

The ICU Coding Team and ACLS Modifications

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Disclosure: Nothing to disclose.



Objectives



Discuss	Discuss the multiteam resuscitation orchestration of a successful code execution in the ICU
Review	Review ACLS modifications in resuscitation of an obstetric cardiac arrest
Discuss	Discuss the most important interventions in improving survivability for an obstetric cardiac arrest

Ideal ICU Team

General Code
Team

OBSTETRICS OR
a provider
that can
perform a
stat c/s: ER
or Surgeon

Emergency
anesthesiolog
y

ICU services

Neonatal team

KNOW WHERE
your facility
houses
ectopic
obstetric
patients

Responder	Action Steps
1 st Airway	<ul style="list-style-type: none">• ABCs• Calls for Help• Notes time of arrest, anesthesia arrival• Assists with intubation (cricoid pressure, O2, suction...)
2 nd Chest Compressions	<ul style="list-style-type: none">• Bed down• Uterus displacement• Backboard placement• Compressions: 30:2
3 rd Defibrillator	<ul style="list-style-type: none">• Brings crash cart• Prepares and operates defibrillator• Removes External Fetal Monitoring belts• Detaches leads

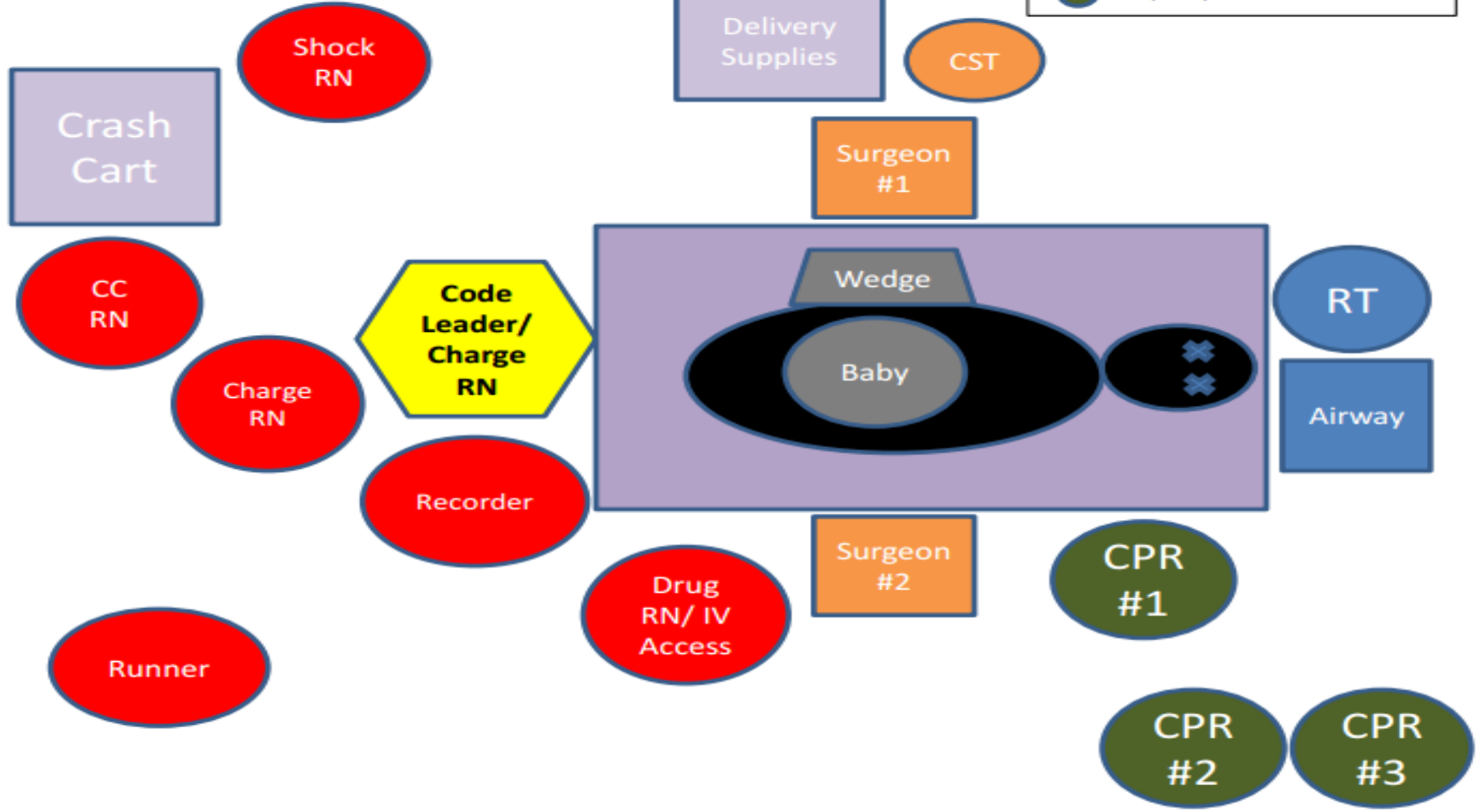
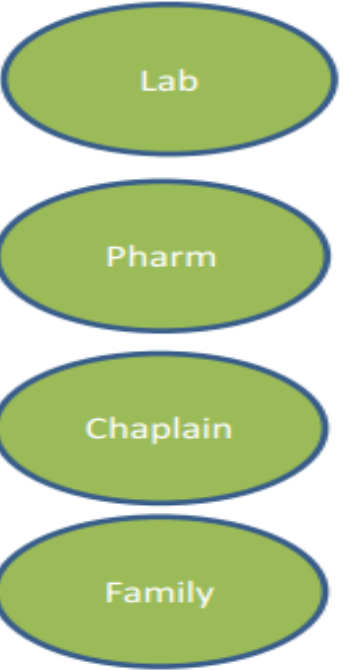
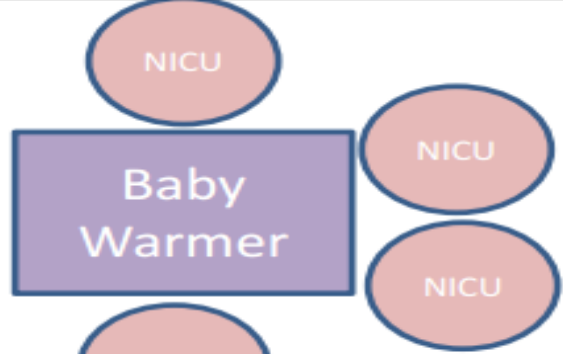
Responder	Action Steps
4th Vascular access	<ul style="list-style-type: none">• Initiate IV (above diaphragm)• Place monitor leads• Get crash cart• Secures drug box• Prepares medications
5 th Recorder	<ul style="list-style-type: none">• Provides SBAR• Records: times, treatments, team member names
6 th Runner	<ul style="list-style-type: none">• Access the patient chart if not in use by recorder• Secures special equipment for C/S if not in room• Secures extra code drug box

Responder	Action Steps
Team Leader	<ul style="list-style-type: none"> • Assigns tasks • Assesses rhythms • Orders meds • Evaluates treatments • Updates team on patient status • Coaches team • May perform perimortem C/S or work with provider
Health Unit Coordinator	<ul style="list-style-type: none"> • Calls Code • Notify other teams: OB, Anesthesia, ICU, NICU, ECMO • Notify blood bank if MTP will be needed • Coordinates with lab, radiology, and pharmacy
Extra Runners	<ul style="list-style-type: none"> • Assist family; call security if needed • Run for blood • Secure additional equipment • Back up communication

Maternal Code Diagram

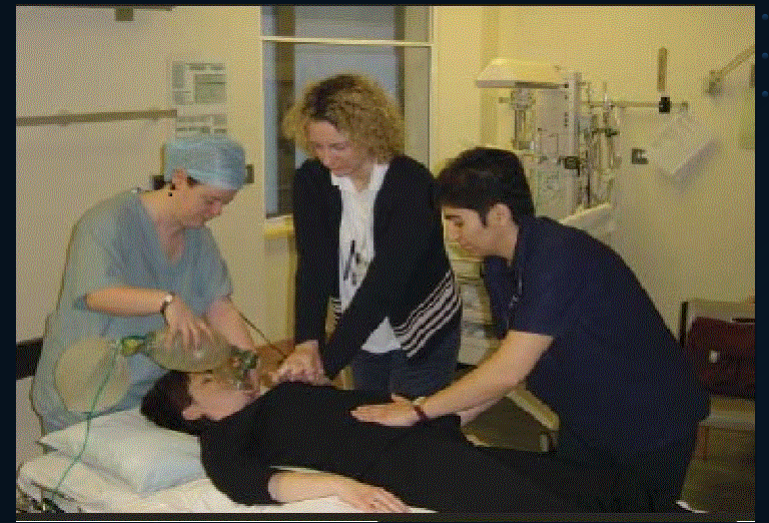
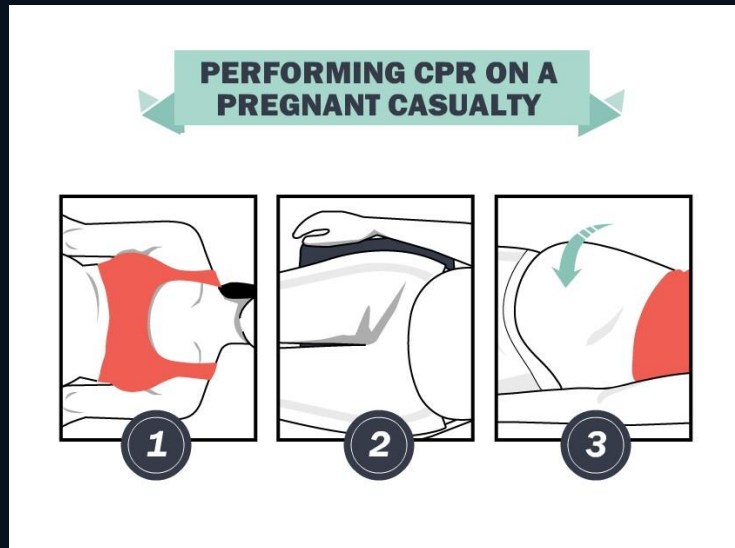
Legend

- RNs
- Respiratory/Anesthesia
- NICU Team
- Obstetrical Team
- RNs, PCT, Med Students



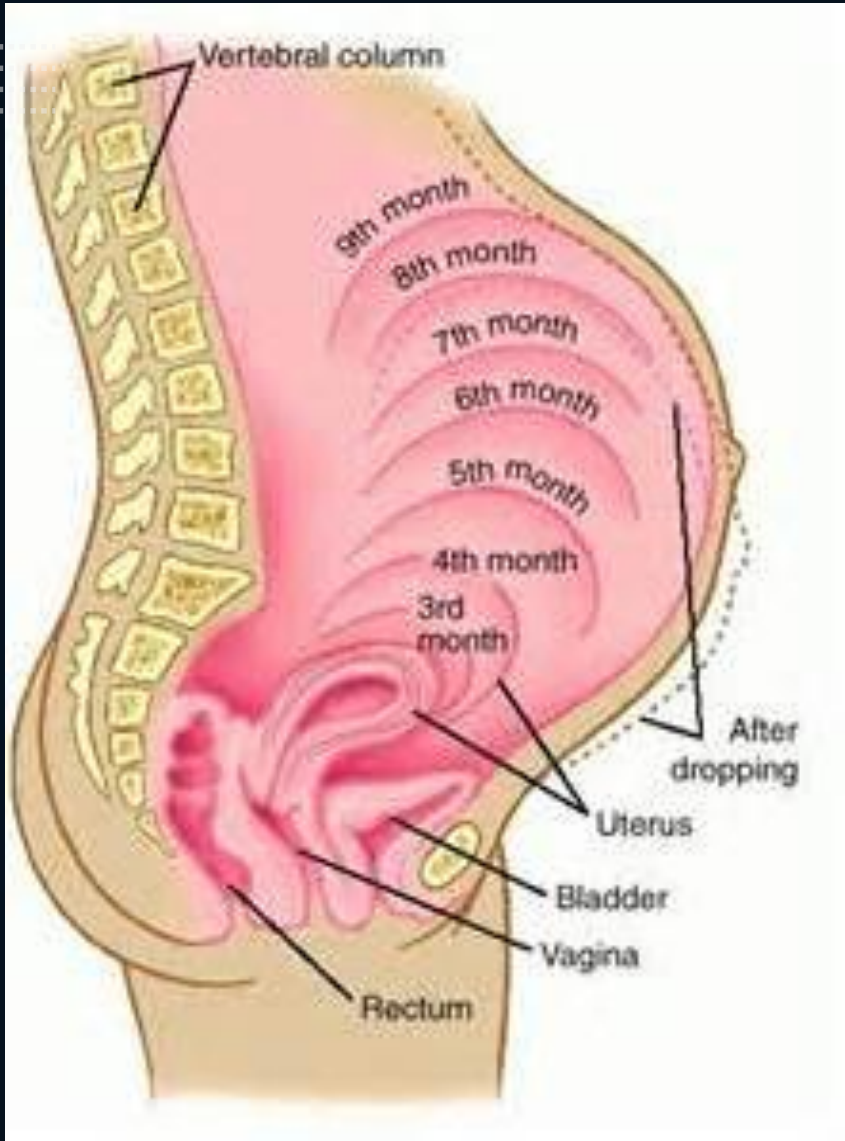
ACLS Modifications

- Breathing: No modifications
- **Circulation:**
 - Place woman on her left side with back angled to 15 or 30 degrees from the lateral position, then start chest compressions
 - OR
 - Place a wedge under the woman's right side (tilting her to her left side) OR
 - Have one rescuer kneel next to the woman's left side and pull the gravid uterus laterally to relieve the pressure on the inferior vena cava
- Defibrillation:
 - No modification in dose or pad placement
 - No significant current transfer to the fetus
 - **REMOVE ANY FETAL OR UTERINE MONITORS**



Compression S

- Left Lateral Decubitus Position "LEFT TILT"
 - Back angled to 15 or 30 degrees from the lateral position
 - OR
 - Place a wedge under the woman's right side
 - tilting her to her left side
 - OR
 - Have one rescuer kneel next to the woman's left side and pull the gravid



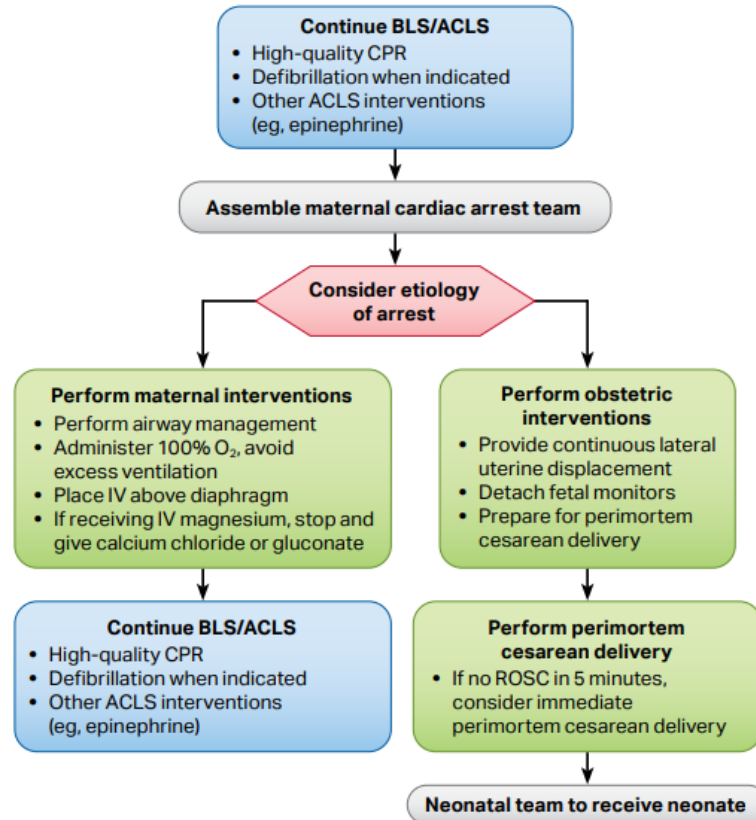
Chest Compressions

- Higher hand placement may be needed
- Depends on how much displacement is due to the gravid uterus

THE FIVE MINUTE RULE

- The most important intervention during CPR in a patient with a late pregnancy is CESAREAN DELIVERY!
- Resuscitative c/s should be initiated within **4 min. of arrest**
 - Relieves uterine compression and **improves venous return**
 - Allows for improved chest compression
- Fetal survival 70% if delivery accomplished within 5 min. of arrest
- Cases are reported of maternal survival after 25 to 30 minutes of CPR with return of circulation immediately after delivery
- CPR must be continued during and post delivery
- Uncertain benefit <24 weeks gestation
 - 20 weeks Recommended
 - Or equivalent
 - Mult-gestational
 - Oligohydramnios

Cardiac Arrest in Pregnancy In-Hospital ACLS Algorithm



Maternal Cardiac Arrest

- Team planning should be done in collaboration with the obstetric, neonatal, emergency, anesthesiology, intensive care, and cardiac arrest services.
- Priorities for pregnant women in cardiac arrest should include provision of high-quality CPR and relief of aortocaval compression with lateral uterine displacement.
- The goal of perimortem cesarean delivery is to improve maternal and fetal outcomes.
- Ideally, perform perimortem cesarean delivery in 5 minutes, depending on provider resources and skill sets.

Advanced Airway

- In pregnancy, a difficult airway is common. Use the most experienced provider.
- Provide endotracheal intubation or supraglottic advanced airway.
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.

Potential Etiology of Maternal Cardiac Arrest

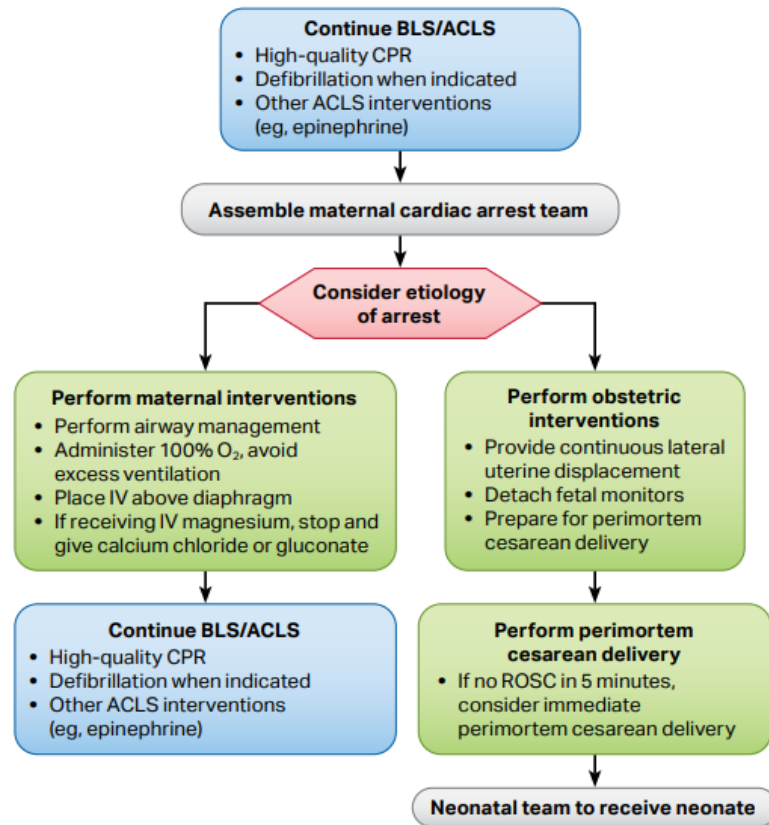
- A** Anesthetic complications
- B** Bleeding
- C** Cardiovascular
- D** Drugs
- E** Embolic
- F** Fever
- G** General nonobstetric causes of cardiac arrest (H's and T's)
- H** Hypertension

- Avoid Excessive Ventilation
- IV access above Diaphragm
- Stop magnesium → Calcium Chloride or gluconate

Perform maternal interventions

- Perform airway management
- Administer 100% O₂, avoid excess ventilation
- Place IV above diaphragm
- If receiving IV magnesium, stop and give calcium chloride or gluconate

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