Applying ACLS and Pregnancy Modifications to Maternal Cardiac Arrest
A Team-based Approach

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Background
• Maternal cardiac arrest (MCA) is a rare but often fatal emergency.
• Obstetricians and perinatal nurses are often first responders to MCA events and have limited experience in management of primary cardiac arrest.
• Delivery of the fetus ≤20 weeks gestation in ≤5min is critical in cardiac arrest in pregnancy.
• Multidisciplinary simulations improve performance in catastrophe management.
• Few studies regarding MCA simulation education exist.

The Intervention
• 161 labor and delivery personnel completed a computer based training session (CBT) on ACLS pregnancy modifications. Pre and post tests were given to evaluate material retention.
• Video recorded MCA simulation scenarios were completed in teams of 6-9 over a 2 month period.
• A debriefing occurred after one video scenario allowing teams to implement video reviewed techniques in a second scenario.
• Times to key MCA response events (chest compressions/AED pad application, C-section incision, delivery of fetus) were compared before and after debriefings.

Aims
To improve retention of ACLS pregnancy modifications by demonstrating the skill set in a video recorded multidisciplinary simulation scenario after completing didactic computer based training (CBT).

Key times to MCA response events: chest compressions/AED pad application (≤2 min), C-section incision (≤4 min), delivery of fetus (≤5 min).

Results
• Post test scores for the CBT reflected statistically significant improvement in ACLS pregnancy modification knowledge (78% vs 92%, p=0.001).
• Teams demonstrated improvement in times to key MCA response events.
• Time to chest compressions/AED pad application, p=0.002, time to C-section incision, p=0.002, delivery of fetus, p=0.003.

Conclusions
• Timely initiation of ACLS pregnancy modifications is crucial to maternal survival in a MCA event.
• Didactic training and multidisciplinary simulation can improve recall and retention of ACLS cardiac arrest pregnancy modifications.
• Simulation can improve first responder communication and timely resuscitation in a MCA emergency.

References