Building Pathways to Health Careers for High School Students of Color

WELCOME

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Disclosures

- Kati Maxkenzie is faculty for the California Simulation Alliance

Objectives

1. Describe a large hospital-based pipeline department's integration of simulation to train community members;
2. Compare and contrast using a toolkit about different programming and curriculum options for community trainings; and
3. Formulate a SWOT analysis for community training opportunities at the learner's own simulation program.

What Is A Pipeline Program?

- An opportunity for young people from diverse backgrounds to gain exposure to a career path or paths that they may otherwise have not considered;
- Students gain exposure to the breadth of healthcare careers through mentorship, hands-on experiences, job shadowing, and a curricula component;

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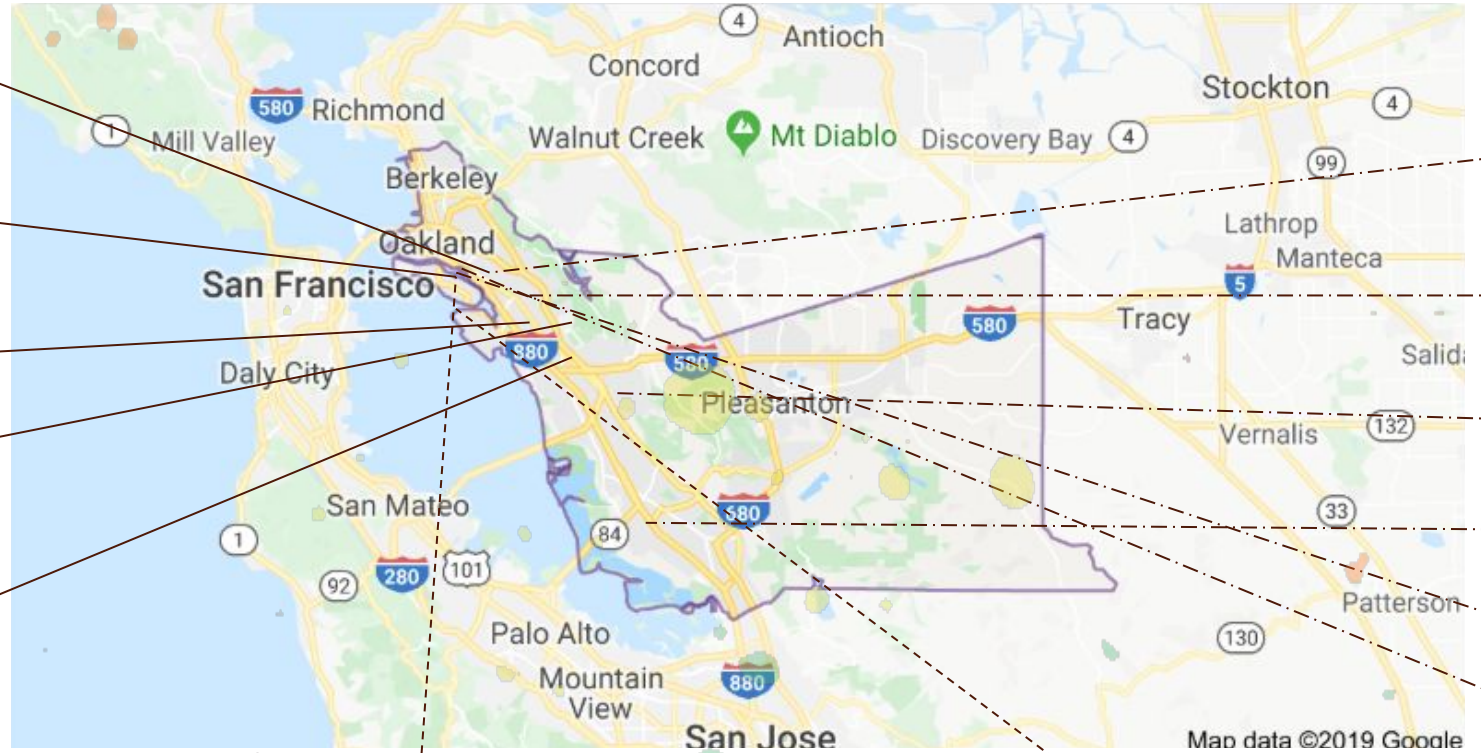

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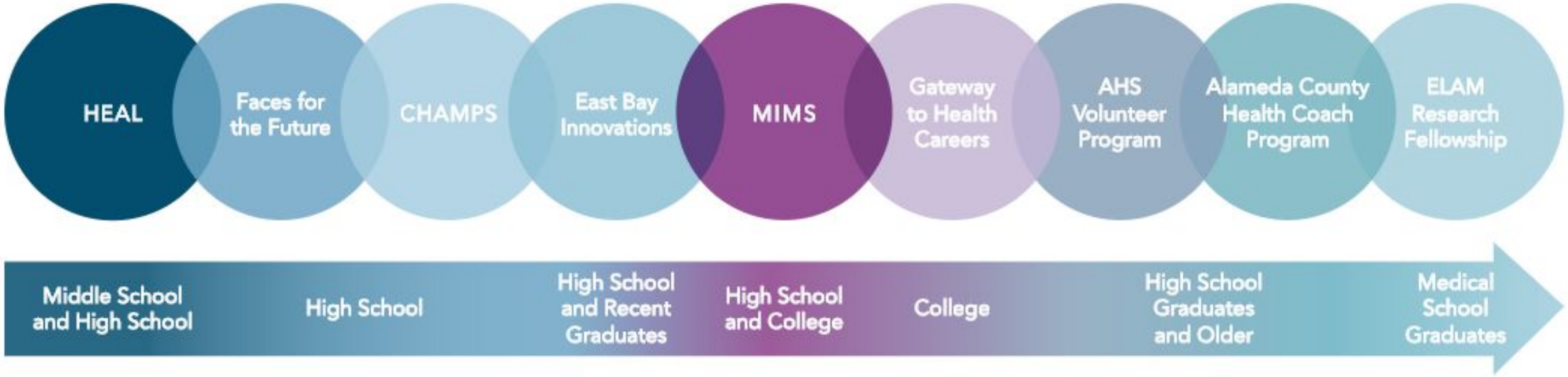
AHS HealthPATH Program



AHS HealthPATH Program

3 Simulation Rooms
2 Debrief Rooms
2 Control Rooms

30%
Interprofessional
Education

40% of Learner's Are
Community Members

>2,600 Learner Interactions

2,500 ft^2 / 230 m^2

1.0 FTE Simulation Center Manager
1.0 FTE Simulation Center Specialist
0.25 FTE Medical Director of Simulation

~9,000 Contact Hours

AHS Simulation Center

What community programming could you incorporate/expand to include in your Simulation Program?

Considerations of Integrating Simulation For Community Workforce Training

Lead Organization	Type of Program	Duration	Frequency	Learner	Learner Level	Size of Cohort	Resources	Recruitment - Learner	Facilitators
Internal	In-School	Once	Weekly	Middle School	Beginner (First Introduction to Healthcare)	Small Group (Limited Resources)	Space	School District	Volunteer vs. Paid
Partnership w/external Organization	After-School	Recurring	Monthly	High School & Continuing Education	Intermediate (Some Healthcare Knowledge)	Large Group (Many Resources)	Facilitators	Workforce development programs	Organization Staff
External	Summer		Semester	College	Advanced (Previous Healthcare Knowledge)		Scheduling	Universities	Community Partners
			Yearly	Post-College			Curriculum		Healthcare Community
				Fellowship			Costs		
				Volunteer Programs			Equipment		

Programs Utilizing Simulation

Program	Duration	Occurrence	Type	Grade Level	Compensation	# of Learners	# of Sim Experiences
HOME-BASED PROGRAMS							
Pathfinders	12-14 weeks	2x/year	In School	11th & 12th	Non-paid	~20	2
Navigators	12-14 weeks	2x/year	In School	12th	Non-paid	~20	2
Career Explorers	12-14 weeks	2x/year	After School	9th - 12th	Stipend	~24	4
Investigators	12-14 weeks	2x/year	After School	9th - 12th	Stipend	~24	4
Summer Intensive	5 weeks	1x/year	Summer	11th	Stipend	~30	5
Summer Young Men of Color	2weeks	1x/year	Summer	9th - 12th	Stipend	~15	2
Summer College Internship	10 weeks	1x/year	Summer	Undergraduate & Post-Bacc	Stipend	~10	2
ELAM Fellows	12-14 weeks	1x/year	Fellowship	Post-Med School	Stipend	~4	1
Physiology- Sim Only Cohort	School Year	4x/year	In School	10th	Non-paid	~65	4
Career Exploration Visit	1-day	6x/year	In School & Summer	9th - 12th	N/A	~35	1
Career Awareness Visit	1-day	6x/year	In School	8th	N/A	~15	1
AFFILIATE PROGRAMS							
MIMS	1-day	6x/year	In School & Summer	High School & Undergraduate	N/A	~15	1
CHAMPS	8 weeks	3x/year	In School	11th & 12th	Non-paid	~4	1

Sample HealthPATH Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM					Career Exploration Visit (9:00 am - 1:30 pm)
9:30 AM					
10:00 AM					
10:30 AM					
11:00 AM					
11:30 AM					
12:00 PM					
12:30 PM			Pathfinders Cohort (12:30 - 3:00 pm)		
1:00 PM		Navigators Cohort (1:00 - 3:30 pm)		Navigators Cohort (1:00 - 3:30 pm)	
1:30 PM					
2:00 PM	Pathfinders Cohort (2:00 - 3:30 pm)				
2:30 PM					
3:00 PM					
3:30 PM			Investigators Cohort (3:30 - 6:00 pm)		
4:00 PM	Investigators Cohort (4:00 - 6:00 pm)	Career Explorers Cohort (4:00 - 6:00 pm)		Career Explorers Cohort (4:00 - 6:00 pm)	Career Awareness Visit (4:00 - 6:00 pm)
4:30 PM					
5:00 PM					
5:30 PM					
6:00 PM					

What are your considerations for incorporating community programming?


1/4

Case Study

Prior to Simulation Center	After Simulation Center Integration
5 week, full time, high school (11th grade) summer internship	5 week, full time, high school (11th grade) summer internship
Team Building, Workshops (Didactic/Skills), Department Shadowing, Guest Speakers, Fieldtrips, Certifications	Team Building, Workshops (Didactic/Skills), Weekly Simulations, Department Shadowing, Guest Speakers, Fieldtrips, Certifications
Monday – Thursday AM – Team Building/Didactic/Skills/Or Guest Speakers PM – Department Shadowing/Guest Speakers **Friday** Fieldtrips/Certifications	**Monday** AM – Team Building/Didactic/Skills/Or Guest Speakers PM – Simulations/Workshops **Tuesday – Thursday** AM – Team Building/Didactic/Skills/Or Guest Speakers PM – Department Shadowing/Guest Speakers **Friday** Fieldtrips/Certifications
Convenience Workshop Scheduling	Themed Workshop Scheduling
	Increased Pre-learning before Department Shadowing
	Increased Context Setting for Department Shadowing

Sample Summer Schedule

Monday		Tuesday		Wednesday		Thursday		Friday	
Week 1									
		9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	
		9:30 - 11:00	Orientation	9:30 - 11:00	Orientation	9:30 - 11:00	Orientation	9:30 - 11:00	
1:00 - 1:30	Name Game	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Field Trip
1:30 - 4:00	Orientation	12:00 - 4:00	Orientation	12:00 - 4:00	Orientation	12:00 - 4:00	Intro to Sim	12:00 - 4:00	
4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	
Week 2									
		9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	
		9:30 - 11:00	Pop Health	9:30 - 11:00	SDoH	9:30 - 11:00	Vitals Workshop	9:30 - 11:00	
1:00 - 1:30	SBAR	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Field Trip
1:30 - 4:00	Simulation	12:00 - 4:00	Rotation 1	12:00 - 4:00	Rotation 1	12:00 - 4:00	Rotation 1	12:00 - 4:00	
4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	
Week 3									
		9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Warm Up
		9:30 - 11:00	Health Career	9:30 - 11:00	EHR	9:30 - 11:00	Resume	9:30 - 11:00	STB Certification
1:00 - 1:30	Sim Prep	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch
1:30 - 4:00	Simulation	12:00 - 4:00	Rotation 2	12:00 - 4:00	Rotation 2	12:00 - 4:00	Rotation 2	12:00 - 4:00	CPR Certification
4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection
Week 4									
		9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Team Building	9:00 - 9:30	Team Building
		9:30 - 11:00	Guest Speaker	9:30 - 11:00	Career Research	9:30 - 11:00	Career Research	9:30 - 11:00	Career Research
1:00 - 1:30	Sim Prep	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch
1:30 - 4:00	Simulation	12:00 - 4:00	Rotation 2	12:00 - 4:00	Rotation 3	12:00 - 4:00	Rotation 3	12:00 - 4:00	Rotation 3
4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection
Week 5									
		9:00 - 9:30	Warm Up	9:00 - 9:30	Warm Up	9:00 - 9:30	Warm Up	9:00 - 9:30	Warm Up
		9:30 - 11:00	Workshop	9:30 - 11:00	Career Planning	9:30 - 11:00	Career Planning	9:30 - 11:00	Career Planning
1:00 - 1:30	Sim Prep	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch	11:00 - 12:00	Lunch
1:30 - 4:00	Simulation	12:00 - 4:00	Rotation 3	12:00 - 4:00	Rotation 3	12:00 - 4:00	Rotation 3	12:00 - 4:00	Rotation 3
4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection	4:00 - 4:30	Reflection

Sample Curriculum Outline

Week	Content
Week 1	**Introduction to Simulation** • What is simulation • When is simulation used • Orientation to simulation space • Incorporating orientation topics to reinforce learning
Week 2	**Simulation – Pulmonary Embolism in Homeless Female Patient** • Patient presents in the ED complaining of shortness of breath and pain in the chest • Learners are to perform GIFT and get patient history
Week 3	**Simulation – Pulmonary Embolism in Homeless Female Patient** • Pt's shortness of breath worsens and pt begins to deteriorate • Learners must give oxygen, order pain medication, and order diagnostic tests
Week 4	**Simulation – Pulmonary Embolism in Homeless Female Patient** • Pt goes into respiratory distress • Learners must explain and perform intubation procedure • Learners must recognize pulseless pt
Week 5	**Simulation – Pulmonary Embolism in Homeless Female Patient** • Pt is in Code Blue • Learners must perform ACLS

Sample Video

Adapting Scenarios for High School Students

Original

Learning Goals & Objectives	
Educational Goal:	To enhance resuscitation and team management skills using a pulmonary embolism case which requires difficult management decisions to be made quickly.
CRM Objectives:	Lead team members effectively through a challenging resuscitation.
Medical Objectives:	1) Recognize risk for PE and initiate the appropriate workup urgently. 2) Provide quality ACLS care, including: a. Using ETCO2 to guide resuscitation b. Minimizing pulse checks c. Appropriate 30:2 compressions: breaths ratio d. Appropriate use of medications (epinephrine and thrombolytic) 3) Consider the administration of thrombolytics during cardiac arrest secondary to a suspected pulmonary embolism.

Case Summary: Brief Summary of Case Progression and Major Events
A 46 year old male with a cast on his left leg from a bad ankle fracture presents to the ED complaining of pleuritic chest pain and shortness of breath. The team will take a history and start workup when the patient will suddenly state he's "not feeling well" and then arrest. The team will perform ACLS consistent with the PEA algorithm and should consider IV thrombolytics. If IV thrombolytics are administered, the patient will have ROSC.

Adapted

Learning Goals & Objectives **Maximum of 5 total objectives**	
Education Goal:	Practice communicating with a patient while assessing and treating their deteriorate condition. Recognize a medical emergency.
Clinical Objectives:	• Patient Assessment • Clinical Skills such as blood draws, EKG, and CPR
Teamwork/ Communication Objectives:	• Practice GIFT • Practice SBAR • Role Designation

Case Summary: Brief Description of Case Flow & Major Events	
Week 1: Introduction to Simulation Week 2: Patient presents to the ED complaining of shortness of breath and pain in the chest. Learners are to perform GIFT and get Patient History. Week 3: Patient SOB worsens, begins to deteriorate	Week 4: Patient requires intubation Week 5: ACLS

Adapting Scenarios for High School Students

Original

B. Patient Profile and History					
Patient Name: Vinny Kostas		Age: 46		Weight: 70kg	
Gender: ☒ M ☐ F		Code Status: Full.			
Chief Complaint: SOB					
History of Presenting Illness: **Twelve hours of worsening shortness of breath.** Feels like it's hard to catch his breath and it gets **worse when he walks.** For the **last two hours,** he's also been having **sharp, pleuritic chest pain to the right** side of his chest. He's never experienced anything like this before.					
Past Medical History:	Recent ankle # with ORIF	Medications:	Tylenol #3 PRN		
Allergies: None.					
Social History: Non-smoker.					
Family History: Dad has clotting disorder. Unsure what it is – makes his blood thick?					
Review of Systems:	CNS:	Nil.			
	HEENT:	Nil.			
	CVS:	**Chest pain. Pleuritic and sharp. Across his right chest.** No orthopnea or PND.			
	RESP:	**Feel SOB. Worse when he's walking.**			
	GI:	Nil.			
	GU:	Nil.			
	MSK:	**His casted leg hurts.**	INT:	Nil.	

C. Baseline Simulator State and Physical Exam			
☐ No Monitor Display	☒ Monitor On, no data displayed	☐ Monitor on Standard Display	
HR: 115/min	BP: 95/60	RR: 18/min	O_2SAT: 92%
Rhythm: Sinus tach	**T: 37.2°C**	**Glucose: 6.3 mmol/L**	GCS: 15 (E4 V5 M6)
General Status: **Looks relatively well.**			

CNS:	A+O. PERLA. No FND.		
HEENT:	Nil.		
CVS:	Normal S1/S2. No murmur.		
RESP:	Good air entry bilaterally. No adventitious. **Mildly tachypneic.**		
ABDO:	Soft. non-tender.		
GU:	Nil.		
MSK:	**Left leg in cast.** No other hot/tender joints.	SKIN:	Nil.

Adapted

Patient Profile					
First Name:	Deshawna	Last Name:	Jones	MRN:	
DOB/Age:	34	Gender:	F	Code Status:	
Ht:	5'5"	Wt:	200lb/90kg	Ethnicity:	African-American
Spiritual Practice:	None		Primary Language:	English	

Patient History			
Chief Complaint:	Shortness of breath, lightheaded, and mild chest pain.		
History of Presenting Illness:	Woke up this morning feeling light headed. After walking around, she found it harder to breath. She hasn't eaten today. SOB has been for the past 5 hours.		
Past Medical History:	Diabetes	Current Medications:	None
Drug Allergies:	NKDA	Reaction:	
Food Allergies:	None	Reaction:	
Social History:	Just moved to California, trying to find work, 1 pack a day smoker, and drinks 1-2 beers a day. Doesn't use recreational drugs. Living in car.		
Family History:	No family in the area		

Review of Systems	
CNS:	
Cardiovascular:	
Pulmonary:	
Renal/Hepatic:	
GI:	
GU:	
Heme/Coag:	
Endocrine:	
Msk:	
HEENT:	
Int:	

Patient Baseline			
☐ No Monitor Display	☐ Monitor On, no data displayed	☒ Monitor on Standard Display	
General Status:	Short of breath		
CNS:		Cardiovascular:	
Pulmonary:	Short of breath	Renal/Hepatic:	
GI:		GU:	
Heme/Coag:		Endocrine:	
Msk:		HEENT:	
Int:			

Adapting Scenarios for High School Students

Original

Scenario States, Modifiers and Triggers

Patient State	Patient Status	Learner Actions, Modifiers & Triggers to Move to Next State	
1. Baseline State Rhythm: HR: 115/min BP: 95/60 RR: 18/min O_2SAT: 92% RA T: 37.2°C	A+O. Complaining of pleuritic CP and SOB.	Learner Actions - IV, O2, monitors - ECG - Cardiac blood work, D dimer - History and Physical - Order CT chest - ± Cardiac U/S for RV strain	Modifiers *Changes to patient condition based on learner action* Triggers *For progression to next state* - 2 min → **2. PEA Arrest**

Sample Questions for Debriefing

1) How did it feel to lead the team through this resuscitation? How did it feel to make the hard call on thrombolytics?
2) How did the team feel about the way the leader approached the thrombolytics option?
3) What are markers of quality arrest care?
4) What are the indications for thrombolytics in PE?

Adapted

Scenario States, Modifiers and Triggers

Please complete ALL sections as they must be programmed into the computer (even if 0 or WNL)

Initiation of Scenario:
Patient is in the ED. She is intubated and went pulseless immediately after successful intubation.
Last Vitals:
HR: VF, O2: 90%

Patient State		Patient Status/ Voice	Learner & Clinician Actions & Triggers	
1. Group 1 Rhythm: PEA HR: 70 /min Pulse: N O2SAT: 90% CO_2: BP: 0/0 RR: 0/min T: 98.6°C	Sounds R Lung: L Lung: Heart: Bowel: Other: ABP: ICP: Eyes: Closed Seizure: Airway: ETT	Patient is unresponsive. **Team Roles** -☐Bagging – RT -☐Handoff to Code Blue TL then 2nd Compressor – R1 -☐ Code Blue Team Leader – R2 -☐ Compressor – ED Tech -☐Code Cart – RN	Learner Actions -☐Practice GIFT - ALL -☐ Give SBAR Handoff to Code Team – R1 -☐1 breath every 6 secs – RT -☐High quality CPR – R1/ED Tech -☐Code TL Follow ACLS – R2 -☐Defibrillate – RN -☐Pulse Check – R2 -☐IO Access – R1 -☐Epi – RN	Clinician Actions Enter with learners & perform GIFT. - Guide learners through hand off to Code Blue Team – 1st Epi Triggers *For progression to debrief* - Learner actions completed
1. Group 2 Rhythm: PEA HR: 70 /min Pulse: N O2SAT: 90% CO_2: BP: 0/0 RR: 0/min T: 98.6°C	Sounds R Lung: L Lung: Heart: Bowel: Other: ABP: ICP: Eyes: Closed Seizure: Airway: ETT	Patient is unresponsive. **Team Roles** -☐Bagging – RT -☐Handoff to Code Blue TL then 2nd Compressor – R1 -☐ Code Blue Team Leader – R2 -☐ Compressor – ED Tech -☐Code Cart – RN	Learner Actions -☐Practice GIFT - ALL -☐1 breath every 6 secs – RT -☐High quality CPR – R1/ED Tech -☐Code TL Follow ACLS – R2 -☐Pulse Check – R2 -☐Defibrillate – RN -☐Ami – RN -☐Epi – RN	Clinician Actions Enter with learners & perform GIFT. - Guide learners through Code Blue to ROSC. Triggers - Proceed to ROSC after Epi Given by Group 2

Sample Questions

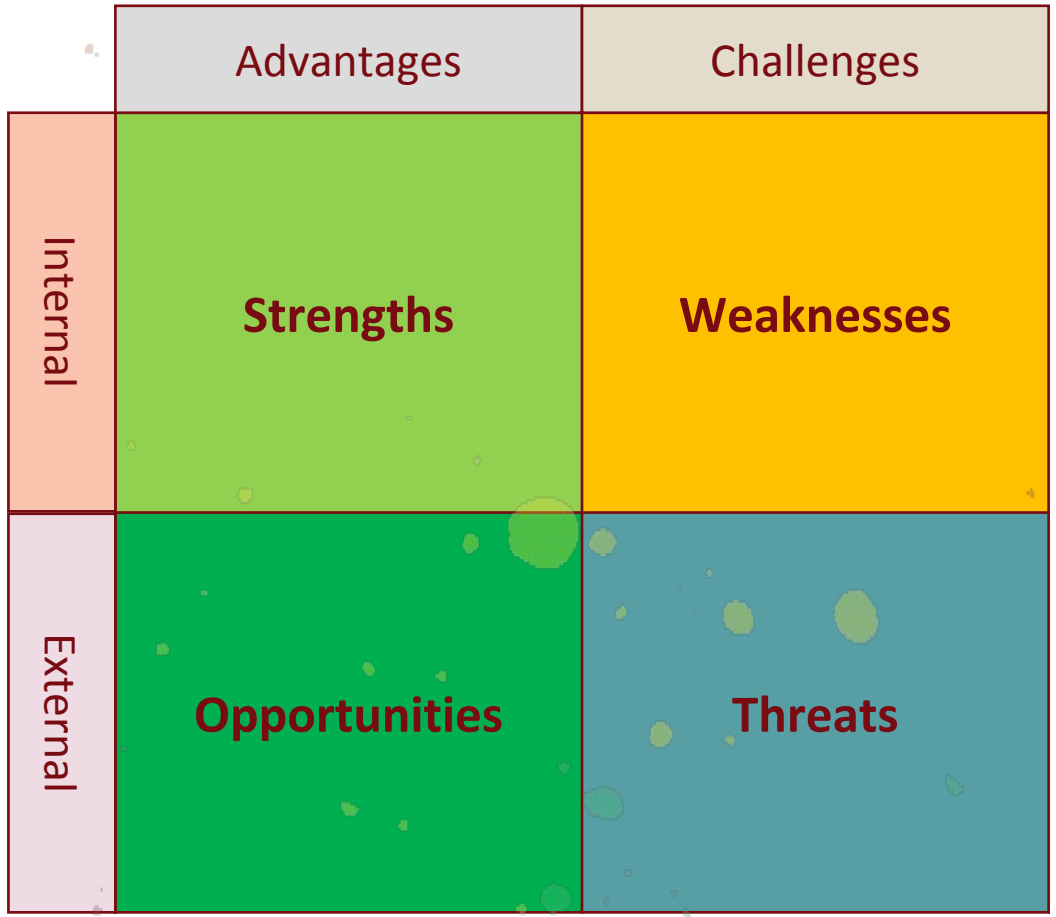
Debrief Group 1	Debrief Group 2

• What is our initial assessment of the patient? How sick are they (unstable/watch/stable)?
• Do we have enough information to treat the patient? If not, what else do we need to know?
  ○ What is an IO?
  ○ Electrical vs Drug?
• What did the group do well?
• What could be done differently?
	• What is our initial assessment of the patient? How sick are they (unstable/watch/stable)?
	• Do we have enough information to treat the patient? If not, what else do we need to know?
	  ○ Causes of cardiac arrest?
	  ○ Next Steps?
	• What did the group do well?
	What could be done differently?

Lessons Learned

- Use plain language -- break down jargon
- Give guidance to facilitators/clinicians
- Use prewritten curriculum and adapt to your learners
- Start small
- Set ground rules with your learners – especially around equipment use and professionalism
- Classroom behavior management strategies are different for younger learners

SWOT Analysis



AHS SWOT Analysis

Strengths	Weaknesses
• Established pipeline department; • Established buy-in in	• Staff availability; • Fatigue of staff; • Ongoing funding.

What are your Simulation Program's strengths, weaknesses, opportunities, and threats?

large area both economic and geographic making for a large recruitment pool – school districts, nonprofits, etc.; • Rich pool of community partners;	external partners; • Partnering with schools that have impacted staff; • Students ability to commute.

QUESTIONS?

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Building Pathways to Health Careers for High School Students of Color

THANK YOU!