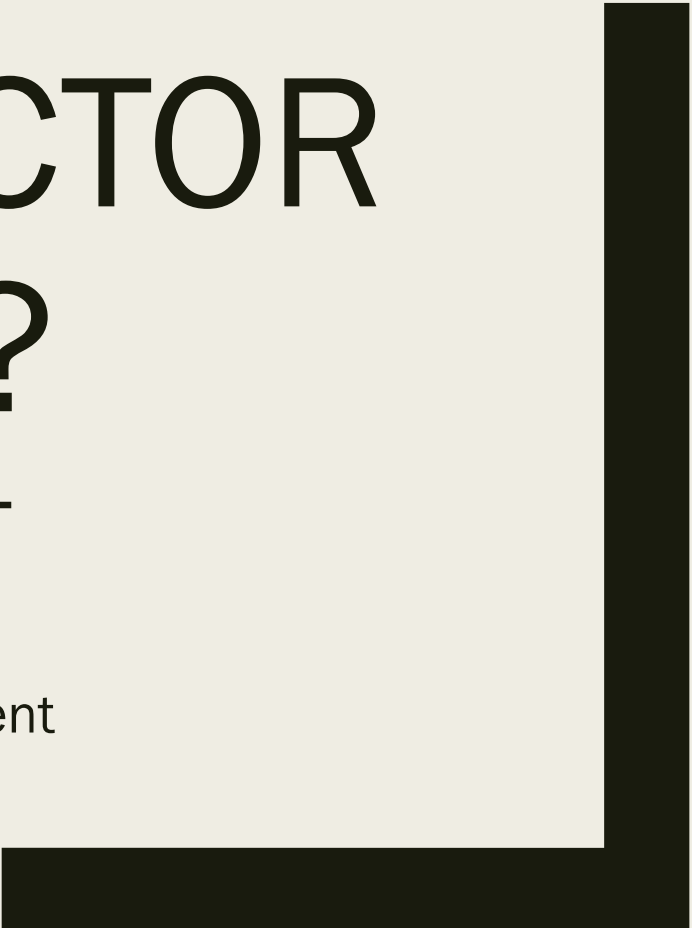




# IS THERE A DOCTOR ON BOARD?

**Sangeeta Sakaria, MD MPH MST**

Assistant Clinical Professor  
UC Irvine Emergency Medicine  
Medical Director, Emergency Department  
Catalina Island Medical Center  
DiMM Candidate, DDMM Candidate



# Disclosure

- Neither I nor any member of my immediate family has a financial relationship or interest (currently or within the past 12 months) with any proprietary entity producing health care goods or services consumed by, or used on, patients related to the content of this CME activity.
- I do not intend to discuss an unapproved/investigative use of a commercial product/device.

# Overview

- Background information
- Responsibility/Legal issues
- Resources available
- Limitations
- Diversion
- Summary Approach
- Cases

# BACKGROUND INFORMATION



# Is this really important?

- Over 2 billion US and overseas air travelers per year
- Medical events occur at approx 15-100 per million
  - *Death rate 0.1-1 per million*

# Most common CC

- Syncope/pre-syncope – 37.4%



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- Respiratory symptoms – 12.1%
- Nausea/vomiting – 9.5%
- Cardiac symptoms – 7.7%
- Seizures – 5.8%
- Abdominal pain – 4.1%



# Airline Protocols

- Cabin crew is notified

WebDonuts.com



# Airline Protocols

- Cabin crew is notified
- Captain is informed

WebDonuts.com



# Airline Protocols

- Cabin crew is notified
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- Cabin crew is notified
- Captain is informed
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- Captain calls for ground-based medical support
- Decision regarding diversion is made



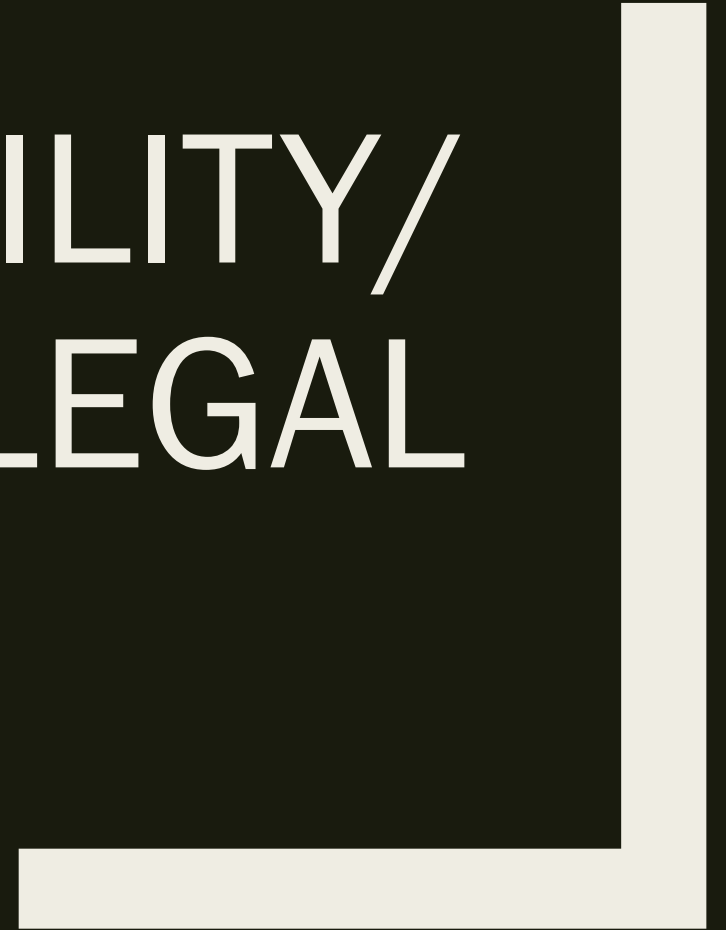


# Airline Protocols

- Cabin crew is notified
- Captain is informed
- Crew solicits assistance (YOU!)
- Captain calls for ground-based medical support
- Decision regarding diversion is made
  - *Three scenarios: No change, expedited landing, divert*



RESPONSIBILITY/  
LEGAL



# Do I have to?

- Legally?



# Do I have to?

- Legally? – **NO!**



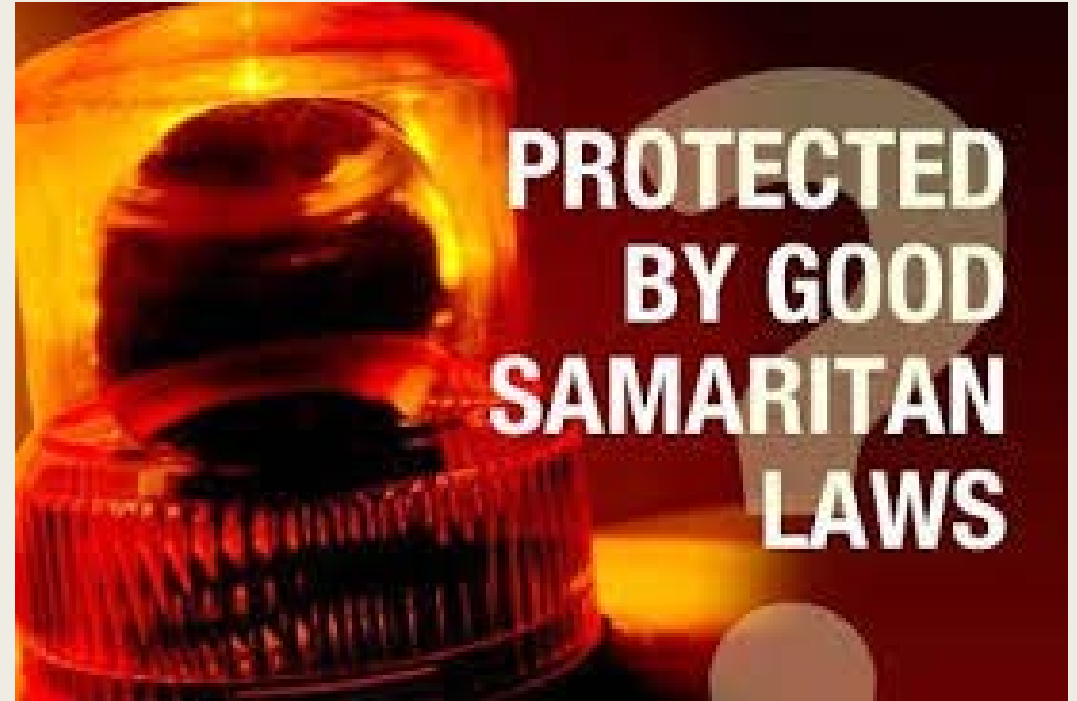
# Do I have to?

- Legally? – **NO!**
- Ethically? – **YES!**



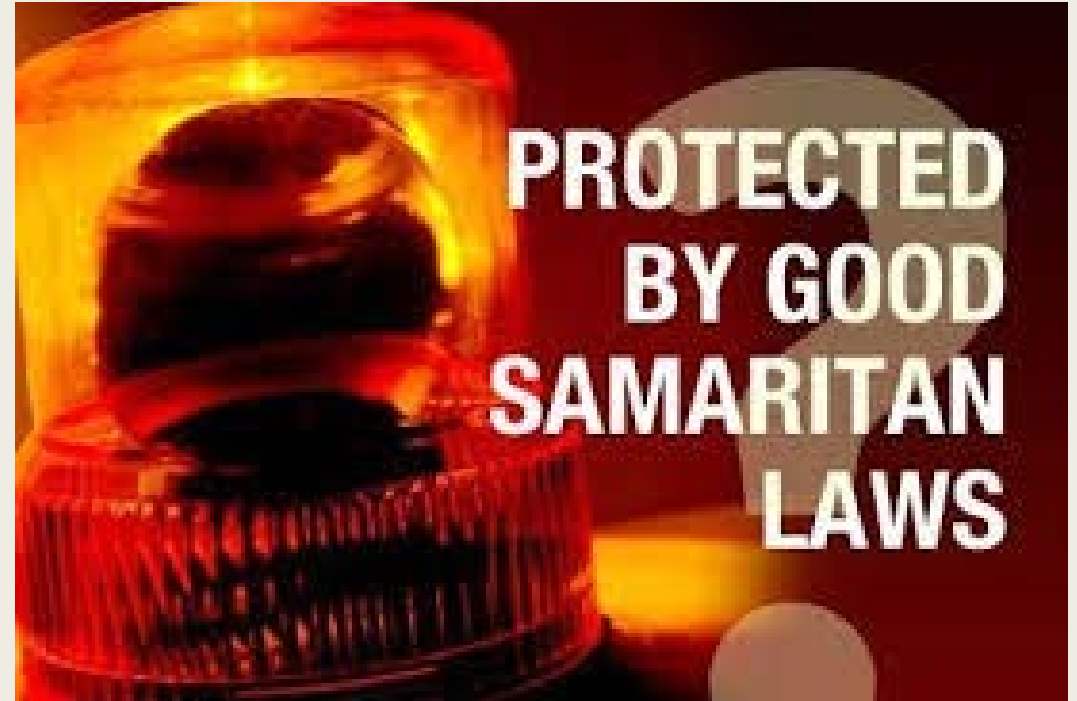
# Will I get sued?

- Good Samaritan Law



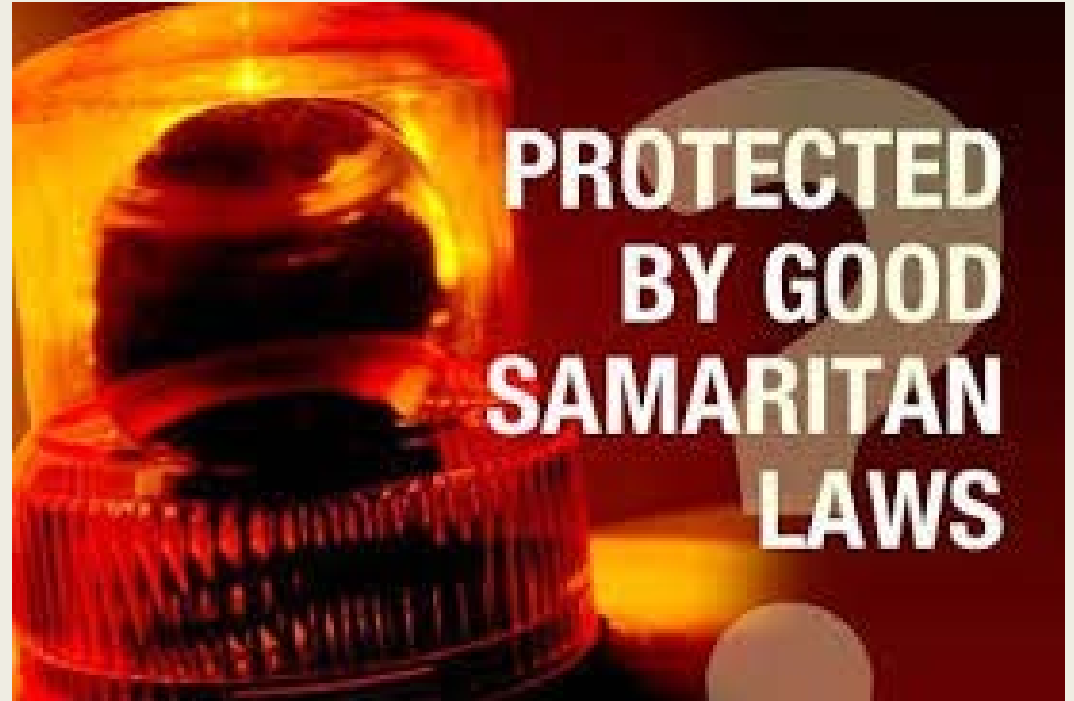
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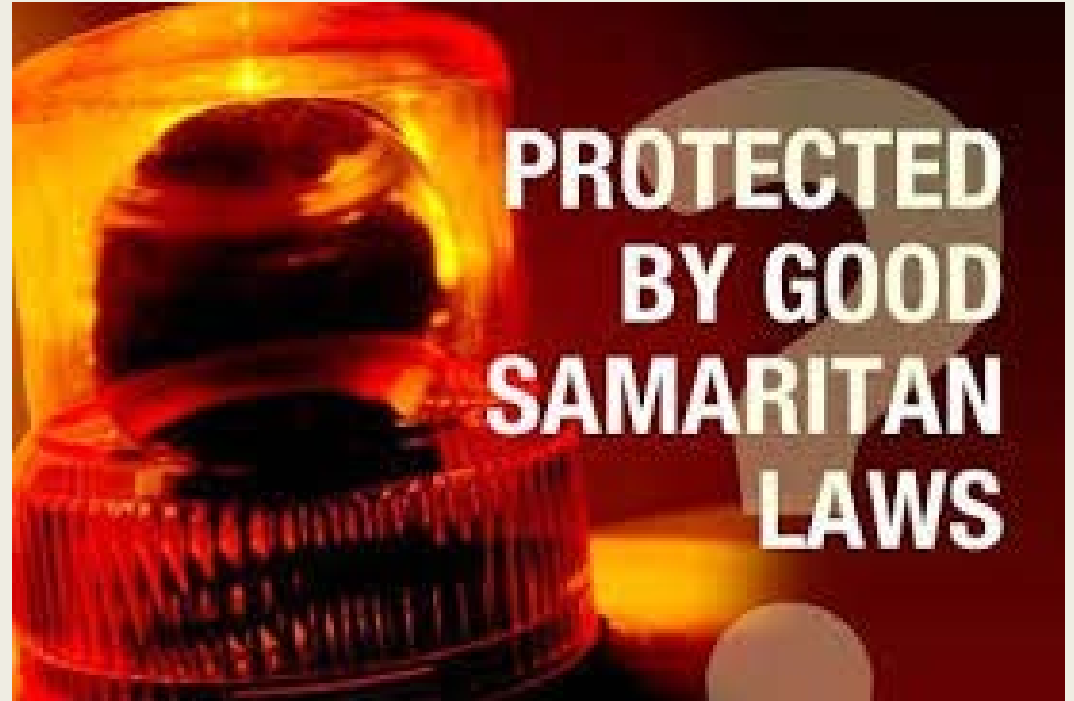
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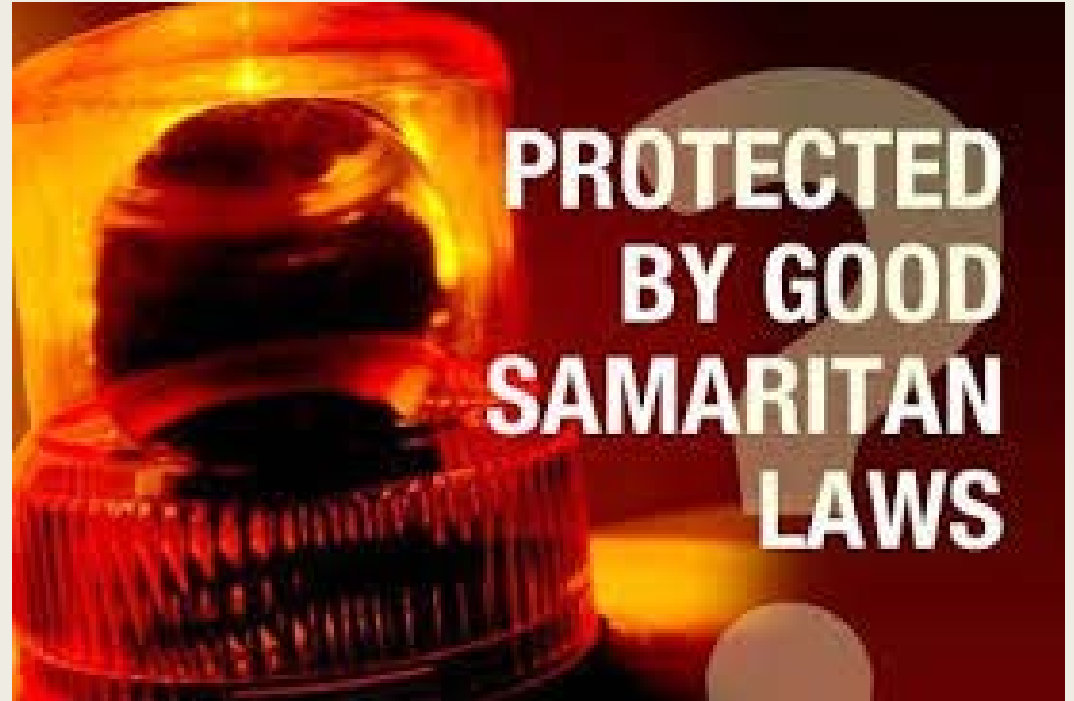
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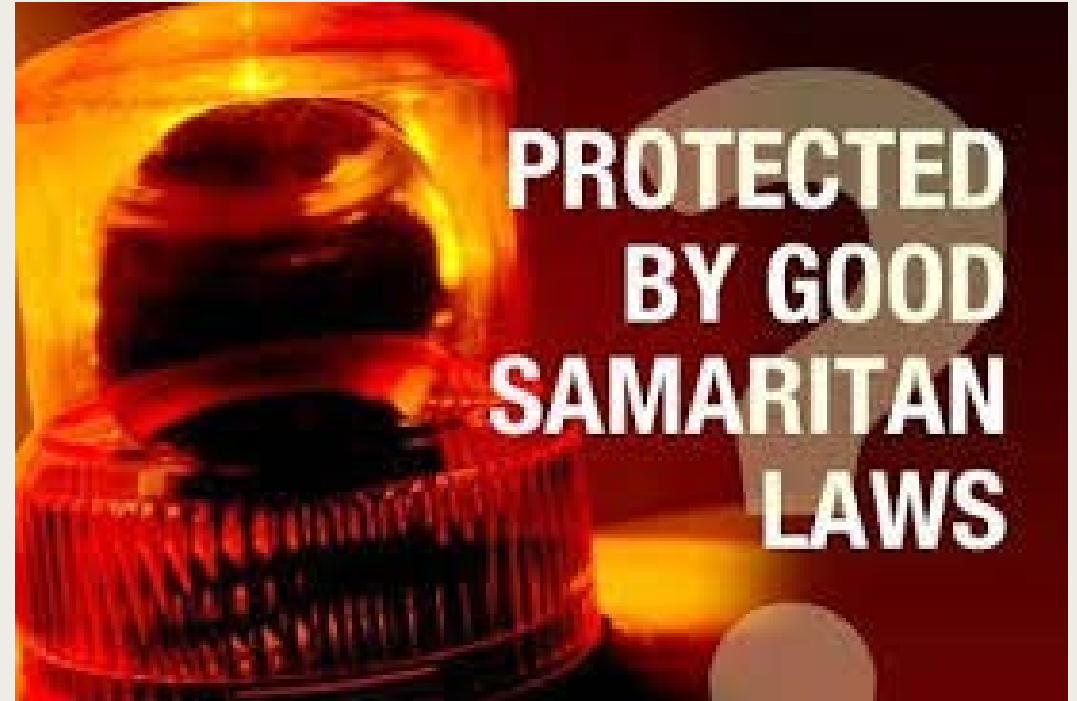
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- *Does not engage in gross negligence or willful misconduct*



# Will I get sued?

- Good Samaritan Law
  - *Medically qualified*
  - *Acting voluntarily*
  - *Acting in good faith*
  - *Does not engage in gross negligence or willful misconduct*
  - *Receives NO MONETARY COMPENSATION*

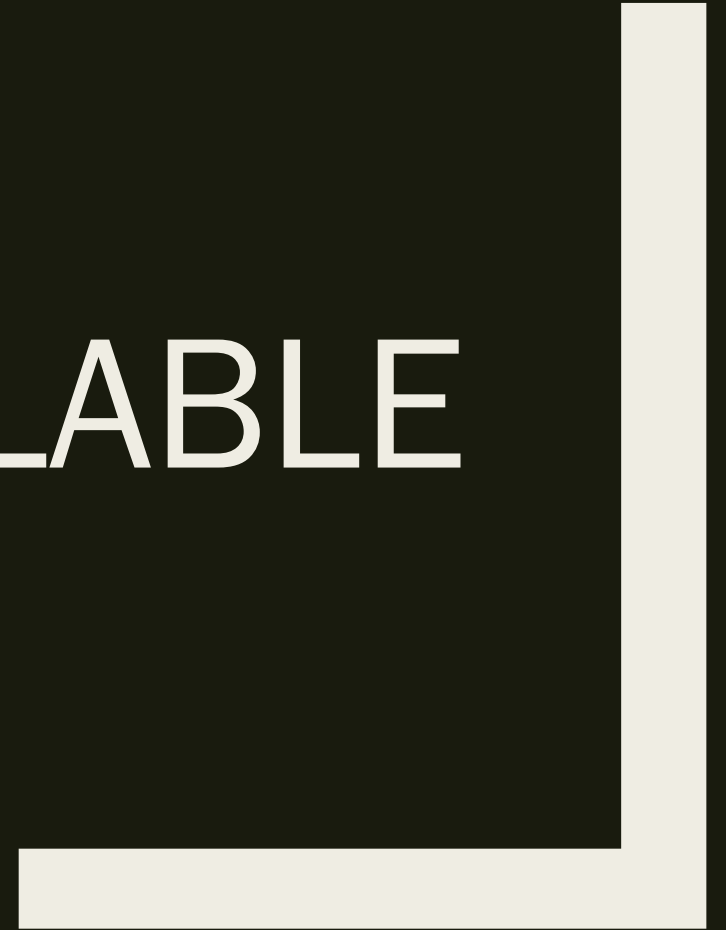


# What about other countries?

- In France, Germany, and other European countries, physicians are **OBLIGATED** to provide aid when requested by crew



RESOURCES AVAILABLE



# Physical Resources

- First Aid Kit
- Emergency Medical Kit
- Universal Precautions Kit



# First Aid Kit

- Bandages
- Compresses
- Antiseptic swabs
- Arm/leg splints
- Tape/scissors

# Emergency Medical Kit

## *Medications*

- [Aspirin](#) tablets: 325 mg
- Antihistamine ([diphenhydramine](#)) tablets: 25 mg
- Antihistamine ([diphenhydramine](#)), 50 mg injectable single dose
- [Atropine](#): 0.5 mg, single 5 mL
- Dextrose 50 percent/50 mL injectable
- [Epinephrine](#) 1:1,000 (for IM injection)
- [Epinephrine](#) 1:10,000, 2 mL injectable
- Inhaled bronchodilator (metered dose or equivalent)
- [Lidocaine](#): 5 mL, 20 mg/mL
- Nitroglycerine tablets: 0.4 mg
- Non-narcotic analgesic
- Saline solution, 500 mL
- Instructions for medications

## *Equipment*

- Automated external defibrillator
- Sphygmomanometer
- Stethoscope
- Oropharyngeal airways
- Latex gloves or equivalent
- Syringes
- Needles
- IV administration kit with tubing and connectors
- Self-inflating manual resuscitation device (AMBU bag) with masks (three sizes)
- Cardiopulmonary resuscitation (CPR) masks (three sizes)



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# Special Equipment

- Pediatric patients – pediatric size oral airway, CPR mask, BVM
- Infant size not required
- OB emergencies – no specific equipment included, including bulb suction, clamps, or scalpel

# Personnel Resources

- Crew!



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- *CPR and AED training required every 12-24 months*

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- Passengers!

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- Passengers!
  - *Can be trained in CPR/BLS*
  - ***PASSENGER PHARMACY!***

The Most Important Resource...

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# LIMITATIONS



What are the challenges?

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- SPACE!

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# What are the challenges?

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- Limited medications



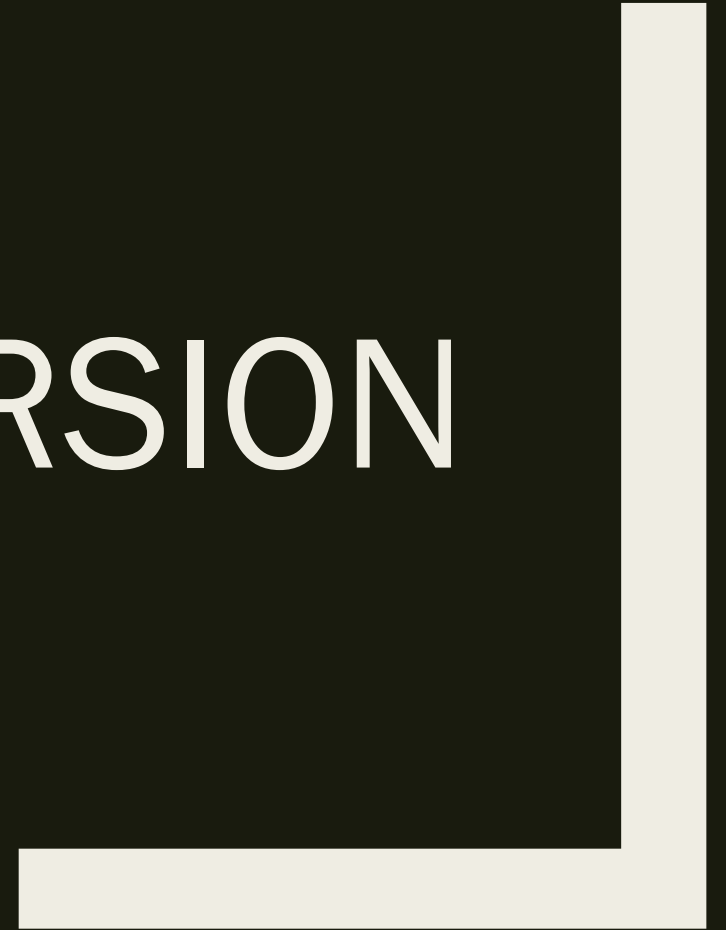
# What are the challenges?

- SPACE!
- Limited equipment
- Limited medications
- Limited assistance

# What are the challenges?

- SPACE!
- Limited equipment
- Limited medications
- Limited assistance
- ...ummm, this is NOT what I was trained for!

DIVERSION



# Who makes the call?

- You may SUGGEST diversion
  - *Range from 6-8% of flights requiring assistance from ground-based medical services*

# Who makes the call?

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- If possible, talk with ground physician
  - *They may take responsibility for decision*

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- If possible, talk with ground physician
  - *They may take responsibility for decision*
- The final decision is always made by the PILOT

# Reasons for Diversion

- One requiring immediate or urgent treatment
  - *Acute MI, acute decompensated CHF, acute respiratory failure, acute CVA*

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- **Unconscious patient**

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- One requiring immediate or urgent treatment
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- Cardiac or respiratory arrest
- Hypotension or severe hypertension – ongoing
- Unconscious patient
- **OB emergency!**

# SUMMARY APPROACH



# How to Approach the Situation

- Introduce yourself and your qualifications
  - *Provide documentation if necessary*

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- **Administer treatment....within YOUR SCOPE**

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- **Communicate and coordinate with ground-based medical resources**

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- **Recommend diversion if necessary**

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  - *Provide documentation if necessary*
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- Request access to the medical kit/other resources
- Take a FOCUSED history, perform FOCUSED physical exam
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- Communicate and coordinate with ground-based medical resources
- Recommend diversion if necessary
- Continue to provide care until the patient is stabilized OR you transfer care to another provider (higher level of care)

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- Document the encounter

CASES



# Case #1 – Difficulty Breathing

- The patient is an 8yoM traveling with his parents and younger sister. They were visiting Disney and are now returning home to Colorado.

# Important Questions to Ask

- How long has this been going on?
- PMH/immunizations?
- h/o intubations? h/o hospitalizations?
- Triggers?
- What medications is the pt on?



# Focused Physical Exam

- Vital signs
- Observed work of breathing/cyanosis
- Tugging? Retractions?
- Dehydration?
  - *Mucous membranes? Turgor?*

# Resources Needed

- BP cuff, pulse ox
- Oxygen
- +/- PIV access

# Limitations – specific to this case

- No nebulizer machine
- Unable to auscultate
- No access to imaging

# Interventions

- Oxygen
- Albuterol – inhaler vs nebulizer
- Steroids
- +/- IVF

# Diversion?

- No, pending medications are available – can wait and reassess

# Case #2 – Pregnant abdominal pain

- The patient is a 34yoF with a visibly pregnant abdomen who appears to be in pain

# Important Questions to Ask

- Gestational age
- Gravida/Parity
- Prenatal history/PMH
- Vaginal bleeding/LOF
- Timing of contractions

# Focused Physical Exam

- Vital signs
- Abdominal exam
- Portable US?
- Vaginal exam



# Resources Needed

- BP cuff/O2 sat/HR monitor
- Sterile gloves
- Makeshift clamp
- Scalpel
- PIV access

# Limitations – specific to this case

- Space
- Lack of training!
- No neonatal resources included in medical kit
- Lack of clean underwear for providers

# Interventions

- PIV placement
- Magnesium if available
- Don't drop the baby!
- Attempt at neonatal resuscitation if necessary

Diversion?

■ YES!!!

# Case #3 – Syncope

- You are called for an unresponsive patient, approx. 60sM in first class. You see him lying supine in the aisle with a flight attendant trying to put a pillow under his head. His wife is sobbing in the seat next to where he is lying. As you kneel down to the patient, he begins to wake up.

# Important Questions to Ask

- Events leading up to episode?
- Symptoms prior to episode?
- h/o syncope? h/o CAD? h/o arrhythmia?
- allergies

# Focused Physical Exam

- Vital signs!
- Rhythm on monitor, if available
- Pulses
- Neck/back exam

# Resources Needed

- Vital sign monitoring
- Cardiac monitor/AED pads
- PIV access



# Limitations – specific to this case

- Space
- Cardiac monitoring
- Cardiac exam
- No 12-lead EKG

# Interventions

- Monitor vital signs
- Accucheck
- PIV access/IVF bolus
- Cardiac rhythm strip, if available
- Close monitoring

# Diversion?

- Not necessarily

# Case #4 –SOB

- The patient is a 17yoM who appears to have difficulty breathing and is sitting in a tripod position. He is also with his father – his father is providing most of the history because the patient is having difficulty answering questions 2/2 his respiratory status. It is approximately one hour into the flight

# Important Questions to Ask

- HPI
- PMH – has this ever happened before?
- Allergies?
- Family history of similar events?

# Focused Physical Exam

- Vital signs
- Distal pulses
- Observed work of breathing
- Tracheal deviation

# Resources Needed

- Vital sign monitoring
- Oxygen
- PIV access
- Imaging of chest?
- Needle/syringe

# Limitations – specific to this case

- Space
- Lack of chest imaging
- Need for cardiac monitoring
- Advanced airway
- Chest tube



# Interventions

- Vital sign monitoring
- Oxygen
- PIV access, IVF bolus
- Needle thoracostomy
- Can rig syringe to continually decompress

# Diversion?

- YES!



THANK YOU!  
QUESTIONS?

References upon request