FROM: **Lisa Gillespie, BSN. RN, CPN**
CTC Coordinator

Features NEW 2010 Guidelines EFFECTIVE

Methodist Community Training Center
Centered on Saving Lives

RE: **ACLS Initial Provider Course**

LOCATION: **Morron Room,**
Day One 8:00am-4:00pm, Day Two 8:30am-1pm

PREREQUISITE: Please bring a copy of your card indicating BLS course completion to class **if you did not take your last BLS course at Methodist.**

The Initial Provider course is designed to provide a flexible and patient-focused approach for treating selected emergency situations. Teaching in this course focuses on group interaction with some straight lecture. Each station provides case scenarios focusing on critical points related to a specific algorithm and opportunity for hands-on skill learning. At the end of the course you will be expected to perform competency through written and skill evaluations.

At least 2 weeks prior to the course, you will need to pick up the following materials from your department educator or manager to begin your preparation:

- You need to utilize the newest ACLS Provider Manual that is available from Tina Fischer, CICA Secretary located on 4W/GO in the MMCI Community Training Center office. Call 672-5648 to reserve a loaner copy. **[MMCI Staff: Loaner books are available on the following units though dept educators: CVICU, ICU, Surgery, 5C, Respiratory Care and Family Practice (Kimmi Walker).]**
- The loaner textbook must be returned the day of the class to the course director.
- **A pre-course self-assessment test covering EKG, pharmacology and treatments should be completed.** BLS is a required competency station and all participants will need to demonstrate one person rescue for two minutes. If you need refresher information, BLS study materials may be obtained at the same link with ACLS materials but under CPR section for you to print off for your review. The new 2010 Guidelines comparison to the 2005 Guidelines for BLS chart is included in this handout.
- ***Please bring all course materials to class with you***

Successful completion of this ACLS Initial Provider Course is contingent upon the following:

- A minimum score of 84% on the newest Final Written Exam, consisting of 50 questions (includes EKG strips for identification)
- Competence in the performance skills within all 10 education case stations
- Competence in the performance as a team leader in the Mega-Code simulation.

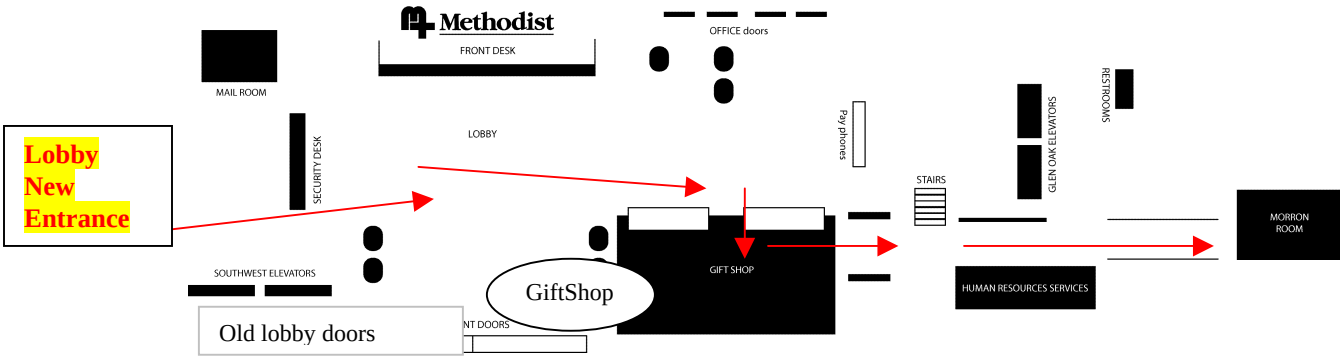
For the maximum benefit and the greatest success in this course, participants should be well prepared for the first day of class.

If you have any questions, please contact me at 672-4216. I look forward to your participation in this course. **If you are unable to attend this course, you need to contact me immediately and return all course materials. 309-672-4216 (Community Training Center) or 309-672-5648 (CICA secretary).** Thank you for your attention to these details.

The American Heart Association strongly promotes knowledge and proficiency in ACLS and has developed instructional materials for this purpose. Use of these materials in an educational course does not represent course sponsorship by the American Heart Association, and any fees charged for such a course does not represent income to the Association

Classroom directions:

Directions to Morron Room



Please enter through front doors of the Hospital Lobby (first floor off Hamilton Blvd):
Follow hallway past the Gift Shop, Stairwell,
& Bathrooms then go up the ramp into the Morron Room.

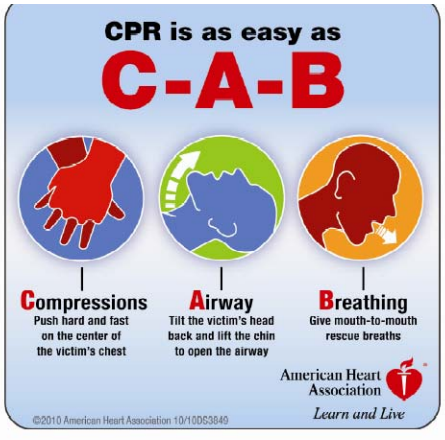
AHA has created a NEW student portal on a website for all participants to log into and review and test. At the end of the online course you will be able to print out your test results.
You will not be able to take a paper form of the PRE- TEST
but the nice thing is you can access this from any computer anywhere.
<u>You will take a paper test at the end of the classroom course for final competency.</u>

Log into Student Resource website: www.heart.org/eccstudent
and *enter this code*: compression.

Figure 1
AHA ECC Adult Chain of Survival

The links in the new AHA ECC Adult Chain of Survival are as follows:

1. Immediate **recognition** of cardiac arrest and **activation** of the emergency response system
2. Early **CPR** with an emphasis on chest compressions
3. Rapid **defibrillation**
4. Effective **advanced life support**
5. Integrated **post–cardiac arrest care**



ACLS Provider Manual
Comparison Sheet
Based on *2010 AHA Guidelines for CPR and ECC*

American Heart Association
GUIDELINES CPR ECC 2010

BLS Changes			
	New	**Old**	**Rationale**
CPR	Chest compressions, Airway, Breathing (C-A-B) New science indicates the following order: 1. Check the patient for responsiveness and no breathing. 2. Call for help and get the AED 3. Check the pulse. 4. Give 30 compressions. 5. Open the airway and give 2 breaths. 6. Resume compressions.	Airway, Breathing, Chest compressions (A-B-C) Previously, after responsiveness was assessed, a call for help was made, the airway was opened, the patient was checked for breathing, and 2 breaths were given, followed by a pulse check and compressions.	Although ventilations are an important part of resuscitation, evidence shows that compressions are the critical element in adult resuscitation. In the A-B-C sequence, compressions are often delayed.
	Compressions should be initiated within 10 seconds of recognition of the arrest.	Compressions were to be given after airway and breathing were assessed, ventilations were given, and pulses were checked.	Although ventilations are an important part of resuscitation, evidence shows that compressions are the critical element in adult resuscitation. Compressions are often delayed while providers open the airway and deliver breaths.
	Compressions should be given at a rate of at least 100/min. Each set of 30 compressions should take approximately 18 seconds or less.	Compressions were to be given at a rate of about 100/min. Each cycle of 30 compressions was to be completed in 23 seconds or less.	Faster compressions are required to generate the pressures necessary to perfuse the coronary and cerebral arteries.
	Compression depths are as follows: • Adults: **at least** 2 inches (5 cm) • Children: **at least** one third the depth of the chest, approximately 2 inches (5 cm) • Infants: **at least** one third the depth of the chest, approximately 1½ inches (4 cm)	Compression depths were as follows: • Adults: 1½ to 2 inches • Children: one third to one half the diameter of the chest • Infants: one third to one half the diameter of the chest	Deeper compressions are required to generate the pressures necessary to perfuse the coronary and cerebral arteries.

	Once circulation is restored, arterial oxyhemoglobin saturation should be monitored. It may be reasonable, when the appropriate equipment is available, to titrate oxygen administration to maintain the arterial oxyhemoglobin saturation ≥94%.	No specific information about weaning the patient off supplementary oxygen was provided.	In effect, the oxyhemoglobin saturation should be maintained at 94% to 99% when possible. Although the ACLS Task Force of the 2010 International Consensus on CPR and ECC Science With Treatment Recommendations did not find sufficient evidence to recommend a specific weaning protocol, a recent study documented harmful effects of hyperoxia after ROSC.
	Supplementary oxygen is not needed for patients without evidence of respiratory distress or when oxyhemoglobin saturation is ≥94%.	Oxygen was recommended for all patients with overt pulmonary edema or arterial oxyhemoglobin saturation <90%. It was also reasonable to administer oxygen to all patients with ACS for the first 6 hours of therapy.	Emergency medical services providers administer oxygen during the initial assessment of patients with suspected ACS. However, there is insufficient evidence to support its routine use in uncomplicated ACS. If the patient is dyspneic, is hypoxemic, or has obvious signs of heart failure, providers should titrate oxygen therapy to maintain oxyhemoglobin saturation ≥94%.
Pharma-cology	Atropine is not recommended for routine use in the management of PEA/asystole and has been removed from the ACLS Cardiac Arrest Algorithm. The treatment of PEA/asystole is now consistent in the ACLS and pediatric advanced life support recommendations and algorithms.	Atropine was included in the ACLS Pulseless Arrest Algorithm: for a patient in asystole or slow PEA, atropine could be considered.	There are several important changes regarding the management of symptomatic arrhythmias in adults. Available evidence suggests that the routine use of atropine during PEA or asystole is unlikely to have a therapeutic benefit. For this reason, atropine has been removed from the Cardiac Arrest Algorithm.
	Adenosine is recommended in the initial diagnosis of stable, undifferentiated, regular, monomorphic, wide-complex tachycardia. It should not be used if the pattern is irregular.	In the Tachycardia Algorithm, adenosine was recommended only for suspected regular, narrow-complex reentry supraventricular tachycardia.	On the basis of new evidence of safety and potential efficacy, adenosine can now be considered in the initial assessment and treatment of undifferentiated regular, monomorphic, wide-complex tachycardia when the rhythm is regular.
	For the treatment of adults with symptomatic and unstable bradycardia, chronotropic drug infusions are recommended as an alternative to pacing.	In the Bradycardia Algorithm, chronotropic drug infusions were listed in the algorithm after atropine and while awaiting a pacer or if pacing was ineffective.	For symptomatic or unstable bradycardia, intravenous infusion of chronotropic agents is now recommended as an equally effective alternative to external transcutaneous pacing when atropine is ineffective.
	Morphine should be given with caution to patients with unstable angina.	Morphine was the analgesic of choice for pain unresponsive to nitrates, but it was not recommended for use in patients with	Morphine is indicated in STEMI when chest discomfort is unresponsive to nitrates. Morphine should be used with caution in

		possible hypovolemia.	unstable angina/non-STEMI, because morphine administration was associated with increased mortality in a large registry.
Defibrillation	The recommended initial biphasic energy dose for cardioversion of atrial fibrillation is 120 to 200 J. The initial monophasic dose for cardioversion of atrial fibrillation is 200 J. Cardioversion of adult atrial flutter and other supraventricular rhythms generally requires less energy; an initial energy of 50 to 100 J with either a monophasic or a biphasic device is often sufficient. If the initial cardioversion shock fails, providers should increase the dose in a stepwise fashion.	The recommended initial monophasic energy dose for cardioversion of atrial fibrillation was 100 to 200 J. Cardioversion with biphasic waveforms was available, but the optimal doses for cardioversion with biphasic waveforms had not been established with certainty. Extrapolation from published experience with elective cardioversion of atrial fibrillation with the use of rectilinear and truncated exponential waveforms supported an initial dose of 100 to 120 J with escalation as needed. This initial dose has been shown to be 80% to 85% effective in terminating atrial fibrillation. Until further evidence becomes available, this information can be used to extrapolate biphasic cardioversion doses to other tachyarrhythmias.	The writing group reviewed interim data on all biphasic studies conducted since the *2005 AHA Guidelines for CPR and ECC* were published and made minor changes to update cardioversion dose recommendations. A number of studies attest to the efficacy of biphasic waveform cardioversion of atrial fibrillation with energy settings from 120 to 200 J, depending on the specific waveform.
	Adult stable monomorphic VT responds well to monophasic or biphasic waveform cardioversion (synchronized) shocks at initial energies of 100 J. If there is no response to the first shock, it may be reasonable to increase the dose in a stepwise fashion. No interim studies were found that addressed this rhythm, so the recommendations were made by writing group expert consensus.	There was insufficient evidence to recommend a biphasic dose for cardioversion of monomorphic VT. The *2005 AHA Guidelines for CPR and ECC* recommended use of an unsynchronized shock for treatment of the unstable patient with polymorphic VT.	The writing group agreed that it would be helpful to add a biphasic dose recommendation to the *2010 AHA Guidelines for CPR and ECC* for cardioversion of monomorphic VT but wanted to emphasize the need to treat polymorphic VT as unstable and as an arrest rhythm.

Algorithm Update	The conventional ACLS Cardiac Arrest Algorithm has been simplified and streamlined to emphasize the importance of high-quality CPR (including providing compressions of adequate rate and depth, allowing complete chest recoil after each compression, minimizing interruptions in chest compressions, and avoiding excessive ventilation) and the fact that ACLS actions should be organized around uninterrupted periods of CPR. A new circular algorithm has also been introduced.	The same priorities were cited in the *2005 AHA Guidelines for CPR and ECC*. The box-and-arrow algorithm listed key actions performed during the resuscitation in a sequential fashion.	For the treatment of cardiac arrest, ACLS interventions build on the BLS foundation of high-quality CPR to increase the likelihood of ROSC. Before 2005, ACLS courses assumed that excellent CPR was provided, and they focused mainly on added interventions of manual defibrillation, drug therapy, and advanced airway management, as well as alternative and additional management options for special resuscitation situations. Although adjunctive drug therapy and advanced airway management are still part of ACLS, in 2005 the emphasis in advanced life support returned to the basics, with an increased emphasis on what is known to work: high-quality CPR (providing compressions of adequate rate and depth, allowing complete chest recoil after each compression, minimizing interruptions in chest compressions, and avoiding excessive ventilation). The *2010 AHA Guidelines for CPR and ECC* continue this emphasis. The *2010 AHA Guidelines for CPR and ECC* note that ideally CPR is guided by physiologic monitoring and includes adequate oxygenation and early defibrillation while the ACLS provider assesses and treats possible underlying causes of the arrest. There is no definitive clinical evidence that early intubation or drug therapy improves neurologically intact survival to hospital discharge.

Highlights of the 2010 American Heart Association

Guidelines for CPR & ECC

American Heart Association. GUIDELINES CPR ECC 2010

Summary of Key BLS Components for Adults, Children, and Infants*

	Recommendations		
Component	**Adults**	**Children**	**Infants**
Recognition	Unresponsive (for all ages)		
	No breathing or no normal breathing (ie, only gasping)	No breathing or only gasping	
	No pulse palpated within 10 seconds for all ages (HCP only)		
CPR sequence	C-A-B		
Compression rate	At least 100/min		
Compression depth	At least 2 inches (5 cm)	At least ⅓ AP diameter About 2 inches (5 cm)	At least ⅓ AP diameter About 1½ inches (4 cm)
Chest wall recoil	Allow complete recoil between compressions HCPs rotate compressors every 2 minutes		
Compression interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds		
Airway	Head tilt–chin lift (HCP suspected trauma: jaw thrust)		
Compression-to-ventilation ratio (until advanced airway placed)	30:2 1 or 2 rescuers	30:2 Single rescuer 15:2 2 HCP rescuers	
Ventilations: when rescuer untrained or trained and not proficient	Compressions only		
Ventilations with advanced airway (HCP)	1 breath every 6-8 seconds (8-10 breaths/min) Asynchronous with chest compressions About 1 second per breath Visible chest rise		
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock; resume CPR beginning with compressions immediately after each shock.		

Abbreviations: AED, automated external defibrillator; AP, anterior-posterior; CPR, cardiopulmonary resuscitation; HCP, healthcare provider.
*Excluding the newly born, in whom the etiology of an arrest is nearly always asphyxial.

TEAMWORK CONCEPTS:

It is important that team members provide valuable feedback to team members during the rescue event even in a CPR Situation. Teamwork is valuable when attempting to secure scene safety first and foremost.

1. Upon arrival verbalizing your role, skill or ability then asks "how you may be of assistance" to the team during that rescue is also important.
2. Members must remember to always verbalize out loud what phase of the sequence they are doing so upon arrival to the scene it is very evident to all members where to properly assist the rescuer or rest of the team. Communication must have a closed loop system in order for teamwork to be effective and produce good patient outcomes.
3. During a two rescuer event it is expected that team members deliver feedback to each other to be able to ensure proper CPR compressions and ventilations are being delivered.
    - The rescuer delivering the breaths will monitor the "Pulse" to determine how strong the signal is from the generated pulse. If it is too weak then gently communicate that to the rescuer performing the compression. They may need to adjust their hand placement or depth of compressions they are delivering.
    - The rescuer performing the compressions then gives verbal feedback if the chest is not inflating during the ventilation attempts (with or without an established airway).

Debriefing

Debriefing after the event is very important. Please take part in a group debriefing episode as soon as possible if you are part of the team providing care for a victim. This will ensure that accurate information has been obtained from the scene and documented correctly but also supportive of your thoughts and feelings surrounding the event. It also will be a way for the team to discover process improvement opportunities.

Should you need further help in discussing your feelings, we have a variety of resources available to staff members here at MMCI. The Community Training Center Coordinator also extends an open door for discussion surrounding any event where you may want to talk in a private setting.

We strongly suggest that you have a valid conversation with someone: Ie. Manager, Educator or Chaplain about your feelings/concerns surrounding the event. The Employee Assistance Program is always available to every MMCI employee through the Methodist Human Resource Office. If you are not a MMCI employee, you can also check with your own facility's Human Resource team or meet with a spiritual advisor/mentor for debriefing purposes.