STAGING SEPSIS

A Theatrical Review

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MOUNT CARMEL WEST

- Certified Primary Stroke Center
- Accredited Network Cancer Program
- Bariatric Center of Excellence
- ACGME Accredited physician residency program
- Mount Carmel College of Nursing

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EMERGENCY DEPARTMENT

- 41 beds
- Approximately 60,000/year

- Pediatrics represent approximately a fourth of the population treated each year in US hospital emergency departments*

*Hohenhaus, S.M., Travers, D., & Mecham, N. (2008). Pediatric triage: A review of emergency education literature. *Journal of Emergency Nursing*, *34*(4), 308-313.

Andragogy

Adult Learning

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A Member of Trinity Health

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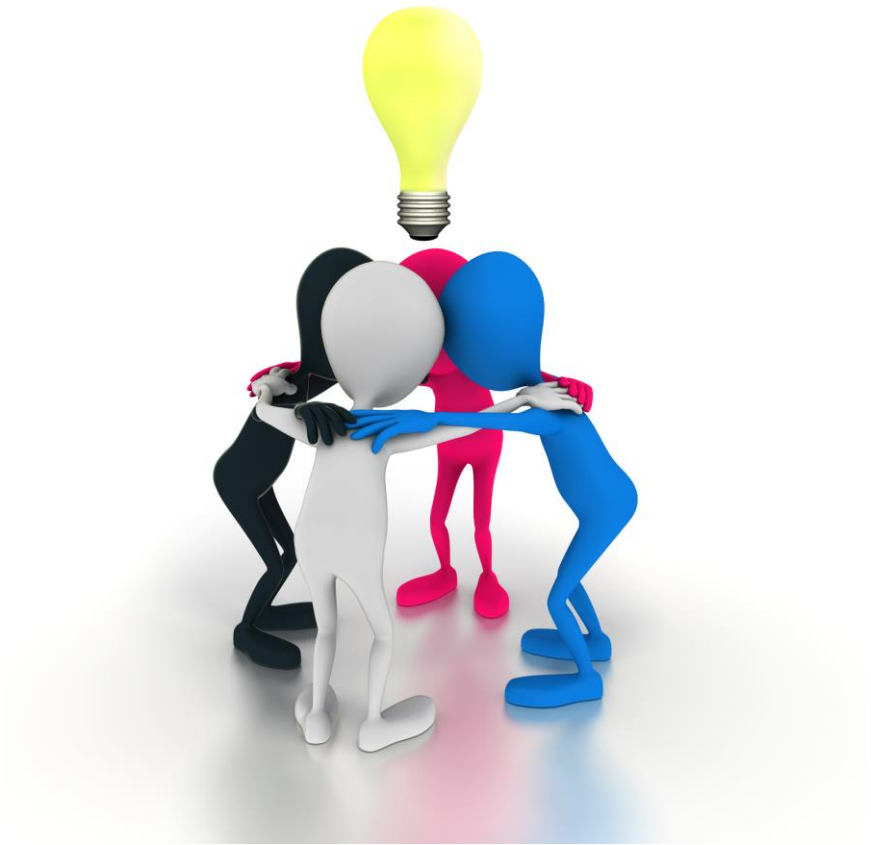
ANDRAGOGY – a brief look in history

- 1833 – German grammar school teacher Alexander Kapp
- 1926 – Eduard C. Lindeman
- 1959 – Malcolm Knowles



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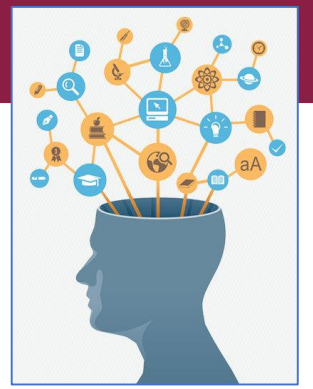
ADULT LEARNING



- **The Need to Know** – utility and value
- **The Learners Self-Concept** – capable of self-direction
- **The Role of Experience** – prior experience = rich resource
  - Simulation, problem solving, case studies, labs, group discussion
- **Readiness to Learn** – dependent on relevancy of subject
- **Orientation to Learning** – real life
- **Motivation** – self-esteem and goal attainment

Ozuah, P. (2005). First, there was pedagogy and then came andragogy. *The Einstein Journal of Biology and Medicine. 21:*83-87.

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TABLE 1. A SUMMARY OF PRINCIPLES OF ADULT LEARNING

Adults learn best:

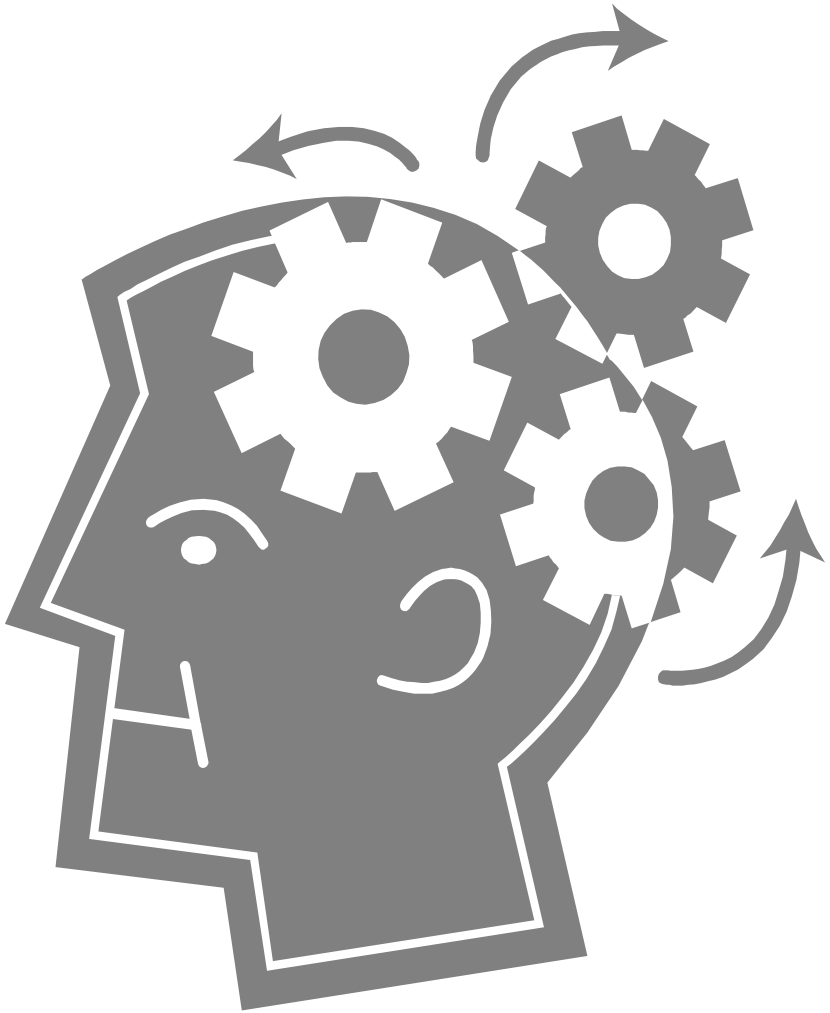
- When they want or need to learn something
- In a non-threatening environment
- When their individual learning style needs are met
- When their previous experience is valued and utilized
- When there are opportunities for them to have control over the learning process
- When there is active cognitive and psychomotor participation in the process
- When sufficient time is provided for assimilation of new information
- When there is an opportunity to practice and apply what they have learned
- When there is a focus on relevant problems and practical applications of concepts
- When there is feedback to assess progress towards their goals.

Ozuah, 2005

Humans work in three modes

Knowledge-Based Performance

"Figuring It Out Mode"



Rule-Based Performance

"If-Then Response Mode"

Skill-Based Performance

"Auto-Pilot Mode"

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(Lack of) Knowledge-based performance

What You're Doing at the Time:

Problem solving in a new, unfamiliar situation.
You come up with the answer by:

- Using what you know (parts of different Rules)
- Taking a guess
- Figuring it out by trial-and-error

Errors we experience:	Error-Prevention Strategy
• Came up with the wrong answer (a mistake)	Stop and find an expert who knows the correct answer

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Research Design

The main research question for this study, Is the Andragogy in Practice Inventory (API) an appropriate measure of adult learning principles in Jordan? Both explorative factor analysis (EFA) and confirmatory factor analysis (CFA) were used to explore underlying factors and to confirm hypothesized factors in the current study.

The subjects of this study were adult learners who are 18 years and over, enrolled in a higher education institute in Jordan. Data were collected via the questionnaire with 70 items. The measure was API developed by Holton and colleagues (2009), consisting of two sections (the principles of andragogy and the learning process design elements for adult learners). Items were prepared for use in Jordan through appropriate translation procedures. The questionnaire implemented a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Findings

A total of 305 responses were analyzed, excluding six incomplete responses. There was a slightly higher number of females (160 responses, 52.5%) than males (145 responses, 47.5%). Most responses were from 18-21 year olds (62.3%, 190 responses) and people who were 22-25 years old provided 29.2 %(89 responses). The reliability of API was .82. Reliability for each section was .74 (Principle) and .85 (Design).

Park, S., Robinson, P., & Bates, R. (2016). Adult learning principles and processes and their relationships with learner satisfaction: Validation of the andragogy in practice inventory (API) in the Jordanian context," *Adult Education Research Conference*. https://newprairiepress.org/aerc/2016/papers/28

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The Importance of *TIME*

Sepsis is a **medical emergency** and its symptoms must be treated **quickly** and **properly** to reduce the risk of death.

The risk of death from sepsis increases by as much as **8% for every hour** that treatment is delayed.[3]

As many as **80% of sepsis deaths** could be prevented with rapid diagnosis and treatment.[3]

When it comes to sepsis, remember: ***IT'S ABOUT TIME***. Watch for:

T — **TEMPERATURE** higher or lower than normal

I — **INFECTION** may have signs and symptoms of an infection

M — **MENTAL DECLINE** confused, sleepy, difficult to rouse

E — **EXTREMELY ILL** "I feel like I might die," severe pain or discomfort

https://www.sepsis.org/itsabouttime/

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SEPSIS It's About TIME

Sepsis is a **life-threatening condition** caused by the body's response to infection, which can lead to **tissue damage**, **organ failure**, **amputations** and **death**.

In the United States, in one year, more than

1.7 million people

had sepsis.[1] That's one person every twenty seconds.

As many as **87%** of sepsis cases

start in the community,

not in the hospital as is widely believed.[1]

Sepsis is the

3rd leading cause of death

in the United States after heart disease and cancer, killing more than **270,000 people** each year.[1] That's one person every two minutes.

42%

of Americans have not heard of sepsis.[2]

https://www.sepsis.org/itsabouttime/

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SEPSIS AND PEDIATRICS

Among children, 39% of cases of sepsis occurred before age 1 year, and 78% of children had at least 1 comorbid condition. Cardiovascular disease was the most common comorbidity, but only 43% of cases of sepsis were related to contact with the healthcare system. Respiratory tract and gastrointestinal tract infections were the most common sources of sepsis.

Only 62% of children with sepsis had an organism identified on blood culture, and *Enterococcus* spp and *Klebsiella* spp were the most common organisms promoting sepsis. The in-hospital mortality rate of sepsis among children was 22%.

Brooks, M., & Vega, C. (2016). CDC cites sepsis as a “medical emergency”. Retrieved from https://www.medscape.org/viewarticle/868945

SEPSIS METRICS - ADULT

Severe Sepsis, Septic Shock, includes Present on Admission vs Non Present on Admission

Facility	Mortality Jan. 1 - November 30, 2016	Mortality Jan. 1 – November 30, 2017	Mortality Jan. 1 – November 30, 2018
System	17.3%	18.6%	17.8%
State	20.7%	18.7%	19.6%
217 beds	22.4%	17.2%	16.9%

Present on Admission vs Non Present on Admission

Jan – Nov. '18

Facility	Mortality Present on Admission (POA) severe and shock	Mortality Non Present on Admission (NPOA) severe and shock	Mortality POA Severe Sepsis	Mortality NPOA Severe Sepsis	Mortality POA Septic Shock	Mortality NPOA Septic Shock
System	14.9%	37.5%	6.2%	20.4%	24.5%	42.0%
State	17.5%	38.5%	8.0%	12.8%	26.2%	46.6%
217 beds	14.3%	40.3%	5.4%	16.7%	23.0%	46.0%

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SIMULATION

Pediatric Sepsis Case Scenario

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Submitted: February 15, 2017; Accepted: March 4, 2017; Electronically Published: April 15, 2017; https://doi.org/10.21980/J8MK5X

ABSTRACT:

Audience: This scenario was used to educate emergency nurses on pediatric sepsis. However, it could be applied to physician or advanced practice provider trainees as well or for simulations run for team communication.

Introduction: Pediatric sepsis is a low-frequency, high impact condition. Nurses and physicians do not see it often, but must recognize and treat children with sepsis efficiently when they present. This makes pediatric sepsis education particularly amenable to simulation scenarios.

Objectives: At the end of the simulation, the learner will acquire enduring knowledge regarding recognition and treatment of pediatric sepsis.

Method: This session is taught using high-fidelity simulation coupled with a lecture on pediatric sepsis. Following the intervention, nurses were given a quiz on sepsis recognition and management. This quiz was repeated at 6-12 months to assess retention.

Topics: simulation, pediatrics, pediatric sepsis, management.

LET’S TALK SIM

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SIMULATION

- 1 week old Matthew
- Brought in by his mother who had been partying all night and woke up with her baby being blue and barely breathing
- School-aged cousins had been over the last couple of days who also had coughs and runny noses
- Matthew felt hot but no thermometer
- HR 95 to progress to tachycardia
- RR 30
- Temp 35.3 axillary
- Pulse ox – 94% room air

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SIMULATION

- Weight 3.6 kg
- Assessment:
  - Neck supple
  - Lungs clear
  - Abdomen soft
  - Cap refill > 3 seconds
  - Dry mucous membranes
  - Skin cool and dry
  - The stage was set…

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PRE BRIEF

- Lay of the land
- Vital signs
- *Know your resources!*
- Baby warmer
- Crash carts
- Broselow tape
- IV/IO access
- Medications
- Respiratory emergency
- Cardiac emergency

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CRITICAL ACTIONS

- Correctly assign ESI score of 2
- Place in room immediately
- Primary nurse assigned
- Provider informed
- Oxygen started
- Continuous monitoring initiated with pulse oximetry
- IV access x2
- Use of IO if peripheral access is unattainable
- Blood cultures/VBG/POC glucose
- Normal saline bolus delivered rapidly
- Antibiotics started within 1 hour
- Ongoing vital signs and reassessments
- Pressor support if nonresponsive to fluids
- Secure airway
- Transfer center called

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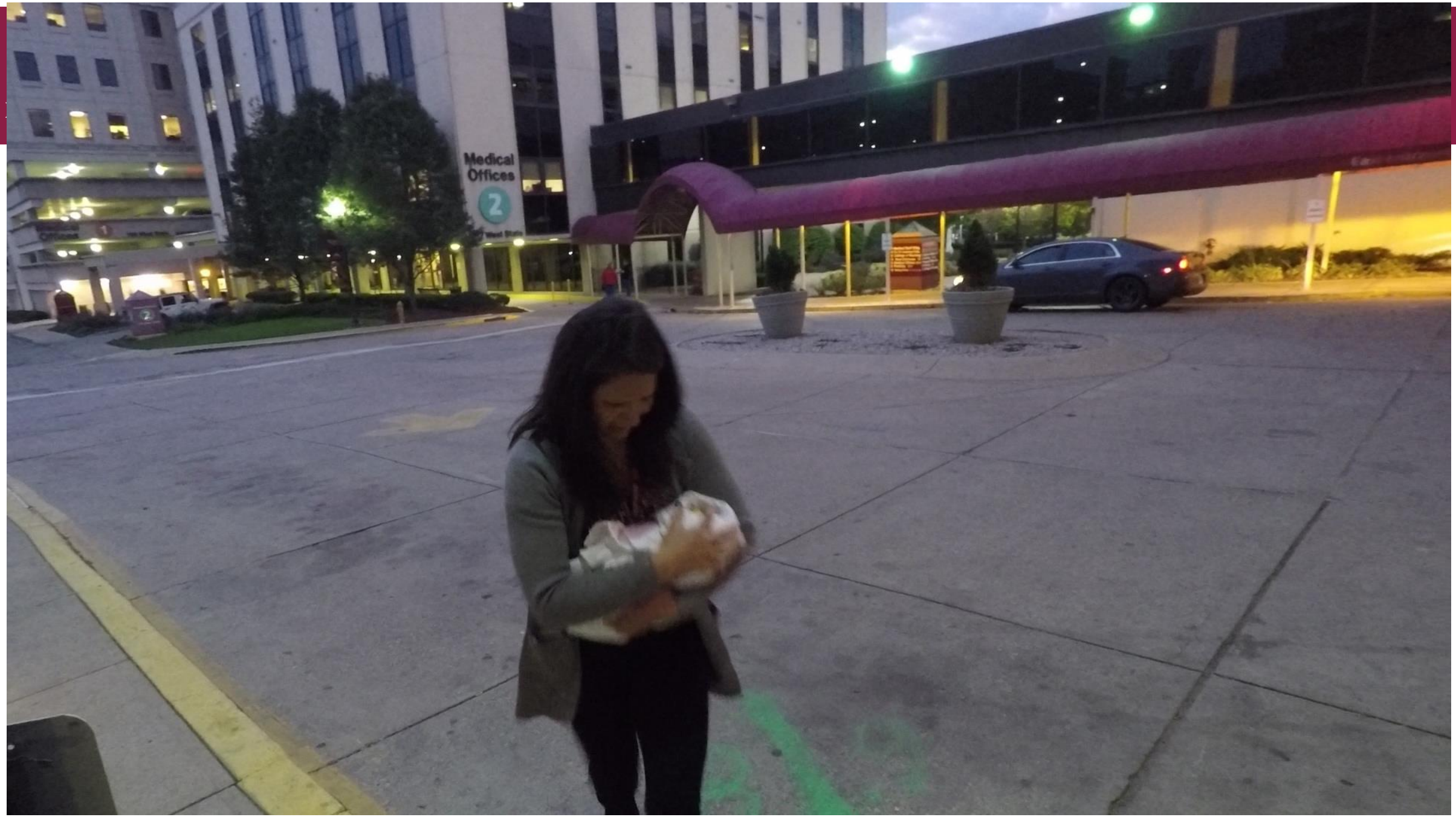
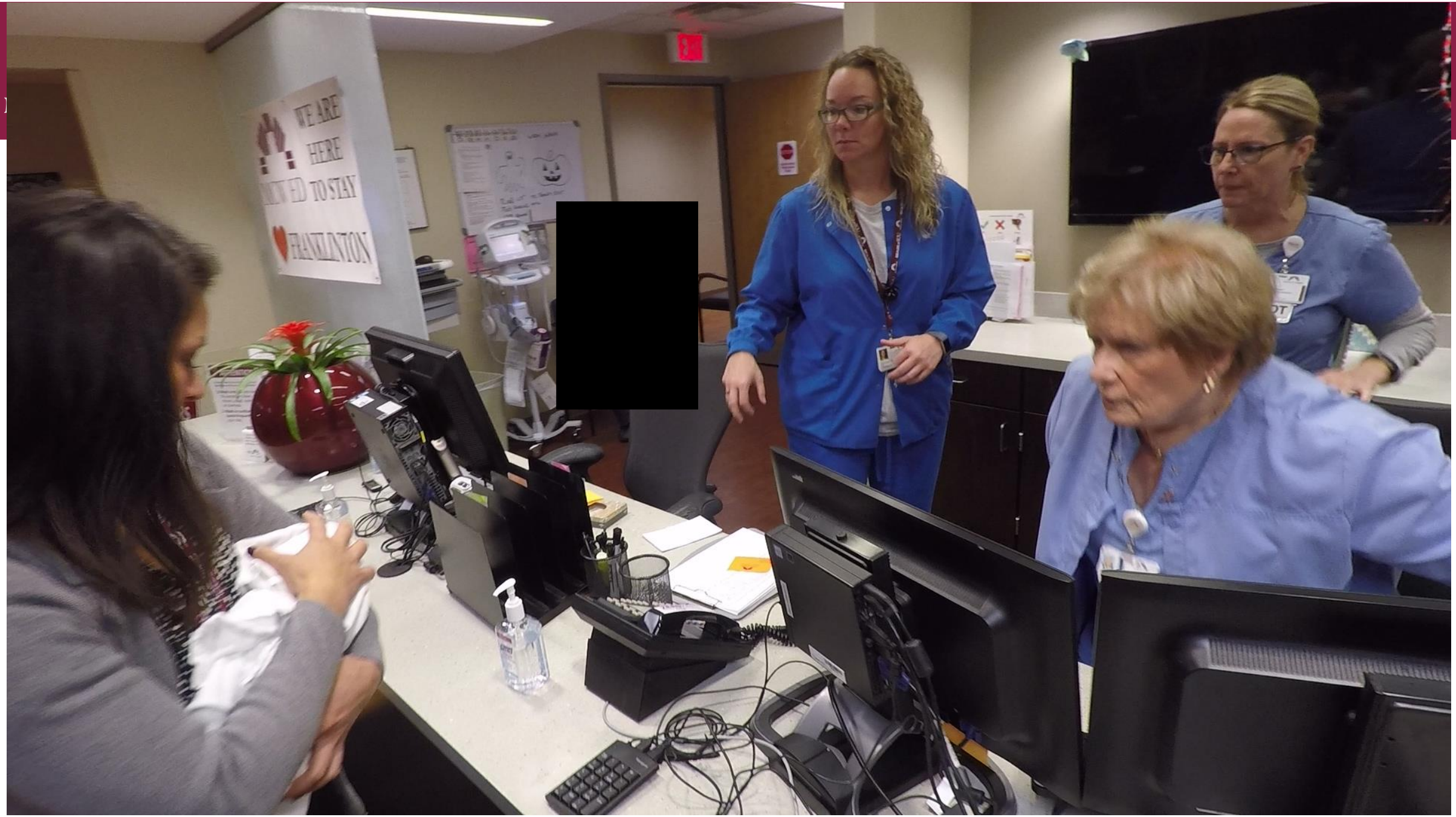
AND NOW…THE PERFORMANCE


Medical
Offices
2


WE ARE
HERE
TO STAY
FRANKLINTON

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EDT


RN


PHILIPS


MCW Emergency Dept
DOPPLER
RN

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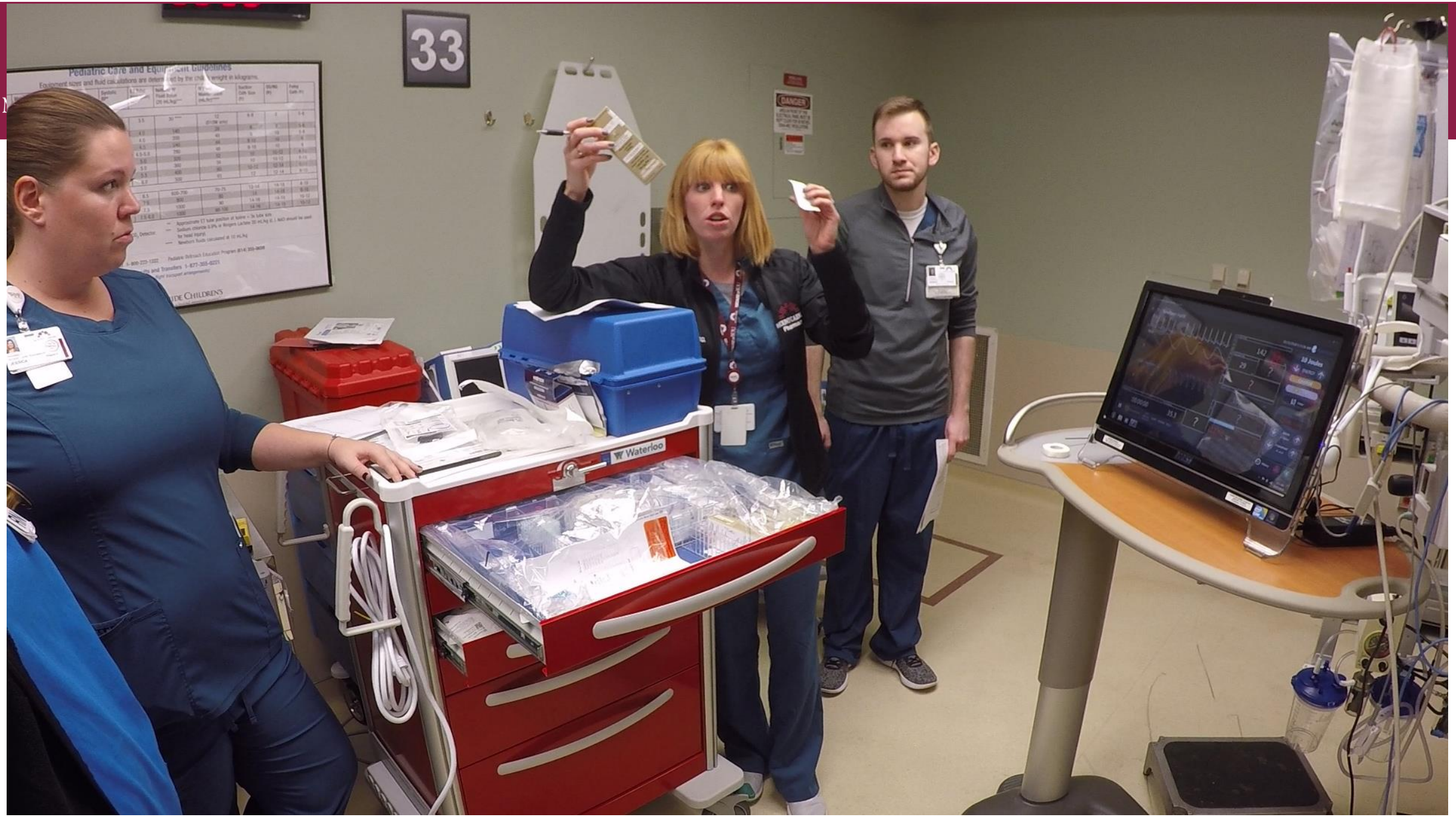
DEBRIEF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Pediatric Care and Equipment Guidelines
DANGER
Waterloo


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Hill-Rom
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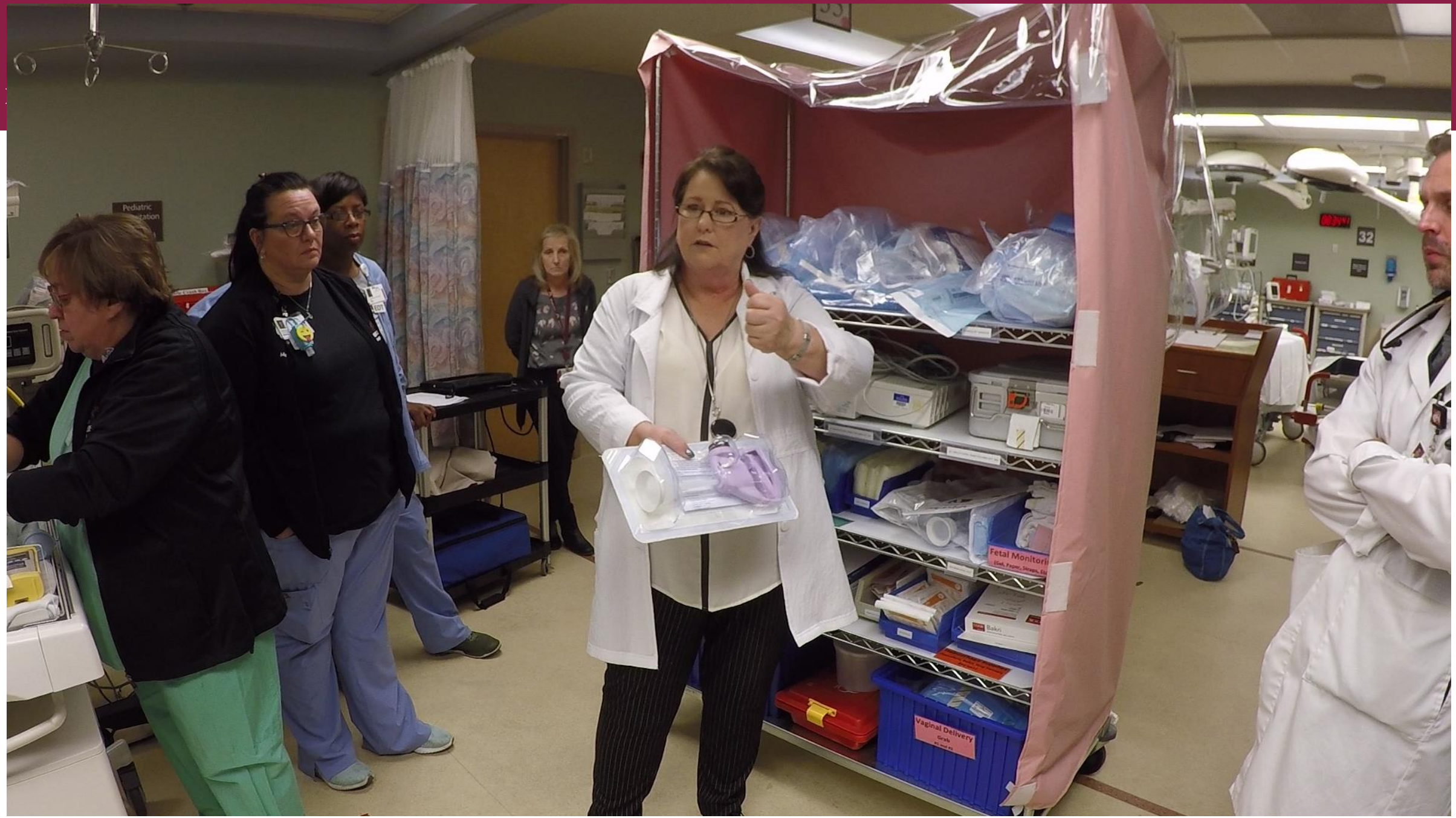
RN


Vaginal Delivery

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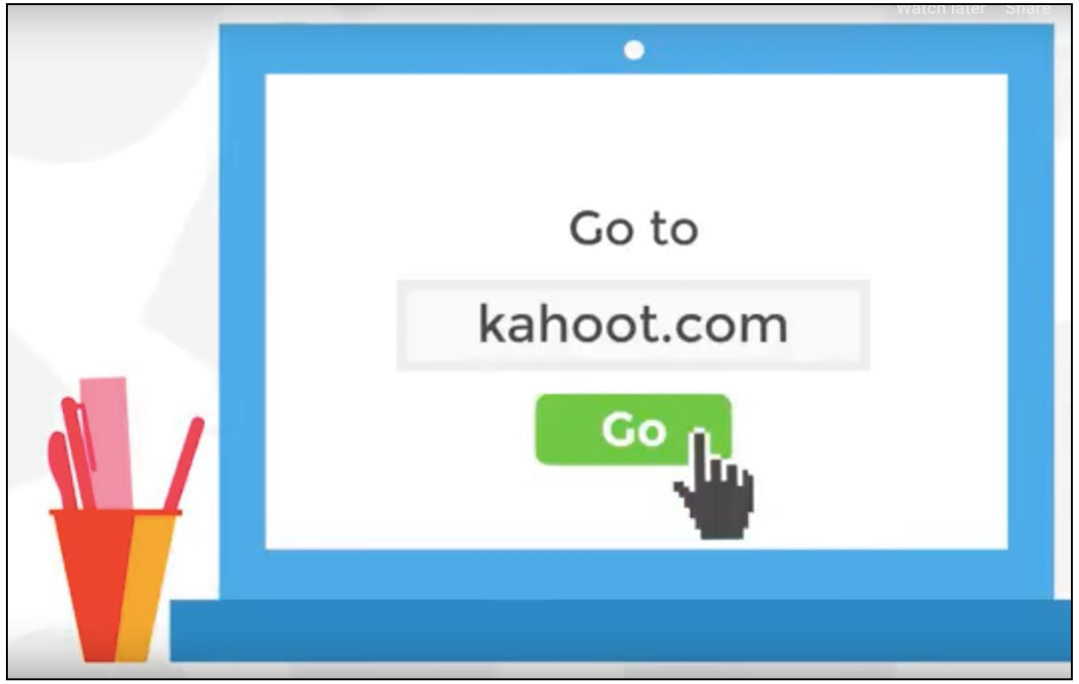
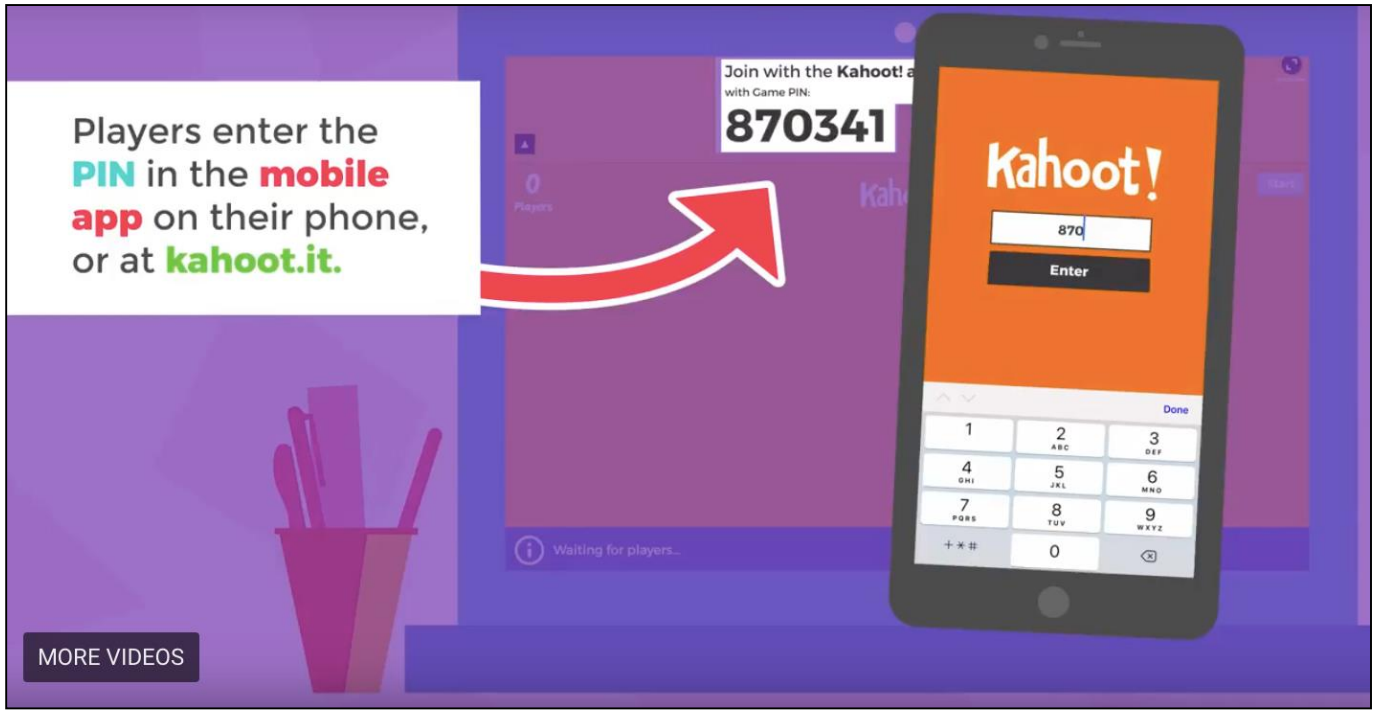
KAHOOT





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SEPTRIS

- FREE educational tool and INTERACTIVE
- Developed by Stanford School of Medicine
- http://med.stanford.edu/septris/game/SeptrisTitle.html

Click HERE to play Septris

Stanford | Septris

Physical Exam results are in for patient Will

0
Score

Will

SIRS + Sepsis | Severe + Shock

Temp:	BP:	HR:	RR:	UO:
100.9F 38.3C	**90/40**	**140**	**28**	**0.3 cc/kg/hr**

Chart | H&P

Physical Exam:

General: Appears uncomfortable, with respiratory distress. Decreased breath sounds and crackles in right lower lung field. Wheezing throughout. Remainder of exam unremarkable.

Labs/Diagnostics:

No lab results are ready.

Treatments:

No treatments in progress.

Physical Exam | ▼ Labs | ▼ Imaging

▼ Treat | ▼ Consult | ▼ Cultures

Stanford | Septris

Dr. Septris Says:

Good job! Initial fluid challenge in patients with sepsis-induced tissue perfusion is 1,000 mL of crystalloids or more to achieve a minimum of 30 mL/kg of crystalloids in the first 4 to 6 hours. +100 Points.

OK

http://med.stanford.edu/septris/game/SeptrisTitle.html

Stanford | Septris

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0
Score

Will

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Physical Exam | ▼ Labs | ▼ Imaging

▼ Treat | ▼ Consult | ▼ Cultures

THANK YOU
AND HAPPY STAGING

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MORE RESOURCES

1. Rhee C, Dantes R, Epstein L, et al. Incidence and Trends of Sepsis in US Hospitals Using Clinical vs Claims Data, 2009-2014. JAMA. 2017;318(13):1241–1249. doi:10.1001/jama.2017.13836
2. Sepsis: A Word to Know, a Meaning to Learn. Accessed from: https://www.sepsis.org/sepsis-alliance-news/sepsis-word-know-meaning-learn/
3. Kumar A, Roberts D, Wood KE, Light B, Parrillo JE, Sharma S, Suppes R, Feinstein D, Zanotti S, Taiberg L, Gurka D, Kumar A, Cheang M. (2006) Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. Crit Care Med. 34(6): 1589-96. DOI: 10.1097/01.CCM.0000217961.75225.E9

SEPSIS™
IT'S ABOUT TIME

https://www.sepsis.org/itsabouttime/

Allen, P., Withey, P., Lawton, D., & Aquino, C. T. (2016). Andragogical teaching methods to enhance non-traditional student classroom engagement. *i-manager's Journal of Education Technology. 13*:2, 47-59