“Head molded with caput”  
 “extensive facial bruising...”  
 “lips dusky”  
 “↓ tone, movement of RT  
 arm noted...”  
 “Bruising upper-lower RT  
 arm.”

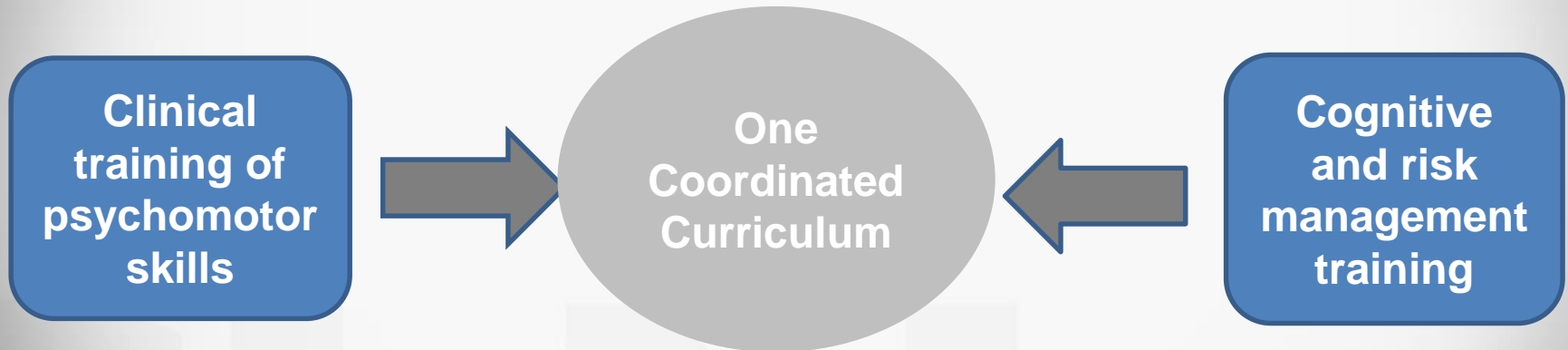


## Approaching Challenges

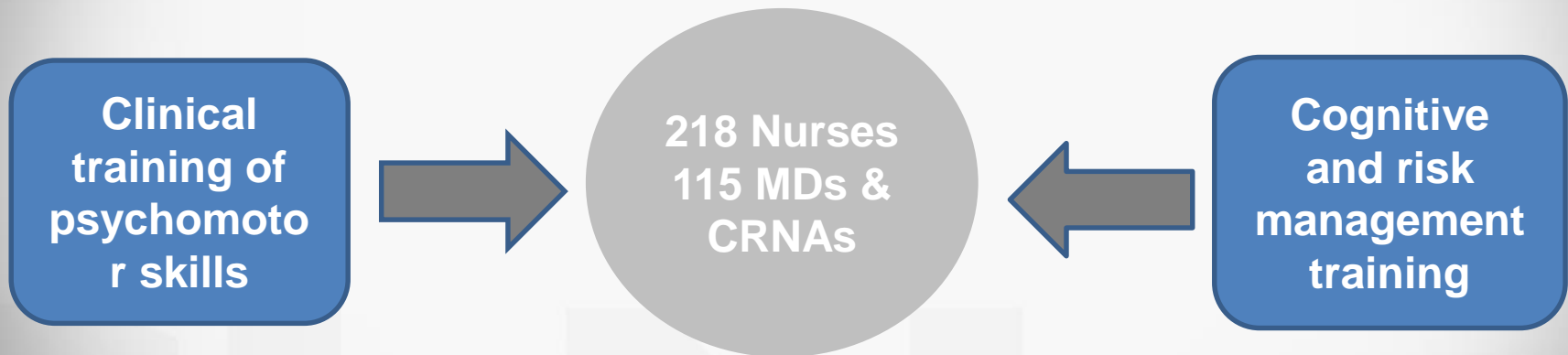
How did The HHC simulation center approach these challenges?

- Blending multiple facilities into a single program
- Consistent documentation amongst all care providers
- Management of a large and comprehensive program
  - Coordinating registration/staffing/compliance for simulation sessions
  - Mandating participation
  - Communication to all participants

# Integrating Simulation with Risk Management



# Integrating Simulation with Risk Management



# Curriculum Structure

- **(1) In-Person Risk Management Presentation**
  - 1 hour mock cross examination
  - Interactive format
  - Co-facilitated by medical malpractice defense attorney and practicing clinician
  - Presented an actual shoulder dystocia malpractice case
  - Highlighted cognitive / risk management exposures
- (1) Simulation Training
- (1) Web-Based Video
- (2) Case Vignettes

# Curriculum Structure

- (1) In-Person Risk Management Presentation
  - **(1) Simulation Training**
  - (1) Web-Based Video
  - (2) Case Vignettes
- Multidisciplinary approach
    - Sim Experts
    - OB content experts
    - Legal experts
  - Shoulder Dystocia Delivery
    - Pre-briefing
    - 2 hour blocks (1hr sessions)
      - Force Monitoring
      - Documentation
    - Video-Based Debriefing
  - Trained as a team
    - Nurses
    - Midwives
    - Physicians



# IMPLEMENTATION PROCESS

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## Obtaining Buy In

- Support from administration – communication about program came from Chief of Department / Chief Medical Officer of system
- Participation was mandatory – incentives:
  - Employed Providers: part of annual performance reviews
  - Insured Providers: 6% premium credit if entire program was completed
  - Attending Providers: value-add service being provided at no charge
  - Nurses: paid for their time
- Piloted at the largest hospital in the system
  - Feedback / results from this hospital was shared with the other four hospitals

# Documentation Template

Hartford Hospital  
A Hartford Healthcare Partner

\*6814\*  
6814

**Shoulder Dystocia Delivery Note**

A. Date and Time Note Written \_\_\_\_\_ a.m. p.m. (Circle One)

B. Type of delivery  
 Spontaneous Vaginal  
 Vacuum assisted vaginal  
 Forceps assisted vaginal

C. If instrumental delivery:  
 Indications: \_\_\_\_\_  
 Station and position of fetal vertex when instrument applied: \_\_\_\_\_

D. Time of delivery of head: \_\_\_\_\_ a.m. p.m. (Circle One)

E. Position of fetal head on restitution: \_\_\_LOT \_\_\_ROT \_\_\_Did not restitute

F. Anterior shoulder: \_\_\_ Right \_\_\_ Left

G. How was shoulder dystocia identified (check all that apply):  
 \_\_\_Turtle Sign \_\_\_Failure to restitute \_\_\_Need for maneuvers beyond gentle guidance

H. Maneuvers performed: \_\_\_\_\_ In which order \_\_\_\_\_ Time \_\_\_\_\_ (Circle One)

Overhead call for extra help initiated? 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

If N/A, explanation: \_\_\_\_\_

Patient instructed to stop pushing 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

If N/A, explanation: \_\_\_\_\_

Head of Bed (HOB) down 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

McRoberts 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Suprapubic Pressure 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Episiotomy 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Delivery of posterior arm 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Wood's Maneuver (Posterior Scapula) 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Rubin's Maneuver (Anterior Scapula) 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Corkscrew (Combined Wood's/Rubin's) 1 2 3 4 5 6 7 8 9 10 \_\_\_\_\_ a.m./p.m.

Identify time device used for above entries  
 No fundal pressure applied

Other (describe): \_\_\_\_\_

I. Time of delivery of body: \_\_\_\_\_ a.m. p.m. (Circle One)

HH Forms 572XXX N10-13 Printed by the DPC @ HH Page 1 of 2

Hartford Hospital  
A Hartford Healthcare Partner

\*6814\*  
6814

J. Providers present at time of delivery:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

K. If episiotomy performed: \_\_\_Median \_\_\_Mediolateral \_\_\_Proctoepisiotomy

L. Degree of Laceration: \_\_\_None \_\_\_First \_\_\_Second \_\_\_Third \_\_\_Fourth  
 EBL: \_\_\_\_\_  
 If repaired, sutures used: \_\_\_\_\_  
 If local anesthetic used, type and amount: \_\_\_\_\_

M. Placenta: Time of delivery \_\_\_\_\_ a.m. p.m. (Circle One)  
 \_\_\_Spontaneous \_\_\_Manual

N. APGARs: \_\_\_1 min \_\_\_5 min \_\_\_10 min

O. Cord gas sent? Y / N If no, explain: \_\_\_\_\_  
 Result: \_\_\_pH \_\_\_BE / BD

P. Birth weight of infant in grams: \_\_\_\_\_ g

Q. Infant examined by: \_\_\_\_\_  
 Clinical findings: \_\_\_\_\_

R. Patient and family counseled about event: Time: \_\_\_ a.m. p.m. (Circle One) \_\_\_N/A  
 Documentation of Conversation: \_\_\_\_\_

S. Comments: \_\_\_\_\_

Signature of Delivering Clinician: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ am/pm  
 Signature of Primary Nurse: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ am/pm

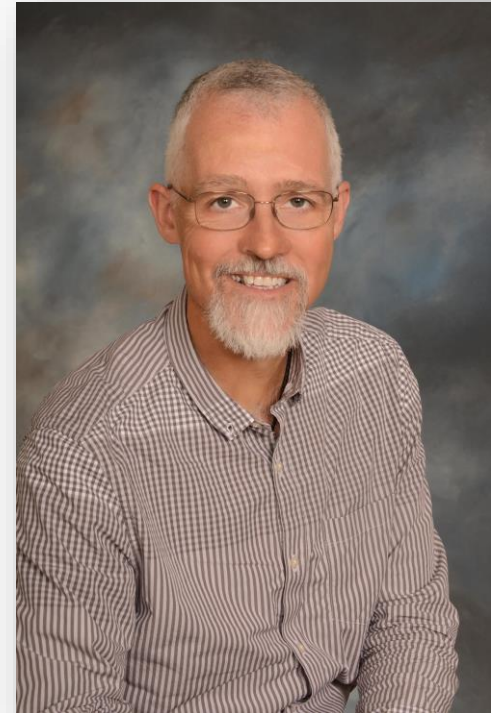
HH Forms 572XXX N10-13 Printed by the DPC @ HH Page 2 of 2

- First clinical tool being used consistently by all providers across the system
- Immediate solution to incorporate into everyday practice
- Could be used by entire delivery room team

# Inter-professional Education (IPE)

**Leland 'Rocky' Rockstraw, PhD, RN**

Associate Clinical Professor of Nursing & Assistant Dean,  
Simulation, Clinical & Technology Academic Operations



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# Drexel University

## History

Mission

Merger – 2002

College of Nursing & Health  
Professions

Computerized Manikin &  
Standardized Patients

Student population

NP Program (online)

OCI (on campus intensives)



# Drexel's Partnership IPE Principles



- Teamwork
- Communication
- Values & Ethics
- Roles & Responsibilities

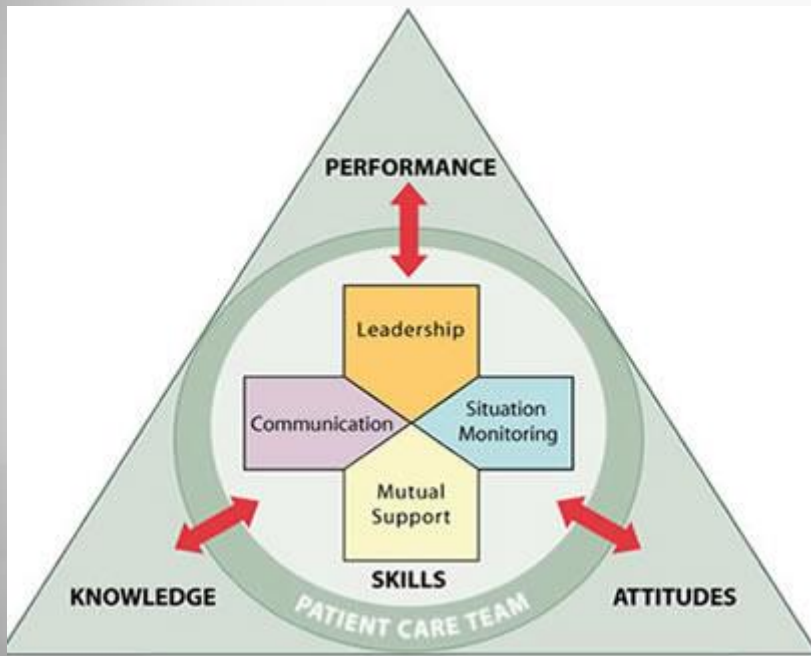
# History of Drexel's Partnership IPE



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# TeamSTEPPS 2.0(AHRQ)



- Team structure
  - Multi-team system for patient care
- Communication
  - SBAR, Call-out, Check-back, Handoff, "I Pass the Baton"
- Leadership
  - Effective team leaders, Team events, Brief Checklist, Debrief checklist
- Situation monitoring
  - Situation monitoring process, STEP, Cross-monitoring, I'M SAFE checklist
- Mutual support
  - Task assistance, Feedback, Advocacy and assertion, Two-challenge rule, CUS, DESC script



# Questions and Answers

*Share your experience with*

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