



AN OSF HEALTHCARE
AND UNIVERSITY OF ILLINOIS
COLLEGE OF MEDICINE AT PEORIA
COLLABORATION

PART TWO – SESSION MATERIALS

Session Title: Angioedema with Obstruction

Please indicate the type of session by checking the appropriate box:

- Case Scenario
- Skills (Procedure) Station
- Small Group Discussion
- Computer-Based Learning
- Simulation Enhanced Didactic

Original Session Date:

Version: 1.1

Revision Date:

Curriculum Title: Emergency Medicine Resident
Simulations

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Dept/Institution: [Click here to enter text.](#)

2.1 SESSION SNAPSHOT

Intended Learner Group(s):

EM1 Residents, ED Nurses

Goals:

Management of ACE-Inhibitor induced angioedema with airway obstruction. Demonstrate deliberate assessment and approach to management of a difficult airway.

Learning Objectives:

1. Identifies ACE-I medication on med list as likely etiology for angioedema
2. Assesses airway for compromise via auscultation (stridor)
3. Explains need to secure airway to patient using layman's terms
4. Assesses for difficult BVM, Endotracheal intubation prior to securing airway.
5. Secures airway following the ASA difficult airway algorithm
6. Performs cricothyrotomy after failed management with LMA within 90 seconds.

Session Description:

This is a case scenario set in the ED of a community hospital. Patient presents with angioedema of the lips/tongue due to ACE-inhibitor usage and progresses to complete airway obstruction. Requires cricothyrotomy to prevent hypoxic arrest.

2.2 SESSION EQUIPMENT (P.1)

Please indicate all equipment required for this educational session. This includes any medical or educational supplies or equipment.

MANIKIN - Adult	MANIKIN - Peds
<input type="checkbox"/> Laerdal SimMan	<input type="checkbox"/> MegaCode Kid
<input type="checkbox"/> SimMan Essential	<input type="checkbox"/> SimJunior
<input checked="" type="checkbox"/> SimMan 3G	<input type="checkbox"/> SimBaby
<input type="checkbox"/> SimMom	<input type="checkbox"/> SimNewB
<input type="checkbox"/> MegaCode Kelly	

JUMP EQUIPMENT (check all that apply)	
<input type="checkbox"/> Pediatric Crash Cart	<input checked="" type="checkbox"/> Adult Patient Bed
<input checked="" type="checkbox"/> Adult Crash Cart	<input type="checkbox"/> Isolette
<input type="checkbox"/> Lifepack 20	<input type="checkbox"/> Giraffe Bed/Infant Warmer
<input type="checkbox"/> Gurney/Stretcher	<input type="checkbox"/> Pediatric Crib

Advanced Airway Trainer x 1 (for additional cric practice)

Note: The above lists include equipment available from Jump.

If any other items are needed for this session, please list them here and note the source.

If you would like Jump to provide disposable supplies, please provide Peoplesoft number and allow two weeks for delivery.

ITEM	SOURCE	PEOPLESOFT NUMBER	QUANTITY
Education RSI box	ED Educators	Click here to enter text.	1
Cricothyrotomy kit	ED		3
LMA size 4	?		1

2.3 SESSION ENVIRONMENT

SIMULATION VENUES	
<input type="checkbox"/> Anatomical Skills Lab	<input checked="" type="checkbox"/> Virtual ICU
<input type="checkbox"/> Innovation Lab	<input type="checkbox"/> Virtual OR/Trauma Bay
<input type="checkbox"/> Regional Transport Center	<input type="checkbox"/> Virtual Patient Unit
<input type="checkbox"/> Studio Apartment	<input type="checkbox"/> Virtual Reality (Surgical Skills) Lab
<input type="checkbox"/> Skills Lab	<input type="checkbox"/> Workstation & Med Room
DEBRIEFING VENUES	
<input type="checkbox"/> Briefing Theater	<input checked="" type="checkbox"/> Debriefing Room

Room and Materials Setup

Describe in text form or insert diagram or photo here. Please note any resources to be provided from outside of Jump.

Room setup as ED room.

2x2 cart

Crash cart with airway box -

2.4 SCENARIO SETUP

Documents Included

<input checked="" type="checkbox"/> Scenario Setup Form
<input checked="" type="checkbox"/> Standardized Participant Guide(s): 1. Patient
<input type="checkbox"/> Other: Click here to enter text.
<input type="checkbox"/> N/A - this session does not include case scenarios

SCENARIO SETUP FORM
 TITLE: Angioedema

MANIKIN: Laerdal 3G

EST DURATION: 10 minutes

Patient Information: 55 yo male
CC: Lip Swelling **PMHx:** HTN
Clinical Setting: Community ED

Weight: 90kg

Allergies: NKDA

STATE NAME	VITAL SIGNS	EXAM/ADDL MANIKIN INFO	ACTIONS DESIRED
Presenting State - Angioedema	Temp:37.5 HR: 130 BP: 130/90 RR: 36 SpO2: 75%	Mild tongue swelling Breath sounds: stridor	Identify angioedema, impending airway obstruction May give steroids, antihistamines Identify ACE-I on med list Start collecting equipment to secure airway. Explain plan to patient
TRANSITIONS: 1. After 4 minutes (or after LMA placement), go to Airway Occlusion			
Airway Occlusion	HR: 125 BP: 180/90 RR: 28 SPO2: 85%	No phonation Breath sounds: minimal (with stridor)	
TRANSITIONS: 1. After 90 seconds in this state, may go to PEA Arrest at faculty discretion.			
PEA Arrest	HR: 82 BP: 0/0 RR: 0 SPO2: --- (not reading)		
TRANSITIONS: 1. Once airway secured, go to Stabilized over 1 minute.			
Stabilized	HR: 80 BP: 140/70 RR: 2 SPO2: 100%		

Moulage: IV in place **Multimedia:** None **Embedded Roles:** Patient

STANDARDIZED PARTICIPANT GUIDE (1 of 1)

SCENARIO TITLE: Angioedema

ROLE: Patient

NAME: Steve Johnson

BACKGROUND INFO:

CC: Throat swelling

HPI: 40 yo F complaining of throat swelling over last 2 hours. No unusual foods, no known food allergies. No systemic symptoms otherwise (no fevers, chills, nausea, vomiting etc.) Feels short of breath when she lays down flat.

PMH: HTN

Meds: Lisinopril, started last year.

ALL: NKDA

FHx: NC

SHx: 20 pack year tobacco history

ROS: unavailable

Physical Exam (Sim findings in bold):

VS: Per **monitor 37.5 160/90 97 20 100%**

Gen: Sitting upright. Alert.

HEENT: PERRL 4mm. No pallor. TM, MM, **lip and tongue edema.**
'froggy' voice

Neck: Normal. No stridor

CV: **Regular rate and rhythm. No murmurs or gallops.**

Lungs: **Clear lungs.**

Abd: Normoactive BS. Soft

Skin: **Dry no rashes or ecchymoses**

Extremities: **No edema.**

Neuro: **Eyes open.** GCS 15.

2.5 LEARNERS' SESSION HANDOUTS

On Portal:

1. Clinical Pearls Handout
2. ACE-I edema article (provided electronically)

2.6 SESSION ASSESSMENT

	C O M P L E T E	P R O M P T E D	N O T D O N E	
Initial Assessment				Evaluates for difficult BVM using MOANS:
				Mask Seal
				Obesity
				Aged
				No teeth
				Stiff ventilation
				Evaluates for difficult laryngoscopy using LEMON:
				Look at appearance (incisors, beard, etc)
				Evaluate: "3-3-2" rule
				Mallampati
				Obstructions
				Neck mobility
				Verbalizes basic management alternatives:
				Awake vs. RSI intubation
			Non-invasive vs. endotracheal	
			Paralytic or No paralytic (preserving spont vent)	
Preparation				Pre-oxygenation (traditional or 'fast-track')
				Equipment readiness:
				Suction
				LMA
				Airway adjuncts of choice (Note here):
Failed Intubation				Resumes BVM
				Calls for assistance (e.g. anesthesia, second provider)
				Recognizes inadequacy of ventilation
				Places LMA (refer to procedure checklist)
Non-Emergency Pathway				Assesses adequacy of LMA ventilation
				Lists alternative approaches to intubation (note here):

				Attempts alternative approach to secure airway (Note choice below, refer to procedure checklist):
Emergency Pathway				Recognizes inadequacy of LMA ventilation
				Performs surgical airway (see procedure checklist)

2.7 SESSION SPECIFIC REFERENCES/SOURCES

I. **Case Summary**

- A. Scenario Background Given to Participants (see Stimuli)
 - CC: Lip swelling
 - HPI:
 - PMH:
 - Meds: Lisinopril 20mg PO QD
 - Family History: Parents with HTN
 - Social History: Negative
- B. Scenario Conditions Initially
 - Patient initial exam:
 - ✓ Angioedema
 - Patient pathophysiology
 - ✓ Bradykinin mediated angioedema
- C. Scenario Branch Points
 - Airway will completely occlude despite all / any interventions
 - Learner must perform cricothyrotomy to stabilize patient

II. **Instructors Notes**

- A. Tips to keep scenario flowing:
 - Prompt to secure airway by having pt's voice change
- D. Actors:
 - Patient
- E. Stimuli available:
 - None
- F. Scenario programming
 1. Optimal management path (see evaluation checklist)
 2. Potential complications:
 3. Potential errors path(s)
 - a. Not securing airway
 4. Program debugging
 - a.

III. **Debriefing Plan**

- A. Method for debriefing
 - Group debriefing using GAP framework
 - (Future state)Videotape of case for later review with preceptor
- B. Debriefing materials:
 - Resident checklist - review with individual and group
 - Clinical Pearls Handout
 - Article on ACE-induced angioedema
- c. Clinical content to cover in the debriefing

- Review ASA difficult airway algorithm
- Pathophysiology of ACEI induced angioedema (vs allergic)
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IV. **Resources and References**